

# PimaCommunityCollegeCatalog

PimaCountyCommunityCollegeDistrict



96/97



# Pima Community College Catalog 1996/97

Pima County Community College District

4905 East Broadway Blvd.

Tucson, AZ 85709-1010

(520) 748-4666

**RECEIVED**

**JUN 17 1996**

**Institutional  
Research Office**

## **Catalog replacement cost \$1.50**

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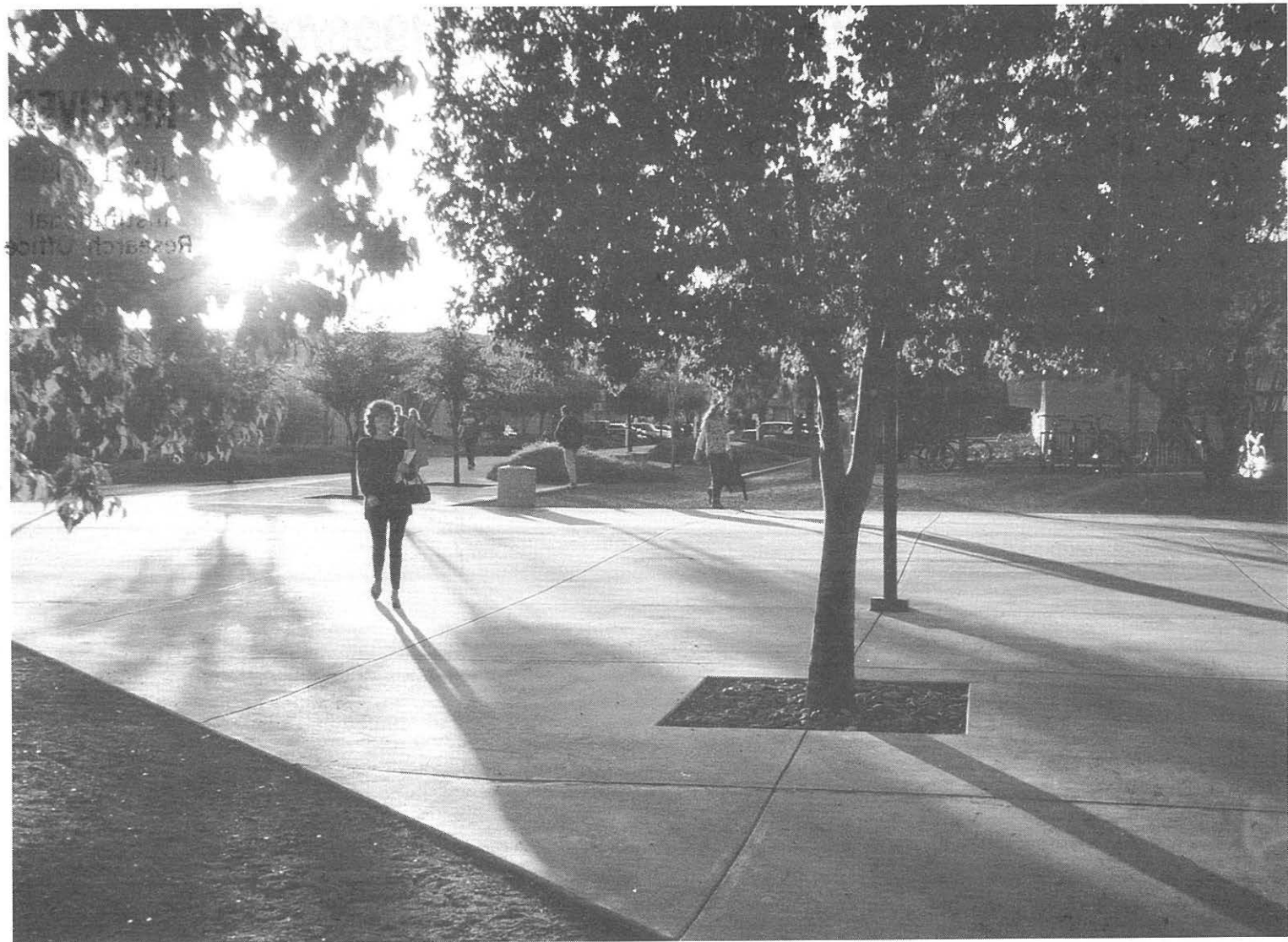
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**Pima Community College is an equal opportunity, affirmative action employer and educational institution committed to excellence through diversity.**

**See pages 20 and 432 for further information.**

Reasonable accommodations, including materials in an alternative format, will be made for individuals with disabilities when a minimum of five working days advance notice is given. For the general public, please contact the PCC information line at (520) 748-4500 (TTY 748-4530); for PCC students, contact the appropriate campus Disabled Student Resources Office.





## Message from the Chancellor

Dear Student:

All of us at Pima Community College are pleased that you are considering Pima to help you meet your education goals.

At Pima, students come first. Your success is our goal. We make that commitment to you.

Come to Pima if you want to

- obtain a degree or certificate
- gain technical skills
- update your knowledge
- explore a new career
- improve your business understanding
- get an edge on the competition
- get into the job market quickly
- explore the universe
- take courses for transfer to a four-year college or university

Pima can help you get there, but it's a joint responsibility.

The College provides resources and information, but you must take advantage of these opportunities and support services.

We provide excellent faculty and staff, small classes, affordable tuition, many locations, and more than 200 programs leading to a certificate or associate degree.

We also offer classes at convenient times: self-paced and weekend courses, day and evening classes, holiday and eight-week sessions, and telecourses.

But you must take the first step. Just call (520) 748-4500 and ask for help to get started--ask about academic advising and financial aid.

Classes start year round, so you can begin almost anytime.

You've made a good choice when you decide to invest in yourself. Learning is a lifelong experience and there are many benefits when you achieve your education goals. So let's get started!

Your education team at Pima wishes you well—you are the future and we believe in you.

Sincerely,



Dr. Robert Jensen  
Chancellor

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## Academic Calendar 1996/97

### Fall Semester 1996

New student orientation and registration	Jun. 17 - Aug. 15
Faculty advising begins	Aug. 19
Late registration (walk-in)	Aug. 19 - 22
All College in-service day	Aug. 23
<b>Fall classes start</b>	<b>Aug. 26</b>
Drop/add (traditional-length courses)	Aug. 26 - 30
Labor Day holiday (College closed)	Sep. 2
Graduation applications due	Oct. 1
Veterans Day holiday (College closed)	Nov. 11
Thanksgiving Day holiday (College closed)	Nov. 28 - Dec. 1
Evaluation/assessment/exam week	Dec. 12 - 18
<b>Fall semester ends</b>	<b>Dec. 18</b>
Final grades due	Dec. 18
Winter recess	Dec. 19 - Jan. 12

### Spring Semester 1997

New student orientation and registration	Nov. 12 - Dec. 12
Faculty advising begins	Jan. 13
Faculty development day	Jan. 17
Late registration (walk-in)	Jan. 13 - 16
Martin Luther King, Jr., holiday (College closed)	Jan. 20
<b>Spring classes start</b>	<b>Jan. 21</b>
Drop/add (traditional-length courses)	Jan. 21 - 27
Graduation applications due	Feb. 14
Rodeo Days holiday (College closed)	Feb. 20 - 21
Spring holiday	Mar. 17 - 23
Evaluation/assessment/exam week	May 14 - 20
<b>Spring semester ends</b>	<b>May 20</b>
Final grades due	May 20
Graduation	May 21

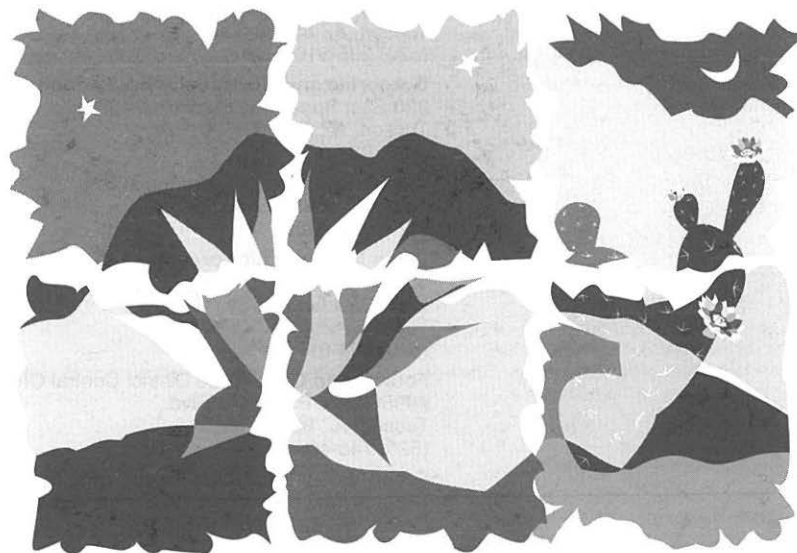
### Summer School 1997

<b>Session A</b>	
Memorial Day holiday (College closed)	May 26
<b>Classes begin</b>	<b>May 27</b>
Drop-add	May 27 - 28
<b>Classes end</b>	
5 weeks*	<b>Jun. 26</b>
<b>Session B</b>	
Independence Day holiday (College closed)	Jul. 4
<b>Classes begin</b>	<b>Jul. 7</b>
Drop/add	Jul. 7 - 8
<b>Classes end</b>	
5 weeks*	<b>Aug. 7</b>
<b>Session C</b>	
Memorial Day holiday (College closed)	May 26
<b>Classes begin</b>	<b>May 27</b>
Drop/add	May 27-28
Independence Day holiday (College closed)	Jul. 4
<b>Classes end</b>	
8 weeks*	<b>Jul. 17</b>
10 weeks**	<b>Jul. 31</b>

\* Standard length of session.

\*\* Optional choice for instructional departments as an alternative to the standard length of session.

# The College





# PimaCountyCommunityCollegeDistrict

## District Central Office

4905 East Broadway Blvd.  
Tucson, AZ 85709-1010  
(520) 748-4666

## Campuses

### Community Campus

1901 North Stone Ave. (Fall 1996)  
Tucson, AZ 85709-5000  
(520) 884-6586

401 North Bonita Ave. (Spring 1997)  
Tucson, AZ 85709-5000  
(520) 884-6586

### Desert Vista Campus

5901 South Calle Santa Cruz  
Tucson, AZ 85709-6000  
(520) 295-5000

### Downtown Campus

1255 North Stone Ave.  
Tucson, AZ 85709-3000  
(520) 884-6135

### East Campus

8181 East Irvington Rd.  
Tucson, AZ 85709-4000  
(520) 886-3331

### West Campus

2202 West Anklam Rd.  
Tucson, AZ 85709-0001  
(520) 884-6965

## Educational Centers and Offices

### Alumni Association (See District Central Office)

4905C East Broadway Blvd.  
Tucson, AZ 85709-1330  
(520) 748-4977

### Arizona State Environmental Technology

Training Center (ASETT) (See East Campus)  
8181 East Irvington Rd.  
Tucson, AZ 85709-4000  
(520) 722-7888

### Aviation Technology Center (See Downtown Campus)

1668 South Research Loop  
Tucson, AZ 85709-3085  
(520) 884-6186

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

2202 West Anklam Rd.  
Tucson, AZ 85709-0295  
(520) 884-6456

### Center for Training and Development (See Desert Vista Campus)

5901 South Calle Santa Cruz  
Tucson, AZ 85709-6300  
(520) 295-5100

### Corporate and Community Education (See Community Campus)

220 East Speedway Blvd. (Fall 1996)  
Tucson, AZ 85709-5500  
(520) 884-6468

401 North Bonita Ave. (Spring 1997)  
Tucson, AZ 85709-5500  
(520) 884-6468

### Davis Monthan Air Force Base (See Community Campus)

355 MSS/DPE  
5260 East Granite St.  
Tucson, AZ 85707-3009  
(520) 884-6174

### Foundation Office (See District Central Office)

4905C East Broadway Blvd.  
Tucson, AZ 85709-1320  
(520) 748-4646

### Green Valley Education Center (See Community Campus)

Green Valley Mall, South Courtyard, Suite 13  
Green Valley, AZ 85614-2629  
(520) 625-5063

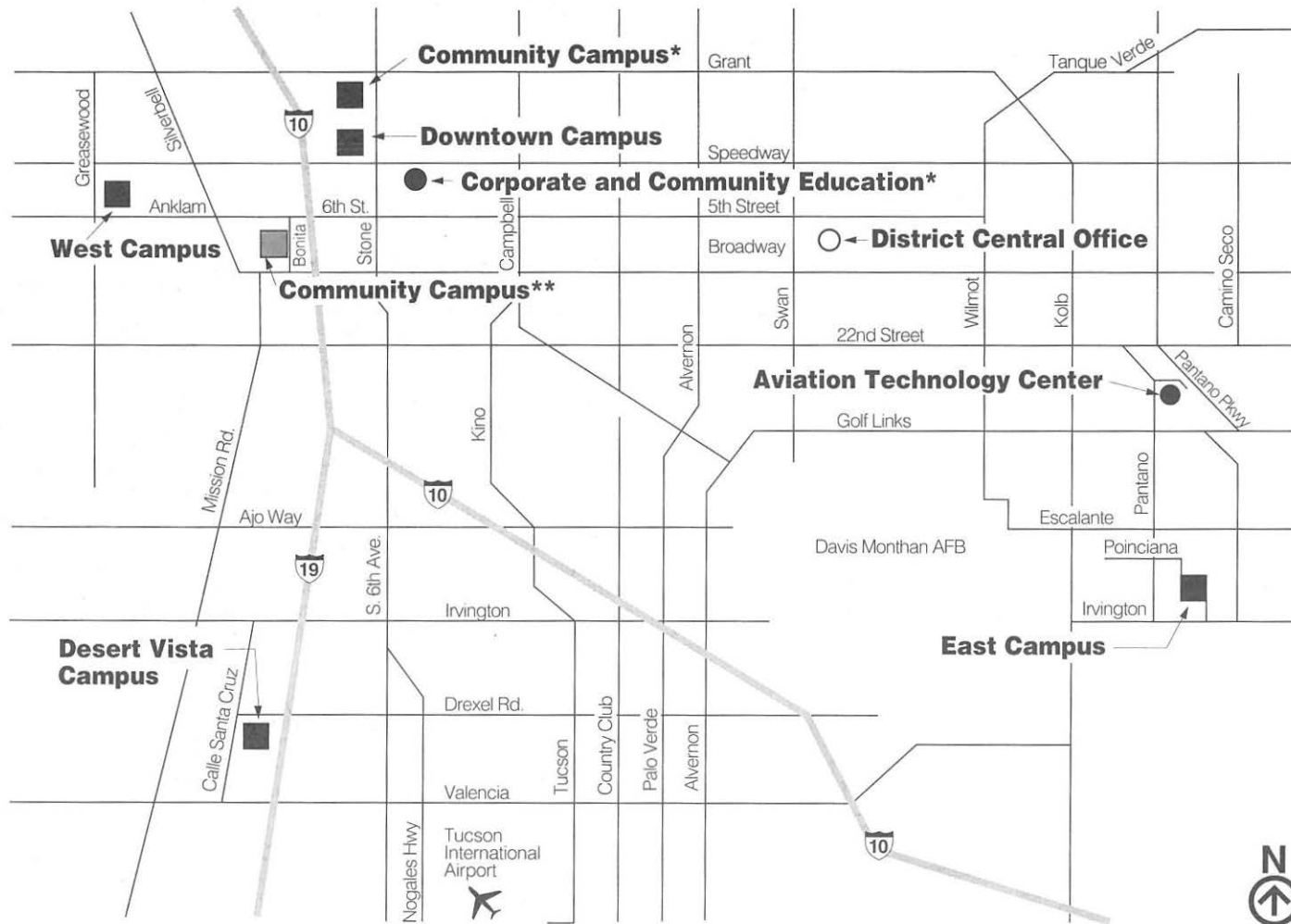
### Nogales/Santa Cruz Education Center (See Community Campus)

125 East Madison St.  
Nogales, AZ 85621  
(520) 884-6312 and (520) 287-5583

### Small Business Development & Training Center (See District Central Office)

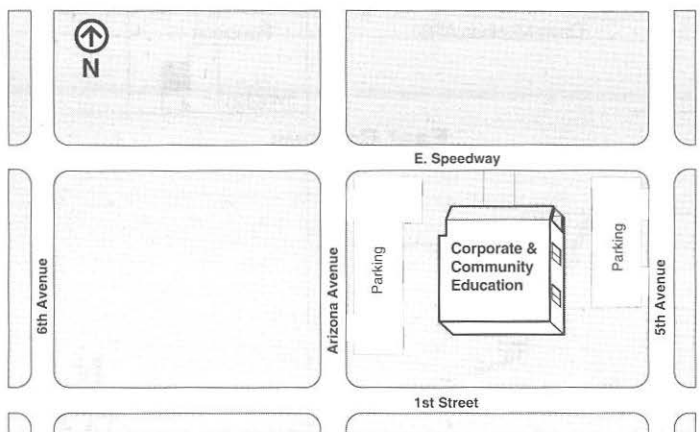
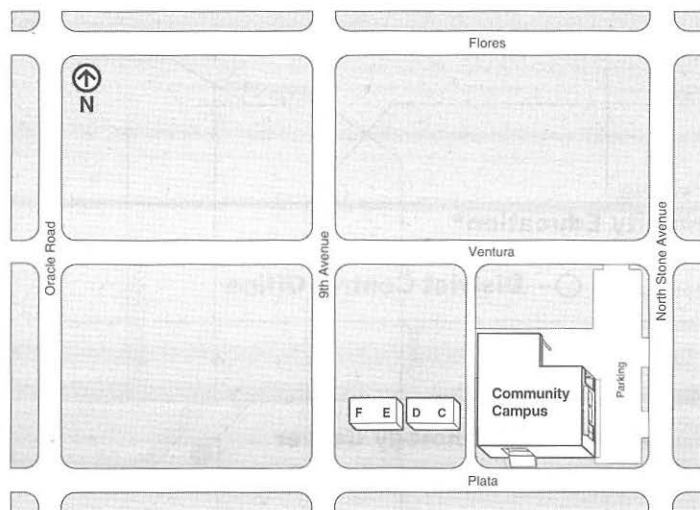
4905A East Broadway Blvd.  
Tucson, AZ 85709-1260  
(520) 748-4906

If you experience difficulty reaching any of the educational centers, offices, or campuses listed on this page, call (520) 748-4500 for assistance.



\* through Fall Semester 1996

\*\*new campus open Spring Semester 1997



## Community Campus

In partnership with other campuses, the Community Campus offers general education requirement, university transfer, and general interest classes. Integral parts of the campus are the alternate methods of delivering its educational services, including telecourses on cable television, short-term classes, and business and professional training.

Serving students since 1975, the Community Campus now holds classes in more than 220 facilities throughout the region. They are held in public schools, businesses, and neighborhood centers in Ajo, Green Valley, Marana, Nogales, Sells, and Tucson.

To meet the self-defined and educational needs of the community, Corporate and Community Education offers flexible and innovative programs and classes to approximately 22,000 persons annually. Major educational areas include customized training for the business and professional community, courses for senior education, general interest classes, and special ongoing projects for the community.

The Community Campus will move into its new facility at 401 North Bonita Ave. during the 1996/97 school year. This building will contain administrative offices, a Learning Resource Center, an Educational Service Center, and the Corporate and Community Education offices. There will be conference and training rooms also. These facilities are designed to support annually over 13,000 credit students and 26,000 noncredit participants.

The telecommunications wing will house the College's interactive classroom system hub, broadcast-quality production facilities, and the telecourse distribution center. Also in this area, the College has provided space for Northern Arizona University's interactive classroom and distribution control center for their distance learning operations in the southern part of the state.

### New Community Campus (open Spring Semester 1997)

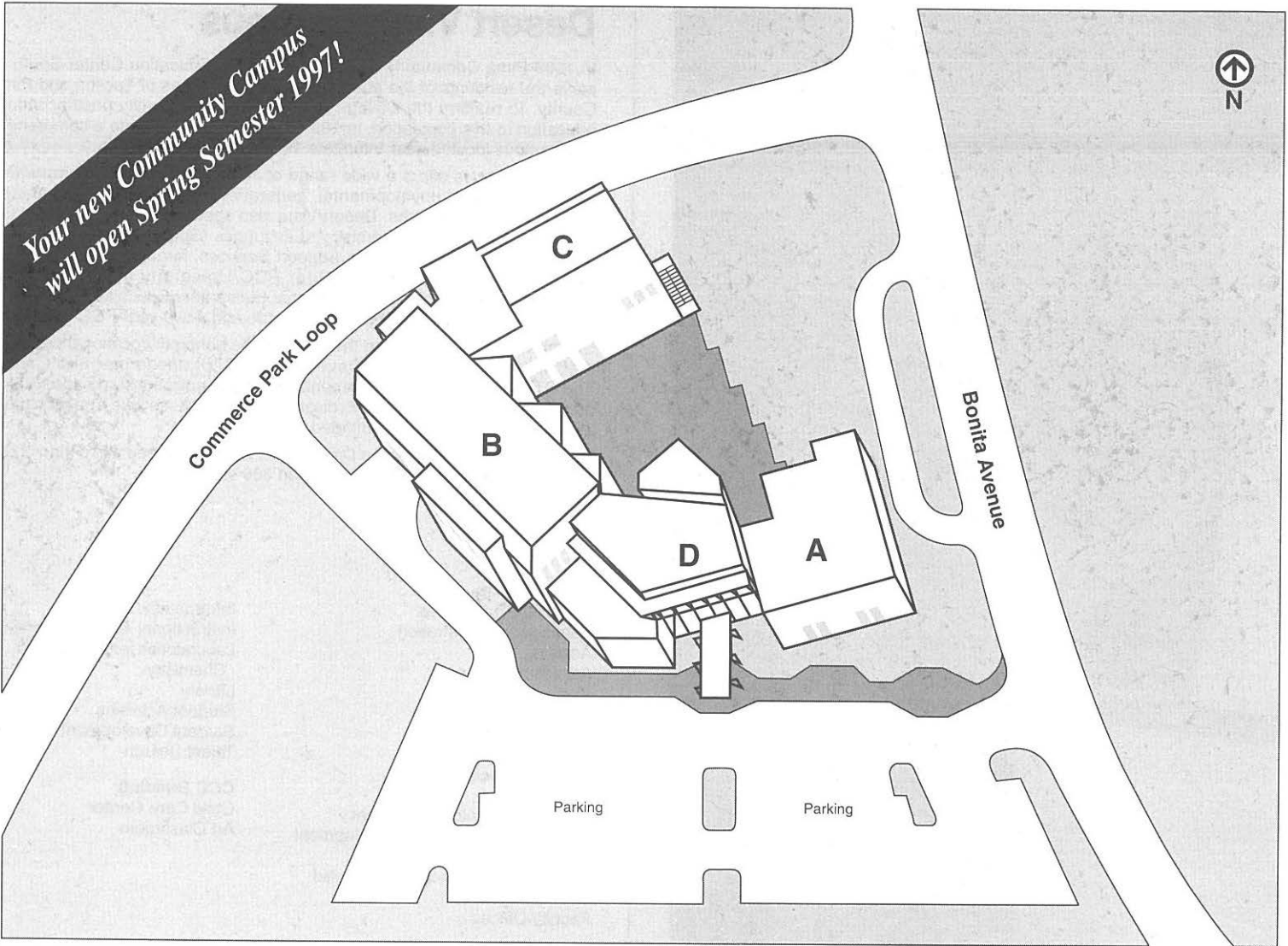
**Area A:**  
Corporate and Community  
Education Training Rooms

**Area B:**  
Administration  
Admissions/Registration  
Advising  
Assessments  
Business Services  
Career Counseling

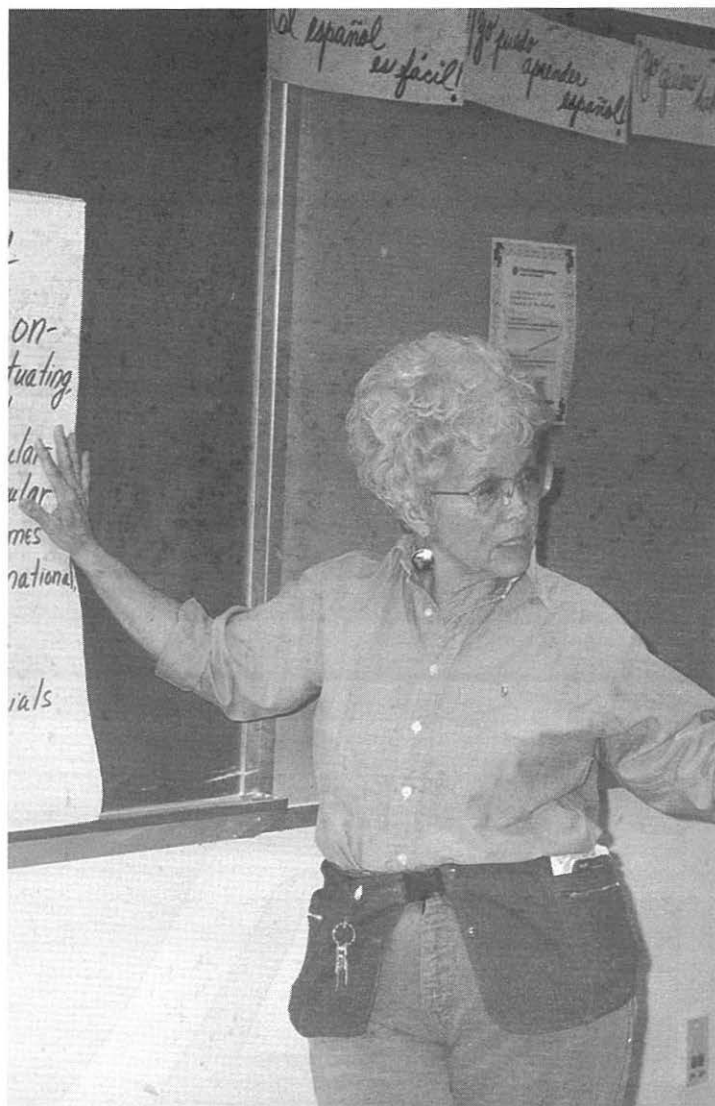
Cashier  
Computer Lab  
Instructional Support  
Student Development

**Area C:**  
NAU Classrooms  
Telecommunications and  
Production Services

**Area D:**  
Main Entrance







## 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. To reaffirm the College mission to provide quality postsecondary education to this population, in 1994 the center evolved into a comprehensive campus located near Interstate 19 and Valencia Road.

The new campus offers a wide range of courses, providing a comprehensive curriculum of developmental, general education, university transfer, and occupational courses. Desert Vista also specializes in programs of the Sciences (Biology and Chemistry), Languages (Spanish and English as a Second Language), and Court Support Services. In addition, Desert Vista offers the entire unique four-year PCC/University of Arizona (UA) Sequential Degree Program in Bilingual Elementary Education. In this program, students earn a four-year UA degree and a two-year PCC degree.

Desert Vista Campus is also the home of the nonprofit vocational program, the Center for Training and Development (CTD), the former Skill Center. The CTD cooperates with community-based organizations and agencies to provide training to persons with disabilities and to those who are educationally or economically disadvantaged.

In the fall 1995 semester, the Desert Vista Campus served more than 2,200 students, while the CTD had more than 300 students.

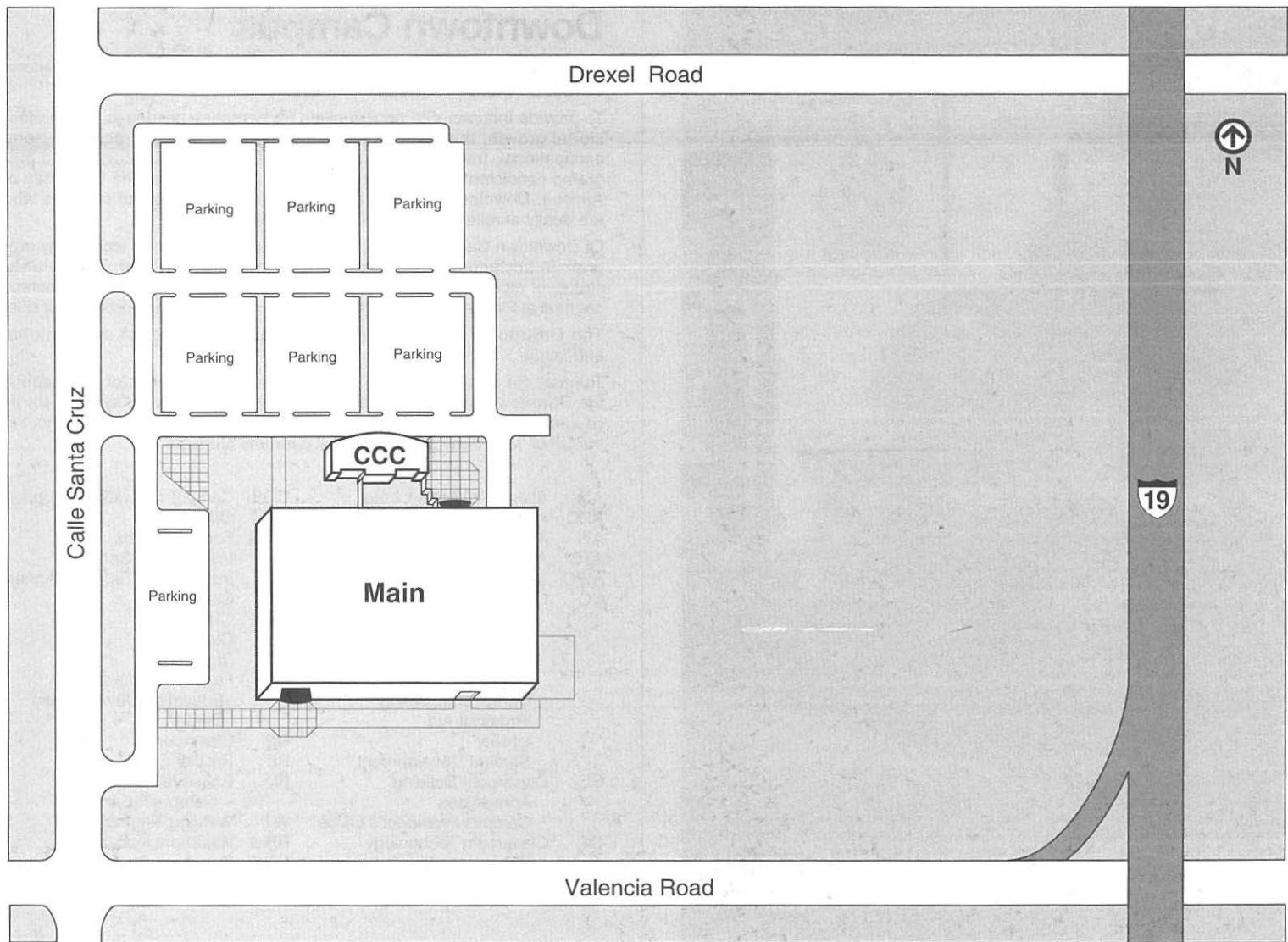
### Main Building

- Administrative Offices
- Admissions/Registration
- Advising
- Assessment Center
- Audio/Visual
- Bookstore
- Business Office
- Cafeteria
- Campus Police
- Cashier
- Career Center/Job Placement
- Center for Training and Development
- Classrooms
- Community Outreach/Financial Aid
- Counseling
- Faculty Offices

- Information Center
- Instructional Activities Center
- Laboratories for Biology and Chemistry
- Library
- Student Activities
- Student Development Offices
- Talent Search

### CCC Building

- Child Care Center
- Art Classroom





## Downtown Campus

With its central location at Stone Avenue and Speedway Boulevard, the Downtown Campus serves all of Tucson.

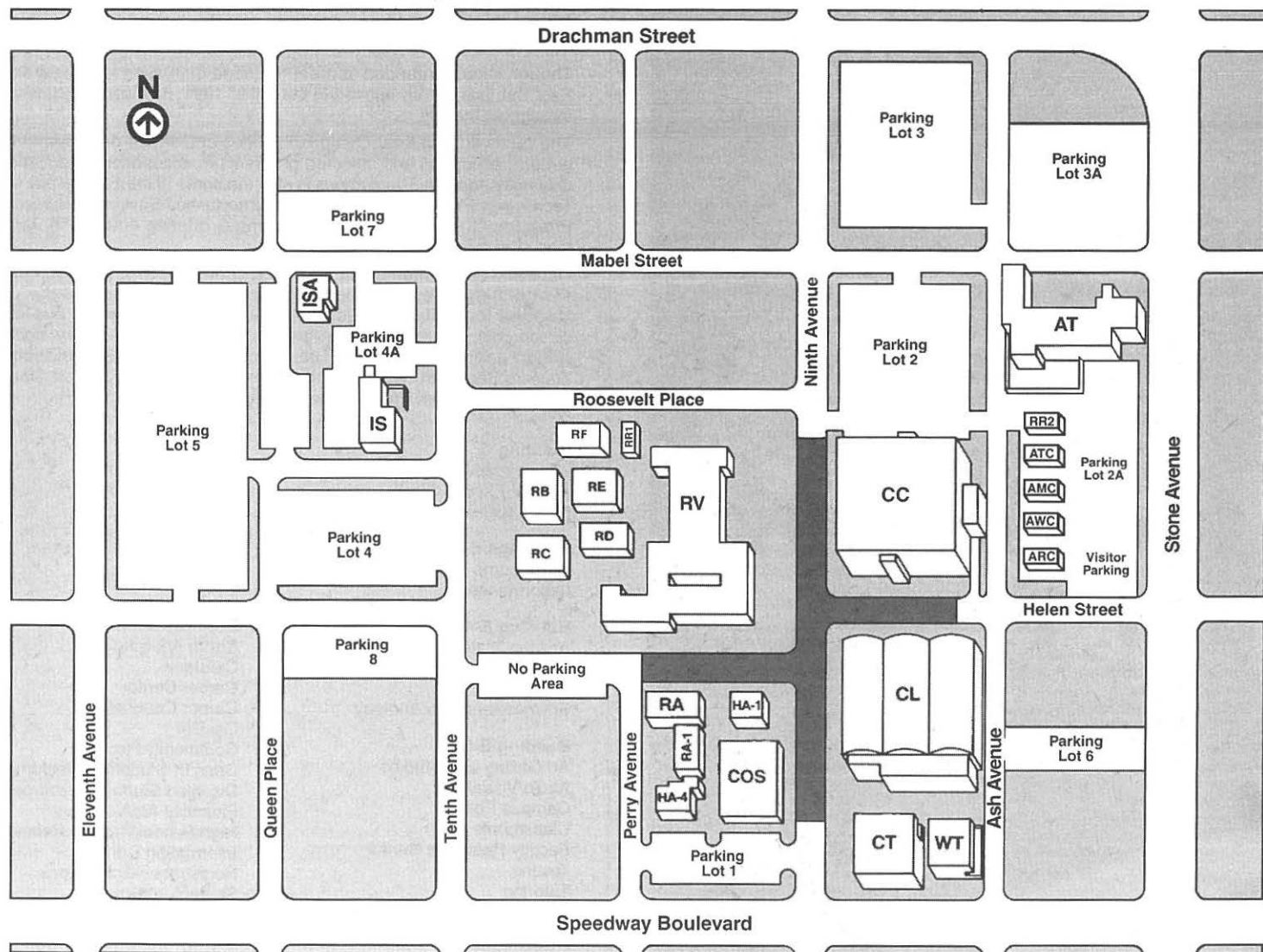
To provide innumerable opportunities for personal, academic, and professional growth, the campus has a variety of programs—academic and occupational, traditional and innovative. The academic courses and programs consistently enjoy high enrollment. Located near the University of Arizona, Downtown Campus attracts approximately 30% of students who are dually enrolled at Pima and the university.

Of Downtown Campus's occupational courses, the aviation technology program is acclaimed internationally as a leader in the field. The aviation structural repair program is the first of its kind in the country. These courses are held at Pima's Aviation Technology Center, located on Tucson's east side.

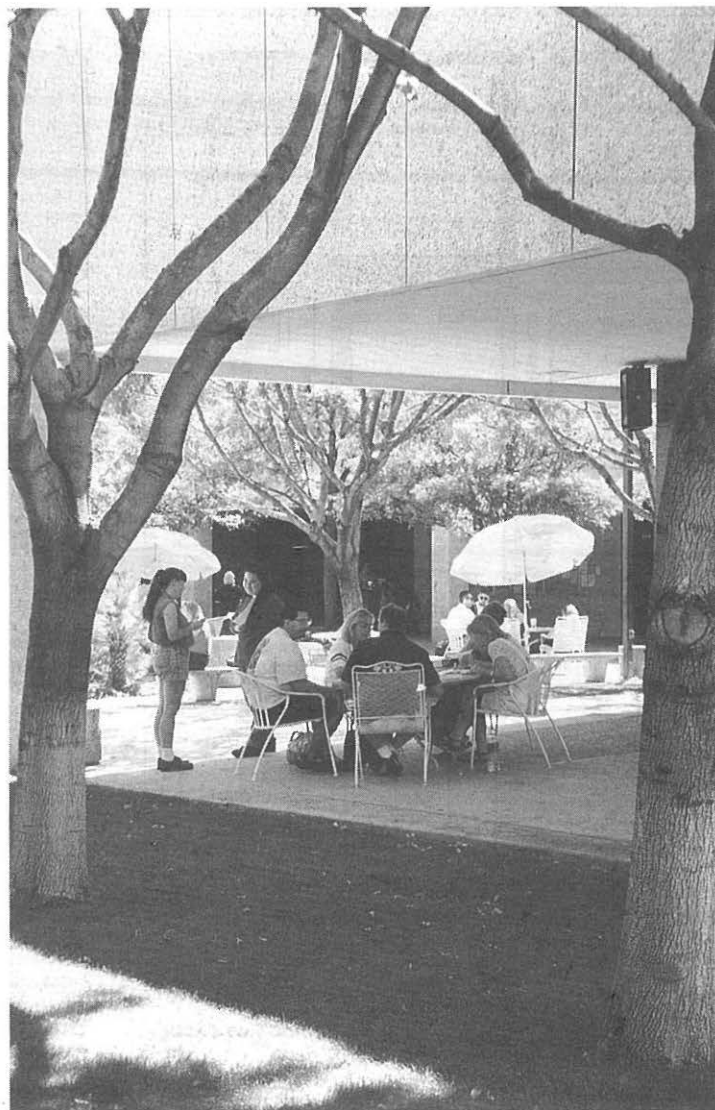
The Downtown Campus is also involved in a variety of international endeavors.

To meet the differing learning styles and scheduling needs of its students, the Downtown Campus has developed innovative delivery systems for its courses. Each semester its enrollment is over 10,000 students, of whom in the fall of 1995 semester, 92% were part-time students.

AMC	Alternative Math Center	COS	Campus Operational Support
ARC	Alternative Reading Center	HA-1	Offices
AT	Automotive Technology	HA-4	Faculty Offices
ATC	Alternative Tutoring Center	IS	Instructional Services
AWC	Alternative Writing Center	ISA	Instructional Services Annex
CC	Campus Center	RA	Classrooms
	Advising	RA-1	Classrooms
	Assessment	RB	Classrooms
	Bookstore	RC	Classrooms
	Cafeteria	RD	Faculty Resource and
	Career Counseling		Education Development
	Financial Aid		Center
	Library	RE	Classrooms
	Student Development	RF	Faculty Offices
CL	Classroom Building	RV	Roosevelt Building
	Admissions		Computer Center
	Campus President's Office	WT	Welding Technology
CT	Classroom Technology	RR-1	Restroom Portable 1
	Communication Graphics	RR-2	Restroom Portable 2
	Graphic Arts		







## East Campus

Though initially intended to meet the need of Tucson's far east side, the East Campus, which opened in the fall of 1981, now serves students from throughout the city.

The curriculum at East Campus includes courses in developmental and general education and selected programs in occupational education and university transfer. The campus is also the home of the Emergency Medical Technology Program and the nationally acclaimed Environment Technology Program. Currently, it is the only campus offering courses in Japanese language instruction.

Originally established as an education center in 1976, East Campus now sits on sixty acres next to the Fred Enke Golf Course and the Lincoln Regional Park. The campus clusters around several patios, and includes classrooms, laboratories, supplemental learning center, library, bookstore, student activities facilities, and the Arizona State Environmental Technology Training Center. In 1994 a new distance learning facility opened. During the fall 1995 semester, East Campus served over 5,000 students.

### **Building O**

Administrative Offices  
Adjunct Faculty Office  
Faculty Offices

### **Buildings E-1, E-2, E-3, E-6**

Classrooms  
Laboratories

### **Building E-4**

Arizona State Environmental  
Technology Training Center  
(ASETT)  
Environmental Technology

### **Building E-5**

Art Gallery and Studios  
Audio/Visual  
Campus Police  
Classrooms  
Faculty Resource Center  
Testing  
Tutoring

### **Buildings M-1, M-2, M-3**

Classrooms

### **Building M-4**

Arizona Astronomy  
Education Center

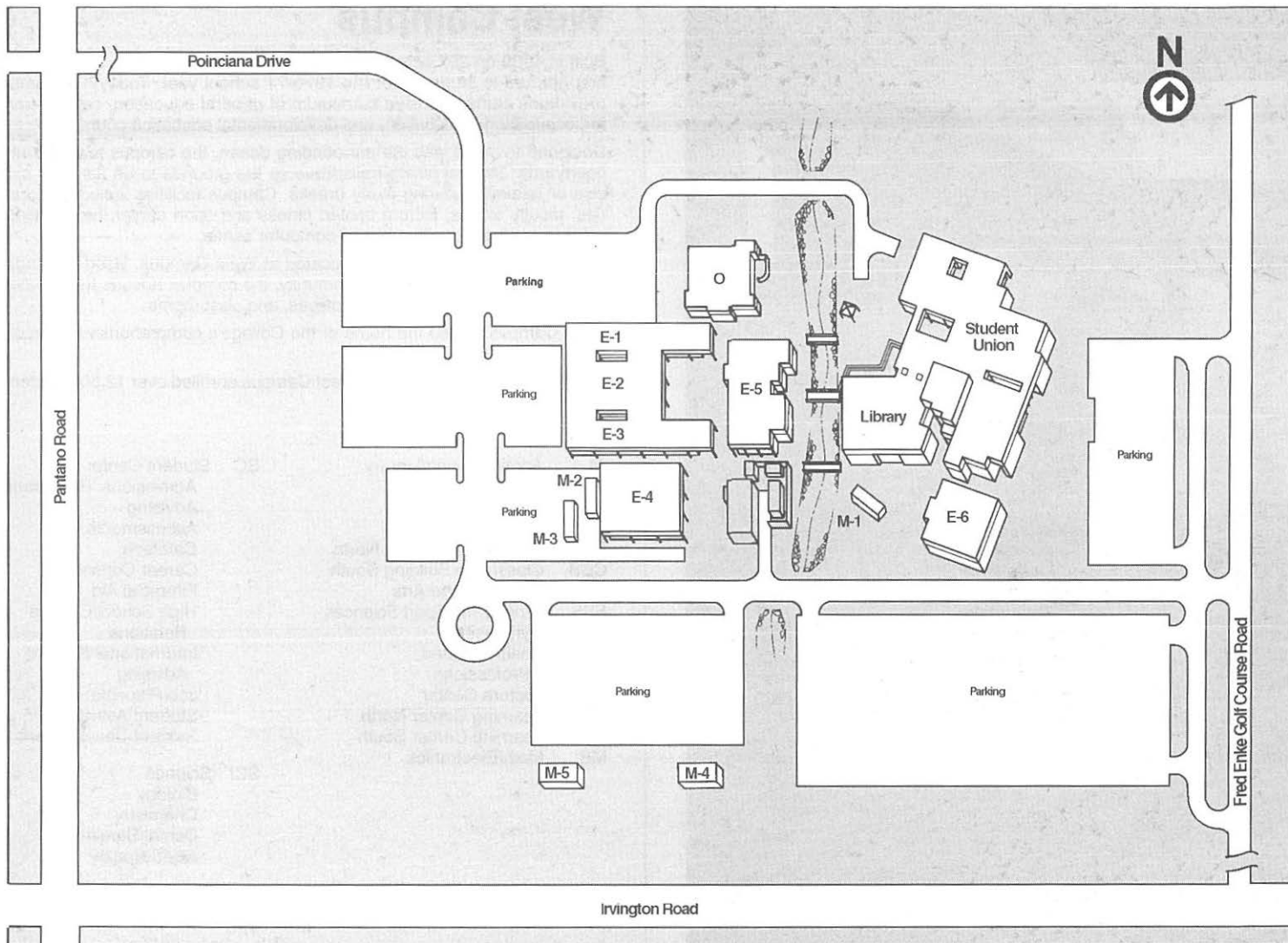
### **Building M-5**

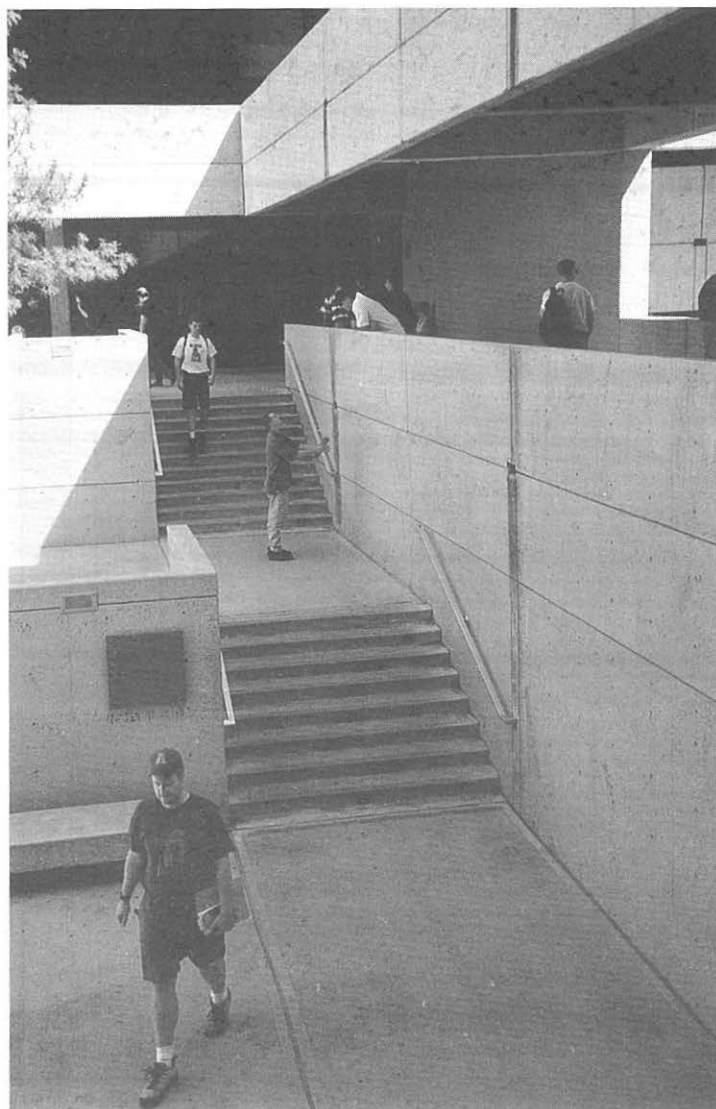
ASETT Seminars

### **Student Union**

Bookstore  
Business Services  
Cadre Advising  
Cafeteria  
Career Center  
Career Counseling  
Cashier  
Community Room  
Dean of Student Development  
Disabled Student Resources  
Financial Aid/Veterans  
High School/College Relations  
Information Center  
Registration/Admissions  
Student Activities

### **Library**





## West Campus

Built in 1969 on 267 acres in the Tucson Mountain foothills, West Campus first opened to students for the 1970-71 school year. Today, the campus provides a comprehensive curriculum of general education, college transfer, occupational education, and developmental education courses.

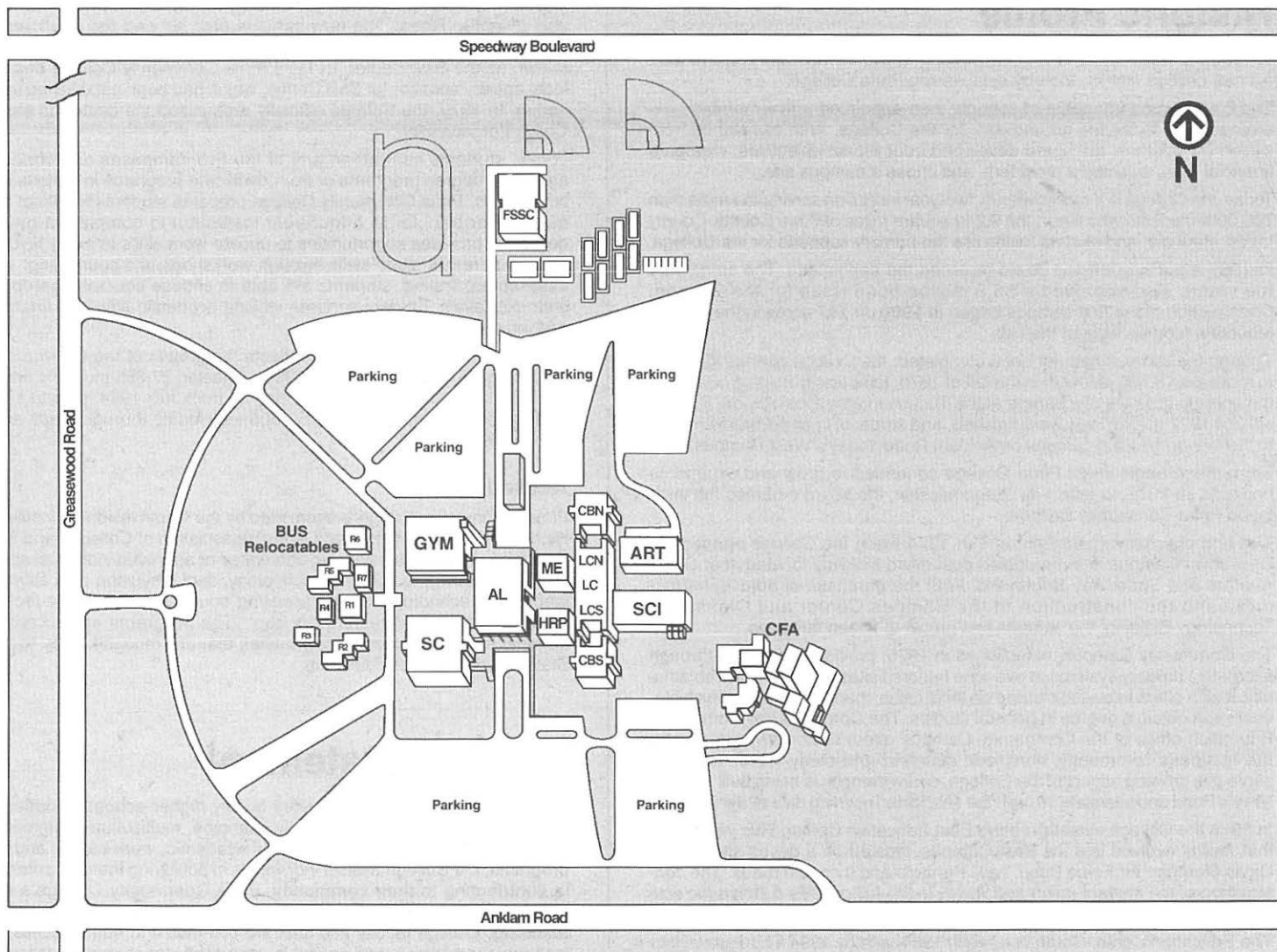
Designed to blend with the surrounding desert, the campus features inner courtyards. Several hiking trails traverse the grounds to be used for exercise or relaxation during study breaks. Campus facilities include laboratories, faculty offices, lecture center, fitness and sport center, health related professions building, library, and computer center.

The Center for the Arts is also located at West Campus. Used for student instruction as well as by the community, the complex houses two theaters, an art gallery, music recital hall, offices, and classrooms.

West Campus is also the home of the College's comprehensive intercollegiate athletics program.

During the fall 1995 semester, West Campus enrolled over 12,500 students.

AL	Administration/Library Bookstore	SC	Student Center Admissions/ Registration Advising Assessments Cafeteria Career Counseling Financial Aid High School/College Relations International Student Advising Job Placement Student Activities Student Development
ART	Art		
BUS	R1-8, Relocatables		
CBN	Classroom Building North		
CBS	Classroom Building South		
CFA	Center for the Arts		
FSS	Fitness and Sport Sciences		
GYM	Gymnasium		
HRP	Health Related Professions		
LC	Lecture Center		
LCN	Learning Center North		
LCS	Learning Center South		
ME	Math/Electronics	SCI	Science Biology Chemistry Dental Studies Allied Health





## Historic Profile

In 1966 the citizens of Pima County, Arizona, overwhelmingly voted to form a junior college district, thereby establishing Pima College.

The county superintendent of schools then appointed a five-member governing board to lay the groundwork for the College. With assistance from citizen committees, the board developed educational objectives, created a financial plan, selected a president, and chose a campus site.

Today, the College is a multi-campus, two-year institution serving the more than 700,000 residents who live in the 9,240 square miles of Pima County. County taxes, state aid, and student tuition are the primary supports for the College.

In 1967 a publicly-elected board replaced the appointees. The same year the voters also approved a \$5.9 million bond issue for the College. Construction of the first campus began in 1969 on 167 acres in the Tucson Mountain foothills west of the city.

Though the campus had not been completed, the College opened its doors to more than 3,500 students in the fall of 1970, temporarily holding classes in the unlikely quarters of a hangar at the Tucson International Airport. By January of 1971 the facilities were finished, and students in all programs moved to the eleven-building campus on Anklam Road, today's West Campus.

From these beginnings, Pima College continued to grow and expand its horizons. In 1972, to reflect its stated mission, the board renamed the institution Pima Community College.

The first physical expansion came in 1974 when the College opened the Downtown Campus in a remodeled post office building, located near Stone Avenue and Speedway Boulevard. With the purchase of adjacent structures and the construction of the Campus Center and Classroom Technology Building, the campus has grown to fifteen buildings.

The Community Campus, established in 1975, provides education through alternative delivery systems at over one hundred sites throughout the community. It also offers televised classes on local cable channels through which students can obtain a degree in general studies. The Corporate and Community Education office of the Community Campus offers customized training for the business community, noncredit courses, and study tours. To better serve this growing aspect of the College, a new campus is being built near St. Mary's Road and Interstate 10, with the anticipated opening date of Spring 1997.

In 1976 the College established the East Education Center. Five years later that facility evolved into the East Campus, located on a desert site east of Davis Monthan Air Force Base, near Pantano and Irvington roads. The construction of the student union and library in the fall of 1989 doubled the size of the campus.

The Education Center-South opened in 1986, and by 1994 it had grown into

Desert Vista Campus, a comprehensive facility located near Interstate 19 and Irvington Road. The new campus also housed the adult vocational training component the Center for Training and Development, formerly known as the Skill Center. In 1973 Pima Community College became the local agency sponsor for Skill Center, which had been established ten years earlier. In 1979, the College officially recognized the center as part of the College organization.

Today, students can attend any of the five campuses and choose from associate degree programs or from certificate programs in various occupational fields. Pima Community College prepares students for direct employment or for transfer to a four-year institution to complete a bachelor's degree. It provides opportunities to update work skills in many fields and a chance to renew study skills through workshops and counseling. Through assessment testing, students are able to choose courses appropriate for their skill levels. Student services include academic advising, financial aid, and job placement.

An ever-increasing enrollment reflects the growth of the College since its beginnings in 1970. For the fall 1995 semester, 27,866 students enrolled in credit classes. During the twelve months from July 1994 to June 1995, the College served approximately 53,600 individuals through credit and non-credit classes.

## Accreditation

Pima Community College is accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools. Specialized agencies have also accredited or approved individual study programs in nursing, radiological technology, dental hygiene education, dental laboratory technology, dental assisting education, landscape technician, legal assistant, and respiratory care. The programs are accredited by national specialized accrediting bodies that are recognized by the United States Department of Education.

## Mission Statement

Pima Community College provides quality higher-education opportunities for those who live in the constantly changing, multicultural communities in central Southern Arizona. Through its academic, work-based, and cultural programs, the College assists individuals in achieving their full potential and in contributing to their community. Pima Community College's **special strength** lies in inspiring student learning through **creative, effective teaching**. College faculty and staff are committed to equal access, quality learning experiences, and equitable opportunity for student success.

To carry out its mission, Pima Community College will

- Provide a **core of learning** in all associate-degree and certificate programs which demonstrates the College's **vision of an educated person** and a **commitment to education as a lifelong process**.
- Provide diverse, integrated **academic and work-based programs** to prepare students to compete effectively in a complex, ever-changing technological society and in a global economy. The College will provide the opportunity to develop **ethics, competence, and effectiveness** for the workplace.
- Assist **those in transition** between the College, four-year, and other institutions with comprehensive, quality **academic programs and experiences** so that they successfully continue their education with a strengthened sense of self-worth, awareness, and motivation. The College will have strong articulation partnerships with high schools, colleges, universities and other institutions.
- In the spirit of open access, undertake the fundamental obligation to provide **learning opportunities** for students who require **additional linguistic and/or educational preparation for college-level work**. The College will form collaborative partnerships with the community-at-large to provide realistic alternatives for all who need them.
- Develop in students a recognition of their individual and unique values, as well as their ability to contribute to the enrichment of the College community. The College will proactively **value and reflect the bilingual and multicultural diversity** of the larger community, enriching its students and the community by celebrating this pluralism.
- Provide **accessible educational services to the community** that are responsive to individual, organizational, and corporate needs and an integral part of the College's educational and supportive processes.
- Encourage and facilitate the **educational, personal, and professional development** of each student through outreach, ease of access, assessment and integrated educational support services. The College will foster high expectations and positive results for each student.
- Play a **vital role in servicing and supporting economic development** in Pima County for the well-being of its citizens. The College will convey an understanding of the College's role in economic development through collaborative planning, degree and certificate programs, continuing education, training, retraining, and assistance to employers.
- Through **dialogue and collaboration** with internal and external constituents, ensure that College goals and programs serve their unique, changing needs and create advocacy and a widespread sense of ownership within the community.

The College is **accountable** to its students and to the community for sound linkages, fiscal responsibility, and educational results. The College will continuously assess student outcomes for informed decision-making and strategic planning. It will also promote the worth of its employees and a work environment highly conducive to fulfilling the College mission.

(As part of the ongoing planning process, the College mission statement has been under review in 1996. An updated mission statement will be presented to the College Board of Governors in May 1996.)

## 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 holds itself accountable to its constituents and continually monitors its effectiveness and efficiency as an educational institution through internal and external assessment activities.

The purpose of these activities is to ensure that the College has an appropriate mission, that it is fulfilling its mission effectively, and that all planning efforts and responses to planning are directed toward improvement.

To achieve this purpose the College administration has developed processes for evaluating and improving student learning outcomes, board and employee performance, programs and services, the College mission statement and the planning process.

## Información adicional del colegio

Pima Community College es una institución de educación superior. El Colegio ofrece programas y cursos en las artes, ciencias, y las humanidades igual que cursos vocacionales y técnicos. Los programas en general son de dos años. El Colegio Pima reconoce y celebra la variedad de culturas étnicas y fomenta el conocimiento de hechos históricos y culturales que son de particular interés para la comprensión de los diversos grupos étnicos del suroeste. Para impartir esta riqueza multicultural el Colegio Pima ha creado un proceso educativo amplio en sus raíces y diverso en materia y métodos.

El valor de cada individuo como contribuyente a la comunidad es apoyado por el Colegio al presentar oportunidades para el desarrollo educativo y personal de todos los que residen en el área. El curriculum de algunas materias se imparte tanto en español como en inglés. Los programas bilingües del Colegio constituyen una oportunidad a los estudiantes que están aprendiendo el idioma inglés para tomar cursos al nivel del colegio.

No se requiere el certificado de escuela secundaria para ingresar al Colegio Pima. Si desea más información comuníquese con la Oficina de Admisión o con el Programa de Servicios de Educación Multi Disciplinaria.

## 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.

### Sexual Harassment

Pima County Community College District is committed to maintaining a work and educational environment free of discrimination. In keeping with this commitment, it is the policy of Pima County Community College District that no member of the College community shall engage in sexual harassment.

Sexual Harassment is defined as unwelcome advances, requests for sexual favors, or other verbal or physical conduct of a sexual nature when:

- A. Submission to such conduct is made explicitly or implicitly a term or condition of an individual's employment or status in a course, program or activity;
- B. Submission to or rejection of such conduct is used as a basis for an employment or educational decision affecting an individual; or
- C. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or educational performance or of creating an intimidating, hostile, or offensive environment for work or learning.

Matters having sexual connotation which arise as part of the legitimate educational curricula would not violate College Policy unless used in an improper manner. Examples of sexual harassment may include, but are not necessarily limited to:

- A. Physical assault;
- B. Direct or implied threats that submission to sexual advances will be a condition of employment, work status, promotion, grades, or letters of recommendation;
- C. Direct propositions of a sexual nature;
- D. Subtle pressure for sexual activity, an element of which may be conduct such as repeated and unwanted staring;
- E. A pattern of conduct intended to discomfort or humiliate, or both, that includes one or more of the following:
  - (i) Comments of a sexual nature; or
  - (ii) Sexually explicit statements, questions, jokes, or anecdotes;
- F. A pattern of conduct that would discomfort or humiliate, or both, a reasonable person at whom the conduct was directed that includes one or more of the following:
  - (i) Unnecessary touching, patting, hugging, or brushing against a person's body;
  - (ii) Remarks of a sexual nature about a person's clothing or body; or
  - (iii) Remarks about sexual activity or speculations about previous sexual experience.
  - (iv) The display in the work or educational arena of sexually suggestive objects or pictures.

Any member of the College community who believes that the actions or words of any other member of the College community constitute unwelcome harassment has a responsibility to report the complaint as soon as possible to the appropriate individual, as more particularly set forth in Affirmative Action Key Policies and Procedures Manual.

#### **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 Community College Foundation**

A community college and the community it serves are synonymous. As partners in service, interested citizens of the community established a Foundation to assist Pima Community College in the continual expansion of educational opportunities and services to the community at large and to provide a means for active citizen participation in the future growth and development of their community college.

Public funds derived from taxes provide the basic needs for higher education, but private support is often needed to provide those components necessary for true academic excellence.

Prime objectives of the Foundation are to promote recognition by individuals, business and industry, and to secure adequate financial support of the College.

The Pima Community College Foundation is an incorporated, non-profit organization, established in 1977 to support exclusively the educational activities of Pima Community College. The Foundation is governed by a board of directors.

Meetings and special functions held each year allow members to meet and hear from students and faculty about the programs of the College.

Gifts to the Foundation are tax-deductible and go toward student scholarships, faculty creative teaching grants, and special needs of the College as determined by the Foundation Board of Directors.

The Foundation will assist prospective donors in making donations, bequests, and planning trust and will arrangements for the College.

#### **Foundation Officers, 1996-97**

Wil Runcorn, President  
Blake Down, Vice President  
Victoria L. Clark, Secretary  
Bernie Ray, Treasurer  
Joseph E. Nevin, Executive Director  
Alex Hobson, Legal Counsel

#### **Foundation Board of Directors**

Dewey Barich  
Charles Boyd  
Steve Cullen  
Shirley J. Chann  
G. D. "Bill" Chavez  
Brent Davis  
Celestino Fernandez

Raul B. Gamez  
James W. Godwin, Jr.  
Cathy Hollingsworth  
Betty J. Niles  
Cecilia Northcutt  
Tom Perrotta  
Larry Peth  
Patricia Roberts  
Tim Ryan  
Tony Shenuski  
Victor Soltero  
Alan Stein  
Beth L. Vance  
Jack Waslefsky

## Pima Community College Alumni Association

An enthusiastic group of former Pima students began to meet in the fall of 1984 to discuss formation of a College alumni association. As a result of that meeting, and over a period of a year, a steering committee of dedicated alumni and staff wrote bylaws and formed the Pima Community College Alumni Association with a current membership of more than 600.

### Officers, 1996-97

Ruth Scott, President  
Nelda Rhea, Vice President/President Elect  
Estelle Hall, Secretary  
Mike Hicks, Treasurer

### Purposes

- To maintain contact with alumni and continue to serve them.
- To validate the worth and benefit of a PCC education for current students and the community by focusing on alumni successes.
- To coordinate activities that further the welfare of the College, its students, and its alumni.
- To obtain financial support for current students and the College.

### Membership eligibility and benefits

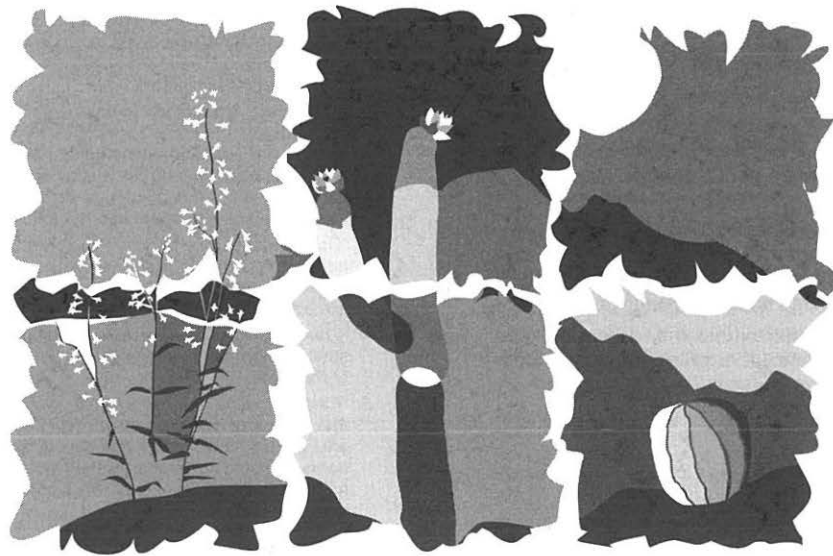
To become a member of the association, an individual needs to have completed a class, a certificate, or a degree from the College. The association also welcomes associate members, those individuals who support and are interested in furthering the goals of the association. Individuals who join are entitled to:

- A subscription to the alumni newsletter containing information about the association and the College
- Special alumni events
- Membership decal
- Leadership training opportunities
- The opportunity to assist current and future students in becoming as successful as our current alumni through scholarships and career advice.

For further information, including a membership brochure, contact the Alumni Office, 4905C East Broadway Boulevard, Tucson, Arizona 85709-1330, (520) 748-4977.



# Student Resources



# Admission to the College

The Pima County Community College District is open to students if they fall within one of the following categories:

1. A graduate from 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. A non-high school graduate who is 18 years of age or older, who can benefit from instruction;
5. A non-high school graduate between the ages of 16 and 18 who has officially withdrawn from high school and who can benefit from instruction;
6. A student currently enrolled in high school who presents written approval from the student's principal and parents or legal guardian;
7. A student currently enrolled in high school 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 guardians;
8. An international student planning to enroll for 12 credit hours or more who has completed an academic program equivalent to an American secondary school and has a score of 500 or better on the Test of English as a Foreign Language or whose native language is English;
9. An international student planning to enroll for less than 12 credit hours who must demonstrate English proficiency if enrolling in courses other than English as a Second Language or courses offered bilingually.

For all programs, preference in admissions may be given to Pima and Santa Cruz County residents.

No person shall be denied admission to the College on the basis of sex, race, creed, color, national origin, age, or handicap. Although Pima Community College is open to students who fall within the above categories, the scope of program accessibility may be limited because of certain curriculum requirements, fiscal constraints, and/or facility limitations.

**Transfer Students Under Suspension:** It is important that transfer students from other academic institutions admitted while under suspension of any type be aware that credits earned during their period of suspension may not be accepted for transfer by most colleges and universities.

Admissions offices are open year-round at each of the College campuses to receive applications and to provide information on curriculum programs, class schedules, and registration procedures.

## Student Residency Requirements

Each student applicant shall have the question of the one-year duration domicile requirement determined by the appropriate Admissions Office **prior** to the time of registration and payment of fees for any semester or session. It is the responsibility of the applicant to apply for admission and to register under the correct domicile determination. Domicile is determined as of the first day of the session in which enrolling. Published below are the Arizona Revised Statutes that determine classification of students for tuition purposes:

### SECTION 15-1801 Definitions

In this article, unless the context otherwise requires:

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

### SECTION 15-1802 In-State Student Status

- A. 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.
- B. A person is not entitled to classification as an in-state student until he 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 meets one of the following requirements:
  1. His parent's domicile is in this state and his parent is entitled to claim him as an exemption for state and federal tax purposes.
  2. He is an employee of an employer which transferred him to this state for employment purposes or he is the spouse of such employee.

- C. The domicile of an unemancipated person is that of such person's parent.
- D. 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.
- E. 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.
- F. A person who is a member of an Indian tribe recognized by the United States Department of the Interior whose reservation land lies in this state and extends into another state and who is a resident of the reservation is entitled to classification as an in-state student.

#### **SECTION 15-1803 Alien In-State Student Status**

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.

#### **SECTION 15-1804 Presumption Relating To Student Status**

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.

#### **SECTION 15-1805 Student Status Regulations**

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.

#### **SECTION 15-1806 Testimony Concerning Student Status: Designation Of Persons To Administer Oaths**

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.



#### **SECTION 15-1807 Concurrent Enrollment; Nonresident Tuition**

- A. 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.
- B. 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**

The State Board of Directors for Community Colleges Regulation 7-1-23 provides the following guidelines regarding documents that students may present to verify eligibility for in-state residency status:

1. An affidavit signed by the student must be filed with the person responsible for verifying domicile.
2. Any 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. Source of financial support.
  - g. Dependency as indicated on federal income tax return.
  - h. Ownership of real property.
  - i. Notarized statement of landlord or employer.
  - j. Bank accounts.
  - k. Other relevant information.

#### **International Student Admission**

International students are welcome at Pima Community College. Their presence adds to the multi-cultural diversity which is a part of all aspects of the College.

The admissions requirements for all international students are listed below. Tuition and fees are paid at the same rate as out-of-state students. All international students are required to comply with the appropriate immigration standards and regulations.

#### **Full-Time Students**

All international students seeking admission to the College as full-time students (enrolling for 12 credit hours or more) must:

1. Have completed an academic program equivalent to an American secondary school,
2. Demonstrate proficiency in the English language by verifying a score of 500 or better on the Test of English as a Foreign Language (TOEFL),
3. Submit a completed application for admission, along with a \$15 non-refundable fee, to the International Students Admissions Office at the West Campus.

International students planning to be admitted on an F-1 visa may only enroll full-time. In addition to the preceding requirements, they must also do the following:

1. Submit a bank statement which guarantees financial support.
2. Submit official transcripts in English of all work done at previous educational institutions.

The application for admission and other required information should be filed with the Admissions Office at least 90 days prior to the semester for which the student wishes to enroll.

International students already in this country and seeking full-time admission must also submit the above-listed information at least two weeks prior to the beginning of the semester of enrollment.

Further information concerning examination dates and places for the TOEFL can be obtained by writing to: Test of English as a Foreign Language, Box 899, Princeton, New Jersey, U.S.A. 08540

#### **Part-Time Students**

International students who wish to attend Pima on a part-time basis must submit an application for admission. Students in the United States who are on a visa other than F-1 may attend part-time (enroll for less than 12 credit hours). Graduation from the equivalent of an American secondary school is not of primary importance. However, part-time international students must demonstrate English proficiency if they plan to enroll in courses other than English as a Second Language or courses offered bilingually.

## Articulation with Higher Education Institutions

Pima County Community College District may have official articulation agreements with other higher educational institutions which have achieved full accreditation status with one 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

See "Acceptance of Credits from Other Institutions" section below for more information.

## Acceptance of Credits from Other Institutions

Appropriate credit may be accepted for all course work completed at other accredited institutions with a grade of "C," its equivalent, or better. See "Articulation with Higher Education Institutions" section above for further information on accredited institutions.

Credit accepted must be considered applicable toward the student's program objective at Pima Community College. A campus admissions office must receive an official transcript for transferring students directly from the institution(s) previously attended. A campus admissions office will evaluate all requests for transfer of credit when the student completes the following steps:

1. is currently enrolled in classes; and
2. submits a written request to the campus admissions office.

Students who are not currently enrolled and have had transcripts submitted are notified in writing that the transcript has been received. Students in this category have one year to enroll and request evaluation of that credit. After that time period, the transcript is no longer retained if a request has not been received. Students who are not currently enrolled and are now applying for graduation from the College may have transfer credit evaluated to apply toward degree requirements.

## Arizona Higher Education Course Equivalency Guide

Students may use the *Course Equivalency Guide (CEG)* to determine how Pima Community College courses numbered 100 or above transfer to Arizona State University, Northern Arizona University, and the University of Arizona. The *CEG* is updated annually. Please see an advisor about the use of the *CEG*. The Pima Community College portion of the *CEG* is available in the advising centers, is on sale in the bookstores, and is accessible on kiosks and via PIMAINFO ([HTTP://PIMACC.PIMA.EDU/PIMAINFO](http://PIMACC.PIMA.EDU/PIMAINFO)).

## University Transfer Guides

Students may use the university transfer guides to determine which Pima Community College courses fulfill degree requirements at Arizona State University (ASU), Northern Arizona University (NAU), and the University of Arizona (UA). There is a guide for each degree at ASU, NAU, and UA. Please see an advisor about transfer guides. The transfer guides are available in the advising centers, and the UA transfer guides are accessible on kiosks and via PIMAINFO ([HTTP://PIMACC.PIMA.EDU/PIMAINFO](http://PIMACC.PIMA.EDU/PIMAINFO)). The transfer guides are updated annually.

## Transfer General Education Core Curriculum

The Transfer General Education Core Curriculum (TGECC) was designed as a block of 41 community college general education credit hours that will transfer and fulfill lower-division, general education requirements at any Arizona public university. It works best for community college students who are undecided about which of the Arizona public universities they plan to attend or what program of study they intend to pursue. If you know the Arizona public university to which you plan to transfer, Pima Community College may have a better option for you than the TGECC. Use the following options as simple guidelines and see an advisor.

### Options

1. **If you are undecided about which university you plan to transfer,** complete the Associate of Arts in Liberal Arts and Sciences—ASU/NAU Option. This is the only degree that fulfills the TGECC requirements. See an advisor for more information.
2. **If you are undecided about your major but know you are transferring to the University of Arizona,** the UA Option is the best option for you. Do not follow the ASU/NAU Option (TGECC). See an advisor for more information.
3. **If you know your major,** you should select the appropriate degree by reviewing the "AA and AS Degree Transferability to Regional Universities" chart in the Degree and Certificates Section of this catalog. See an advisor for more information.





## **Acceptance of Transfer General Education Core Curriculum from Other Arizona Community College Districts**

If the transcript from an Arizona community college district is annotated with the Transfer General Education Core Curriculum completed, all general education requirements at Pima Community College will be fulfilled.

If the transcript from an Arizona community college district is annotated with the Transfer General Education Core Curriculum partially completed and the respective categories labeled as completed, those categories completed at the other Arizona community college will fulfill the same general education requirements at Pima Community College.

## **Measles/Rubella Immunity Alert**

Pima Community College students born on or after January 1, 1957, will be required to present proof of their immunization for measles/rubella at the time of admission. Documentation must be presented to a campus admissions office showing the month, date, and year of immunization. For information regarding acceptable immunization documentation, call any campus admissions office.

Measles/rubella inoculations are available at all Pima County Health Department Offices, for a minimal fee, or from private physicians. For information on inoculations, call Pima County's Immunization Program Office at (520) 740-3755.

## **Registration**

Students have the opportunity to enroll in classes in a number of ways. They may participate in new student orientation and registration sessions held in the spring, summer, and late fall of each academic year, or use the automated touchtone telephone registration system MAX. Operator-assisted registration, walk-in, and late registration are also available at all campus and district admissions offices. Enrollment is not considered official for any academic term until all fees are paid. Specific registration information for an academic term is available at all campus and district admissions offices, from the general information number (748-4500), through the Pima Community College Information System, or PIMAINFO ([HTTP://PIMACC.PIMA.EDU/PIMAINFO](http://PIMACC.PIMA.EDU/PIMAINFO)); Pima Community College cable channels (check with cable company for channel identification); and in the published Schedule of Classes.



## Maximum Credit Hours Per Semester

The maximum number of credit hours for which a student may enroll in any one semester is 18 (maximum for summer is 12). This limitation includes residence work, concurrent registration with the University of Arizona, and in extension, correspondence, or high school courses.

Students who wish to exceed this maximum credit hour load must obtain appropriate approval from the campus Dean of Instruction.

## Prerequisites

A student registering for a course must meet the prerequisites or otherwise satisfy the teacher of his/her preparation to take the course. After notification, a teacher may withdraw a student who does not have the proper prerequisites for the class as stated in the catalog.

## Attendance

Students are expected to attend all enrolled classes regularly and punctually.

All students shall be provided in writing the attendance requirements established by each instructor or department. Absences exceeding these requirements may result in the student being withdrawn from a class by the instructor.

Students are responsible for notifying their instructors in advance of an absence due to participation in official College activities and for completing class assignments as required.

## Student Accommodation on Religious Days

Pima Community College accommodates the religious observances and practices of students unless undue hardship to College programs will result. Absences for such religious observances and practices shall not count against the number of absences allowed by an instructor or department. At least two weeks prior to the religious observance, students shall submit to their instructor(s) a written statement which contains both the date of the observance and the reason why class attendance is impossible.

## Repeat of Course for Credit

State Board regulations prohibit the College from receiving state aid for students taking the same course more than twice except in certain courses as specified in the College catalog. Students who enroll more than the permitted number of times in a course will be charged an extra fee to replace the lost state aid.

When a course is repeated with the intent of improving the grade point average (GPA), the highest grade earned will be used for computation of the GPA. All courses will remain on the student's transcript, but only one successful completion will be counted toward degree and certificate requirements. (Refer to the course descriptions listed in this catalog for exceptions).

## Advising

All students should meet with an advisor before registering and should continue to meet with an advisor at least once each semester. Advisors are available year-round at campus advising centers to help you choose courses and make decisions that best meet your educational needs. Though walk-in service is available, appointments are recommended.

## Orientation and Advising for New Students

Orientations are held prior to fall and spring semesters for students new to the College. Free orientations are offered for all new students. Students can speak with advisors and counselors about program and career choices, learn about campus resources, and register early for classes. Contact a campus advising center for an orientation brochure or more information.

## Advising/Registration for International Students

International students must contact the International Student Admissions Specialist at the West Campus. International students must apply for admission, complete registration and schedule changes at that location.

After meeting with the International Student Admissions Specialist, students need to meet with an academic advisor for selection of courses for each semester.

International students may be required to take placement examinations for the purpose of determining proper academic placement. An international student registering for a course must meet the prerequisites or otherwise satisfy the instructor of his or her preparation to take the course. Prerequisites can be waived only at the direction of the instructor or department involved.

## Assessments

### Basic Skills

Pima Community College requires assessments of skill levels in mathematics, reading, and writing. These assessments are provided free of charge, and are administered through assessment centers on each campus and at various Community Campus off-site locations.

Assessment data shall be used by authorized College personnel to assist the student with the selection of appropriate courses and/or a course of study. Pima does not require mandatory placement into certain courses, but some programs may require entrance examinations or competency levels and may have prerequisites.

Prior to a student's third hour of instructional activity, all three assessments shall be required of any new, full-time student during his/her initial semester of enrollment, or of any student who is placed on academic alert and who has not previously taken the tests.

Prior to a student's third hour of instructional activity, an assessment specific to developmental mathematics, reading, or writing courses shall be required of any student enrolling in such a course for the first time. An English as a Second Language (ESL) assessment is also available and is recommended for placement in ESL courses.

### Assessment Services

In addition to basic skills assessments, individual assessments are provided for assistance in counseling and in career or educational planning. Various tests are available to help determine individual capabilities, vocational interests, aptitudes, achievement, and personal needs.

The General Education Development tests (GED for high school equivalency) are offered through the West Campus Assessment Center. The CLEP (College-Level Examination Program) tests and DANTES Subject Standardized Tests for college-level credit are offered through the Downtown Campus Assessment Center. Students should check times for walk-in services, individual appointments, or group sessions.

Special needs assessment appointments can be made by calling the Disabled Student Resources Office on any Pima Community College campus.

### Assessment Equivalencies

An assessment equivalency has been adopted to facilitate the admission of students who have previously demonstrated adequate competencies in the basic skill areas. This equivalency consists of an earned degree from an accredited college. Students with this equivalency are not required to take placement assessment tests. The equivalency may not be used to meet specified program entrance requirements or Pima Community College graduation requirements. Documentation of a degree as an assessment equivalency must be recorded with an admissions office.

## Student Costs

For information on financial aid, refer to the "Financial Aid/Scholarships General Information" section under "Student Resources".

The following information reflects the College's tuition, fees and refund policies for the fall 1995 and spring 1996 semesters, and summer 1996 A, B and C sessions. **Tuition, fees and refunds are subject to change beginning with the fall 1996 semester.**

### Fall and Spring Semesters Tuition and Fees\*

Credit Hours	In-State Resident	Out-of-State/Country
1	\$ 29.00	\$ 49.00
2	58.00	98.00
3	87.00	147.00
4	116.00	196.00
5	145.00	245.00
6	174.00	294.00
7	203.00	1,050.00
8	232.00	1,200.00
9	261.00	1,350.00
10	290.00	1,500.00
11	319.00	1,650.00
12	348.00	1,800.00
13	362.00	1,935.00
14	362.00	2,056.00
15	362.00	2,177.00
16	362.00	2,298.00
17	362.00	2,419.00
18	362.00	2,540.00
19	391.00	2,690.00
20	420.00	2,840.00

\* plus a \$5.00 per semester or summer session, nonrefundable student processing fee.

## Summer Program (1996) Tuition and Registration Fees

### Arizona Residents

- \$29.00 per credit hour plus a \$ 5.00 per student per summer program student processing fee.

### Out-of-State/Country Students

- \$150.00 per credit hour plus a \$5.00 per student per summer program student processing fee.

## Additional Special and Miscellaneous Fees

### Credit Course Fees

Misc. Lecture Fee .....	not to exceed \$40.00 (recovery of extraordinary course-specific costs)
Misc. Laboratory Fees .....	not to exceed \$20.00
Health Science Liability Insurance (per semester) .....	\$15.00
Music Lessons (individual) .....	1/2 hour per week \$170.00 1 hour per week \$340.00
Communication Graphics .....	not to exceed \$60.00 (based upon specialized software and support training requirements)
Aviation Mechanics Program .....	not to exceed \$75.00 (based upon direct cost of instructional materials)
Excess Course Repeat .....	additional \$28.00 per credit hour
Course Related Field Trip .....	based on actual cost of field trip

### Processing and Testing Fees

Student Processing Fee .....	per semester/summer program nonrefundable \$5.00
Application Fee (out-of-state/country) .....	\$15.00
Transcript (per copy) .....	\$2.00
Graduation Application .....	\$15.00
GED Test (fee set by State Legislature) .....	\$25.00
GED Test (repeat each section, fee set by State Legislature) .....	\$5.00
I.D. Card .....	\$2.00
Withdrawal Fee from College assessed to students registered for 7 or more credit hours .....	\$10.00
Career Interest Fee (per test) .....	not to exceed \$20.00

### Penalties and Fines

Excessive Loss or Breakage .....	Replacement cost
Lost Books .....	Replacement plus \$10.00 handling fee
Non-Sufficient Funds (NSF) Check (per each occurrence) .....	\$15.00
Parking and Traffic Fines .....	\$10.00 - \$25.00 (per applicable parking and traffic regulation)

## Fee Payment

All tuition and fees are due by the payment deadline for each academic term. These dates are published in the Schedule of Classes and are available above as well as at any campus cashier's office. Payment can be made by one of the following methods:

- Visa, MasterCard, or American Express
- money order
- traveler's checks
- personal check
- cash

Personal checks should be made payable to Pima Community College for the exact amount of tuition and fees. Each check must include the student's social security number or identification number and the academic term for which fees are being paid. Students are required to have at least one form of picture ID when paying for fees in person.

## Refund Policies for Credit Courses

A student is eligible for a refund of paid tuition and fees when a total withdrawal from classes is processed within the provisions stated below. A \$10 total withdrawal fee will be charged when a student processes a withdrawal from classes totaling 7 or more credit hours. Refunds due a student will be net of this fee and any outstanding charges owed the College. Course fees will be refunded when a student is eligible for a 100% refund. The \$5 student processing fee is nonrefundable.

### Total Withdrawal from Classes - Regular Provision

If a student processes a total withdrawal from the College within the schedule below, a refund will be made, less applicable fees.

### Withdrawal Deadlines

Class Length	Official withdrawal must occur
Fall and Spring Semesters .....	13 calendar days after start of the semester
Summer Program .....	4 calendar days after start of the session
Nontraditional Programs	
7 or more weeks .....	within 7 calendar days from the day of first class meeting
4 to 6 weeks .....	within 4 calendar days from the day of first class meeting
2 to 3 weeks .....	by the day after the first class meeting
1 week or less .....	prior to the day of first class meeting

### Total Withdrawal from Classes - Special Provision

In the event a student processes a TOTAL withdrawal from classes after the applicable refund period for one of the described special circumstances, a refund of tuition and fees will be made on a prorated basis. Requests must be submitted during the semester in which the refund is sought and all refunds will be made net of applicable fees. Further student refunds may be authorized by the Campus President in the event of extenuating circumstances not covered by the following provisions.

1. **Serious illness.** The student must provide a verifiable, written doctor's statement that the illness prevented the student from attending classes.
2. **Death of a close family member**, defined as spouse, parents, grandparents, brother, sister, children, grandchildren, or in-laws of this group. A death certificate is required as verification.
3. **Military Temporary Duty (TDY)** assignments resulting in an involuntary transfer. A copy of the military orders is required.

### Refunds for Financial Aid Recipients

Refunds for students receiving federal financial assistance are subject to federal guidelines and are payable directly back to the sponsoring program.

### Schedule Changes

If a student decreases his/her number of scheduled classes by processing a change of schedule form, but remains enrolled in at least one class, a refund of all tuition and fees applicable to the dropped class(es) will be made. The change of schedule form must be processed within the regular provision refund schedule above.

### Canceled Classes

If a class is canceled by the College, a 100% refund of tuition and fees attributed to the class(es) will be made.

## Refund Policy For Noncredit Corporate and Community Education Activities and Study Tours:

The Corporate and Community Education office handles requests for refunds for special interest/noncredit activities and study tours. Refunds will be issued when a request is received 7 calendar days prior to the start of the activity. See below for cancellation penalties and refunds for study tours and other trips. Refunds are made in full for all activities that are cancelled. Every effort is made to contact participants prior to start date if it becomes necessary to cancel an activity. If you are not notified prior to start date of the activity for which you have registered, your enrollment is confirmed. For a registration receipt, enclose a stamped, self-addressed envelope.

### Cancellation Fees and Refunds for Study Tours and Other Trips:

One-Day Trips: A request must be received 7 days prior to the tour date.

Trips of More than One Day—Cancellation penalties are as follows:

- 100% of tour fee if request is received within 13 calendar days of tour date.
- 50% of tour fee if request is received within 14 to 29 calendar days of tour date.
- 25% of tour fee or \$25, whichever is less, if request is received 30 calendar days or more prior to tour date.

Questions should be directed to the Corporate and Community Education office, 884-6468.

## Graduation

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

1. complete the general education requirements for one of the following:
  - a. Associate of Arts Degree for Transfer
  - b. Associate of Science Degree for Transfer
  - c. Associate of General Studies Degree
  - d. Associate of Applied Arts Degree
  - e. Associate of Applied Science Degree
  - f. Advanced/Technical Certificate
2. complete the college reading requirement,
3. complete degree, certificate, and program requirements, and
4. complete a graduation application by the dates specified in the college academic calendar.

## General Education Requirements

General education provides the core of learning in all associate degree and certificate programs which demonstrates the College's vision of an educated person and a commitment to education as a lifelong process. In order to graduate, a student must complete the degree or certificate requirements which include the completion of general education requirements. Certificate and degree programs may require specific courses from the general course list below. Please refer to the certificate and degree programs listed in this catalog.

Pima Community College has established the following **Rationale for General Education**.

General education requires that students gain an understanding and appreciation of themselves; their own society; their own history and culture; the history and culture of the human species; 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 among them.

The process of general education is also designed to develop the following thinking skills: comparing; interpreting; observing; summarizing; classifying; suggesting and testing hypotheses; imagining and creating; criticizing and evaluating; designing projects and investigations; identifying assumptions; applying principles in new situations; gathering and organizing data; and coding for certain patterns of thinking, reasoning, problem solving, and decision making.

## Associate of Arts Degree for Transfer

### (General Education Requirements):

For an Associate of Arts Degree for Transfer, a student must complete the 40 to 41 credit hours of general education courses and the degree requirements for a minimum of 60 credits. See the general education course list for the AA and AS degrees in this section of the catalog for courses which fulfill this requirement.

#### Subject Area

#### Credit Hours

English Composition

6

Humanities and Fine Arts

9

Biological and Physical Sciences

8

Mathematics

3

Social and Behavioral Sciences

9

Other Requirement Options

(select 5-6 credits from the options):

(a) Oral Communication

(b) Mathematics, Computer Science, Logic, or  
Critical Thinking

(c) Foreign Language

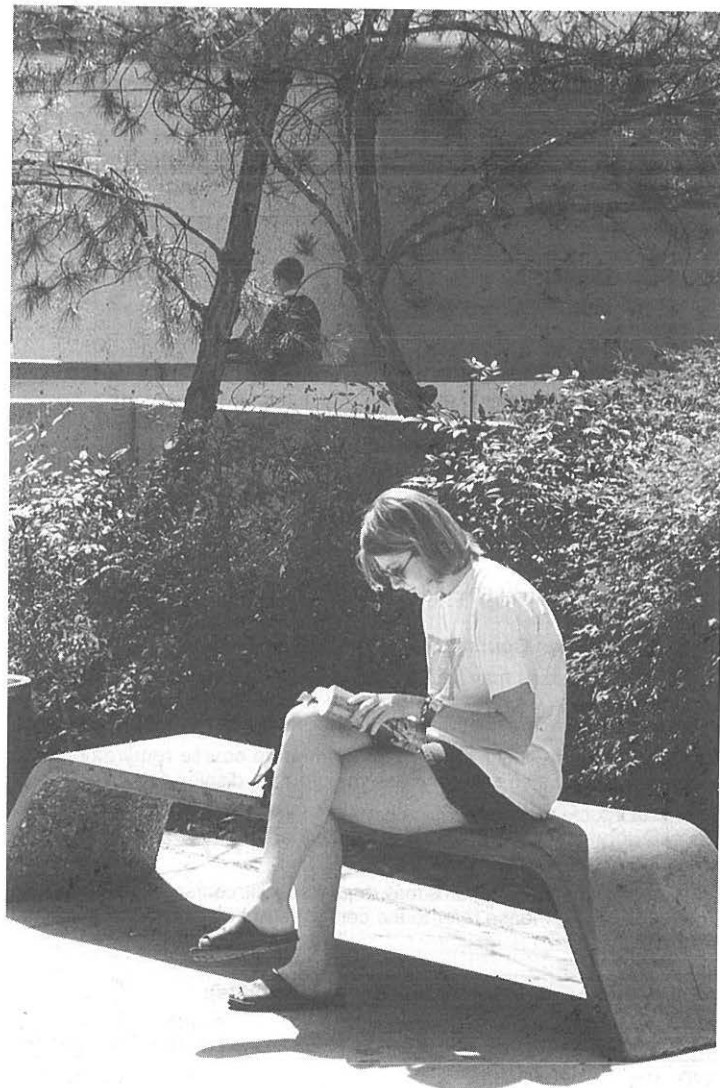
(d) International and Multi-cultural Studies

5-6

Total General Education Requirement Hours

40-41\*

\* Note: A minimum of 60 Credit hours is required for the degree.





## Associate of Science Degree for Transfer

### (General Education Requirements):

For an Associate of Science degree for Transfer, a student must complete the 40 to 44 credit hours of general education courses and the degree requirements for a minimum of 60 credit hours. See the general education course list for the AA and AS degrees in this section of the catalog for courses which fulfill this requirement.

Subject Area	Credit Hours
English Composition	6
Humanities and Fine Arts	6
Biological and Physical Sciences	8-10
Mathematics	6
Social and Behavioral Sciences	6
Other Requirement Options (select 8-10 credits from the options):	
(a) Oral Communication	
(b) Mathematics, Computer Science, Logic, or Critical Thinking	
(c) Foreign Language	
(d) International and Multi-cultural Studies	8-10
Total General Education Hours	40-44*

\* Note: A minimum of 60 credit hours is required for the degree.

### General Education Course List for AA and AS Degrees:

The following courses may fulfill the general education requirements for the Associate of Arts (AA) and the Associate of Science (AS) degrees. Some courses, marked to the right with a # symbol, fulfill only the AS requirements.

Some courses may fulfill both the program core course requirement and one general education category. See the program display and an advisor.

A general education course which is listed in more than one general education category may be used to satisfy only one category within the general education requirements.

Certificate and degree programs may require specific courses from the general course list below. Please refer to the certificate and degree programs listed in this catalog.

### English Composition (AA: 6 credits; AS: 6 credits):

Course Number	Course Title	Credit Hours	Prerequisites
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

WRT 107	Writing I for International Students	3	WRT 106*
WRT 108	Writing II for International Students	3	WRT 107

\* For additional prerequisite information, check course section.

### Humanities and Fine Arts (AA: 9 credits; AS: 6 credits):

Course Number	Course Title	Credit Hours	Prerequisites
ANT 112(2)	Exploring Non-Western Cultures	3	
ANT 205(2)	Introduction to Southwestern Prehistory	3	
ANT 206(2)	Contemporary Native Americans of the Southwest	3	
ARC 205(2)	Introduction to Southwestern Prehistory	3	
ART 100	Basic Design	3	
ART 110	Drawing I	3	ART 100
ART 115	Color and Design	3	ART 100
ART 120	Sculptural Design	3	ART 100
ART 130	Art and Culture I	3	
ART 131	Art and Culture II	3	
ART 135#	Pre-Columbian Art	3	
DRA 140#	History of Theater I	3	
DRA 141#	History of Theater II	3	
HIS 101	Introduction to Western Civilization I	3	
HIS 102	Introduction to Western Civilization II	3	
HIS 113(2)	Chinese Civilization	3	
HIS 114(2)	Japanese Civilization	3	
HIS 122(2)	Tohono O'odham History and Culture	3	
HIS 124(2)	History and Culture of the Yaqui People	3	
HIS 141	History of the United States I	3	
HIS 142	History of the United States II	3	
HIS 148(2)	History of Indians of North America	3	
HIS 160	History and Peoples of Latin America I	3	
HIS 161	History and Peoples of Latin America II	3	
HIS 170(2)	History and Peoples of Africa	3	
HUM 110	Humanities I	4	
HUM 111	Humanities II	4	
HUM 251	Western Humanities I	3	



HUM 252	Western Humanities II	3	
HUM 253	Western Humanities III	3	
HUM 260	Intercultural Perspectives	3	
<b>Languages</b>	<b>For Engineering and Pre-agriculture majors only, any transferable foreign language credits fulfill the humanities and fine arts requirements</b>		
LIT 231	Introduction to Shakespeare	3	WRT 102
LIT 260	Major British Writers	3	WRT 102
LIT 261	Modern Literature	3	WRT 102
LIT 262	Major Literary Themes	3	WRT 102
LIT 265	Major American Authors	3	WRT 102
LIT 266	World Literature: Dramatic	3	WRT 102
LIT 267	World Literature: Narrative	3	WRT 102
LIT 268	Introduction to the Literature of the Americas	3	WRT 102
LIT 286	Themes in American Literature	3	WRT 102
MUS 102	Introduction to Music Theory	3	*
MUS 105	Jazz Band II	1	*
MUS 108	Pima Jazz Band I	1	*
MUS 109	Pima Jazz Band II	1	*
MUS 111	Exploring Music Through Piano	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(1)	The Structure of Music I	3	*
MUS 127(1)	Aural Perception I	1	*
MUS 130	Chorale (SATB)	3	*
MUS 131	Chorale Singers (SATB)	3	*
MUS 151	Exploring Music	3	
MUS 160	Popular Music in America	3	
MUS 201#	History and Literature of Music I	3	MUS 102
MUS 202#	History and Literature of Music II	3	MUS 102
PHI 101	Introduction to Philosophy	3	
PHI 130	Introductory Studies in Ethics and Social Philosophy	3	
PHI 140	Philosophy of Religion	3	
REL 120	Old Testament	3	
REL 121	New Testament	3	
REL 140	Philosophy of Religion	3	
REL 234 (2)	Islam	3	

\* For additional prerequisite information, check course section.

# For Associate of Science programs ONLY.

- (1) MUS 125 and MUS 127 together are equivalent to MUS 120A at the University of Arizona.
- (2) These courses fulfill the Non-Western Traditions and Cultures requirement at the University of Arizona.

#### Biological and Physical Sciences (AA: 8 credits; AS: 8-10 credits):

Course Number	Course Title	Credit Hours	Prerequisites
ANT 105	Humanity and the Environment	3	
AST 101(1)	Solar System	3	
AST 111(1)	Solar System Laboratory	1	
AST 102(2)	Stars, Galaxies, Universe	3	
AST 112(2)	Stars, Galaxies, Universe Laboratory	1	
AST 115	Life in the Universe Laboratory	1	AST 105*
BIO 100	Biology Concepts	4	
BIO 105	Environmental Biology	4	
BIO 109	Natural History of the Southwest	4	
BIO 115	Wildlife of North America	4	
BIO 156	Human Biology for Allied Health	4	
BIO 160	Introduction to Human Anatomy and Physiology	4	
BIO 181	General Biology (Majors) I	4	*
BIO 182	General Biology (Majors) II	4	BIO 181*
BIO 183	Marine Biology	3	
BIO 184(3)	Plant Biology	4	
BIO 201	Human Anatomy and Physiology I	4	BIO 156*
BIO 202	Human Anatomy and Physiology II	4	BIO 201*
BIO 205	Microbiology	4	*
CHM 121	Introductory Chemistry	5	
CHM 130	Fundamental Chemistry	5	
CHM 140	Fundamental Organic and Biochemistry	5	CHM 130*
CHM 141	Introductory Organic and Biochemistry	5	CHM 121
CHM 151	General Chemistry I	5	MAT 122*
CHM 152	General Chemistry II	5	CHM 151
CHM 235	General Organic Chemistry I	5	CHM 152
CHM 236	General Organic Chemistry II	5	CHM 235
ENV 105	Humanity and the Environment	3	
FSN 114#	Nutrition	3	
GEO 101	Physical Geography: Weather and Climate	4	
GEO 102	Physical Geography: Land Forms and Oceans	4	

GLG 101	Introductory Geology I	4	
GLG 102	Introductory Geology II	4	
GLG 110#	Environmental Geology and Natural Hazards	3	GLG 101*
PHY 121	Introductory Physics I	5	MAT 092*
PHY 122	Introductory Physics II	5	PHY 121
PHY 210	Introductory Mechanics	5	MAT 220*
PHY 216	Introductory Electricity and Magnetism	5	PHY 210*
PHY 221	Introduction to Waves and Heat	4	PHY 210*
PHY 230#	Introduction to Modern Physics	3	PHY 210*

\* For additional prerequisite information, check course section.

# For Associate of Science programs ONLY.

(1) AST 101 and AST 111 must both be taken in order to transfer.

(2) AST 102 and AST 112 must both be taken in order to transfer.

#### Mathematics (AA: 3 credits; AS: 6 credits):

Course Number	Course Title	Credit Hours	Prerequisites
BUS 205#	Statistical Methods in Economics and Business	3	MAT 172
MAT 152	College Algebra	3	MAT 122*
MAT 154	Topics in College Mathematics	3	MAT 122*
MAT 167	Introductory Statistics	3	MAT 152*
MAT 172	Finite Mathematics	3	MAT 152
MAT 182	Trigonometry	3	MAT 152*
MAT 187	Precalculus	5	MAT 122*
MAT 212	Topics in Calculus	3	MAT 152
MAT 220	Calculus I	5	MAT 182*
MAT 227	Discrete Mathematics in Computer Science	3-4	MAT 152
MAT 231	Calculus II	4	MAT 220
MAT 241	Calculus III	4	MAT 231
MAT 252	Introduction to Linear Algebra	3	MAT 231*
MAT 262	Differential Equations	3	MAT 231

\* For additional prerequisite information, check course section.

# For Associate of Science programs ONLY.

#### Social and Behavioral Sciences (AA: 9 credits; AS: 6 credits):

Course Number	Course Title	Credit Hours	Prerequisites
ANT 101	Human Origins and Prehistory	3	
ANT 102	Introduction to Cultural Anthropology and Linguistics	3	

ANT 110	Buried Cities and Lost Tribes	3	
ANT 112(2)	Exploring Non-Western Cultures	3	
ANT 202(1)	Sex, Gender, and Culture	3	
ANT 203(1)	Ethnic Groups and Culture	3	
ANT 205(2)	Introduction to Southwestern Prehistory	3	
ANT 206(2)	Contemporary Native Americans of the Southwest	3	
ARC 101	Human Origins and Prehistory	3	
ARC 110	Buried Cities and Lost Tribes	3	
ARC 205(2)	Introduction to Southwestern Prehistory	3	
ECN 200	Basic Economic Principles	3	MAT 092
ECN 201#	Microeconomic Principles	3	MAT 092
ECN 202#	Macroeconomic Principles	3	MAT 092
GEO 103	Cultural Geography	4	
HIS 101(3)	Introduction to Western Civilization I	3	
HIS 102(3)	Introduction to Western Civilization II	3	
HIS 105(1)	Introduction to Chicano Studies	3	
HIS 113(2)	Chinese Civilization	3	
HIS 114(2)	Japanese Civilization	3	
HIS 122(2)	Tohono O'Odham History and Culture	3	
HIS 124(2)	History and Culture of the Yaqui People	3	
HIS 127(1)	History and Culture of the Mexican-American in the Southwest	3	
HIS 141(3)	History of the United States I	3	
HIS 142(3)	History of the United States II	3	
HIS 148(2)	History of Indians of North America	3	
HIS 150(1)	Afro-American History and Peoples	3	
HIS 160(3)	History and Peoples of Latin America I	3	
HIS 161(3)	History and Peoples of Latin America II	3	
HIS 170(2)	History and Peoples of Africa	3	
HIS 180(1)	Women in Western History	3	
HUM 260(1)	Intercultural Perspectives	3	
MEC 102	Survey of Media Communications	3	

PHI 101	Introduction to Philosophy I	3	
PHI 130	Introductory Studies in Ethics and Social Philosophy	3	
PHI 140	Philosophy of Religion	3	
POS 100	Introduction to Politics	3	
POS 110	American National Government and Politics	3	
POS 120	Introduction to International Relations	3	
POS 130	American State and Local Governments and Politics	3	
POS 140	Introduction to Comparative Politics	3	
POS 160	Introduction to Political Ideas	3	
POS 220	National and State Constitutions	3	
PSY 100A-B	Psychology I/Psychology II	3/3	
PSY 101	Introduction to Psychology	4	
PSY 216(1)	Psychology of Gender	3	PSY 100A*
PSY 218	Health Psychology	3	PSY 100A*
PSY 230#	Psychological Measurements and Statistics	3	PSY 100A*
PSY 250	Introduction to Social Psychology	3	PSY 100A*
PSY 265#	Normal Personality I	3	PSY 100A*
REL 120	Old Testament	3	
REL 121	New Testament	3	
REL 140	Philosophy of Religion	3	
REL 234(2)	Islam	3	
SOC 101	Introduction to Sociology	3	
SOC 103(1)	Explorations in Prejudice	3	SOC 101
SOC 120#	Current United States Social Problems	3	SOC 101
SOC 201(1)	Minority Relations and Urban society	3	
SOC 204(1)	Women in Society	3	

\* For Additional Prerequisite information, check course section.

# For Associate of Science programs ONLY.

- (1) These courses fulfill the gender, class, race, or ethnicity requirement at the University of Arizona.
- (2) These courses fulfill the Non-Western Traditions and Cultures requirement at the University of Arizona.
- (3) These courses fulfill the Western traditions and Cultures requirement at the University of Arizona.

## Other Requirement options (AA: 5-6 credits; AS: 8-10 credits):

### (a) Oral Communication:

Course Number	Course Title	Credit Hours	Prerequisites
SPE 102	Introduction to Oral Communication	3	
SPE 110	Public Speaking	3	
SPE 130#	Small Group Discussion	3	
SPE 136	Oral Interpretation of Literature	3	

# For Associate of Science programs ONLY.

### (b) Mathematics, Computer Science, Logic, or Critical Thinking:

Course Number	Course Title	Credit Hours	Prerequisites
ANT 102	Introduction to Cultural Anthropology and Linguistics	3	
CSC 100#	Introduction to Computers and Information Systems	3	MAT 092*
CSC 140#	FORTTRAN Programming	3	CSC 100*
CSC 160#	COBOL Programming	3	CSC 130*
MAT #	Any Mathematics course numbered 142 or above		
POS 100	Introduction to Politics	3	
Science #	Any Science course listed under Biological and Physical Sciences		

\* For additional prerequisite information, check course section.

# For Associate of Science programs ONLY.

### (c) Foreign Language:

Course Number	Course Title	Credit Hours	Prerequisites
FRE 110	Elementary French I	4	
FRE 111	Elementary French II	4	FRE 110*
FRE 210	Intermediate French I	4	FRE 111*
FRE 211	Intermediate French II	4	FRE 210
GER 110	Elementary German I	4	
GER 111	Elementary German II	4	GER 110*
GER 210	Intermediate German I	4	GER 111*
GER 211	Intermediate German II	4	GER 210
ITA 110	Elementary Italian I	4	

ITA 111	Elementary Italian II	4	ITA 110
ITA 210	Intermediate Italian I	4	ITA 111
ITA 211	Intermediate Italian II	4	ITA 210
JPN 110	Elementary Japanese	5	JPN 110
JPN 111	Elementary Japanese II	5	JPN 111
JPN 210	Intermediate Japanese I	5	JPN 210
JPN 211	Intermediate Japanese II	5	RUS 110
RUS 110	Elementary Russian I	4	
RUS 111	Elementary Russian II	4	
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 110	Elementary Spanish I	4	
SPA 111	Elementary Spanish II	4	SPA 110*
SPA 201	Spanish for Native Speakers I	4	*
SPA 202	Spanish for Native Speakers II	4	SPA 201
SPA 210	Intermediate Spanish I	4	SPA 111
SPA 211	Intermediate Spanish II	4	SPA 210

\* For additional prerequisite information, check course section.

# For Associate of Science programs ONLY.

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

Course Number	Course Title	Credit Hours	Prerequisites
ANT 102	Introduction to Cultural Anthropology and Linguistics	3	
ANT 205	Introduction to Southwestern Prehistory	3	
ANT 206	Contemporary Native Americans of the Southwest	3	
LIT 260	Major British Writers	3	WRT 102
LIT 266	World Literature: Dramatic	3	WRT 102
LIT 267	World Literature: Narrative	3	WRT 102
POS 120	Introduction to International Relations	3	
POS 140	Introduction to Comparative Politics	3	

### Associate of General Studies Degree

#### (General Education Requirements):

For an Associate of General Studies degree, a student must complete the general education requirements specified in the chart below and the degree requirements for a minimum of 60 credit hours. **See the general education course list for Associate Degree for Transfer and Associate of Science**

### Degree for Transfer for courses which fulfill the requirements.

Subject Areas	Credit Hours
Communication	3-6*
(Choose from English Composition or Oral Communication course lists)	
Humanities and Fine Arts	3-6*
Science and/or Mathematics	3-6*
Social and Behavioral Sciences	3-6*
Total General Education Hours	18**

\* A student must take a minimum of 3 credits in each category and at least 6 in two categories of student's choice, for a total of 18 credit hours in general education.

\*\* Note: A minimum of 60 credit hours is required for the degree.

### Associate of Applied Arts Degree Associate of Applied Science Degree

#### (General Education Requirements):

For an Associate of Applied Arts Degree or an Associate of Applied Science Degree, a student must complete the general education requirements specified in the chart below for each degree and the degree requirements for a minimum of 60 credit hours. See the general education course list in this section of the catalog for courses which fulfill the requirements. Certificate and degree programs may require specific courses from the general course list below. Please refer to the certificate and degree programs listed in this catalog.

Subject Areas	AAA* Credit Hours	AAS* Credit Hours
Communication	6	6
Humanities and Fine Arts	6	3
Science and/or Mathematics	3	6
Social and Behavioral Sciences	3	3
Total General Education Hours	18**	18**

\* AAA—Associate of Applied Arts

\* AAS—Associate of Applied Science

\*\* Note: A minimum of 60 credit hours is required for the degree.

A program core course which is also listed on the general education requirements list may fulfill both the core course requirement and **one** general education category.

A general education course which is listed in more than one general education category may be used to satisfy only one category within the general education requirements.

### General Education Course List for Associate of Applied Arts Degree and Associate of Applied Science Degree:

1. Communication: MEC 101; ASC 151, 251; SPE 102, 110, 120; SSE 111; WRT 100, 101, 102, 106, 107, 108, 150, 154, 205, 206, 254.
2. Humanities and Fine Arts: CGR 111, 140, 145; any ART course 100 & above, excluding 199; DRA 140, 141, 149, 151, 245; any Foreign Language course 100 & above; HIS 101, 102; HUM 110, 111, 131, 251, 252, 253, 260; any LIT course 100 & above; MUS 102, 125, 126, 151, 201, 202; PHI 101, 102, 120, 130, 140; REL 119, 120, 121, 130, 140; SPE 136; SLG 101, 102, 201, 202.
3. Science and/or Mathematics: ACC 100, 101, 102, 200; ARC 105; AST 101, 102, 111, 112; any BIO course 100 & above, excluding 298; BUS 105, 151, 205; any CHM course 100 & above, excluding 196; CSC 100, 104, 105, 106; ENV 100, 106, 140; ETR 160; GEO 101, 102; any GLG course 100 & above; MAC 103, 104; any MAT course 100 & above; any PHY course 100 & above.
4. Social and Behavioral Sciences: AJS 101; any ANT course 100 & above, excluding 296; any ARC course 100 & above, excluding 296; BUS 210; ECE 106, 107, 108, 114, 117, 118; ECN 200, 201, 202; FDC 122, 132; FSN 113; FSS 288; GEO 103; any HIS course 100 & above, excluding 201; MAN 110; any POS course 100 & above, excluding 149, 250; any PSY course 100 & above, excluding 294, 296, 298; any SOC course 100 & above, excluding 289, 298; SSE 133; YCA 163.

### Advanced/Technical Certificate

#### (General Education Requirements):

For an Advanced/Technical Certificate, a student must complete the general education requirements specified in the chart below and the required core and support courses for the certificate. See the general education course list for Associate of Applied Arts Degree and Associate of Applied Science Degree in this section of the catalog and the general education course list below for courses which fulfill the requirements. Certificate and degree programs may require specific courses from the general course list below. Please refer to the certificate and degree programs listed in this catalog.

Subject Area	Credit Hours
Communication	3
Humanities and Fine Arts	-
Science and/or Mathematics	3
Social and Behavioral Sciences	-
Total Hours	6

### General Education Course List for Advanced/Technical Certificate:

1. Communication: See the general education course list for Communication for Associate of Applied Arts Degree and Associate of Applied Science Degree in this section of the catalog.
2. Science and/or Mathematics: See the general education course list for Science and/or Mathematics for Associate of Applied Arts Degree and Associate of Applied Science Degree in this section of the catalog. The following courses also satisfy the general education requirement for the Advanced/Technical Certificate: MAT 065, 082, 086, 092, 094.

**NOTE: Courses below 100 do not qualify for credit towards degree programs.**

### College Reading Requirement

In order to graduate, a student must also meet the College reading requirement. The college-defined competency in reading is a minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment. Proficiency at the REA 112 level or higher will enhance student achievement. Students are encouraged to satisfy the reading requirement early in their studies.

Students applying for graduation in an associate degree program must demonstrate reading competency as defined. Students who demonstrate this competency level on assessment or students who successfully complete REA 112 or higher will have met this requirement.

### Degree, Certificate, and Program Requirements

Pima Community College offers degrees and certificates in a variety of disciplines. Each degree and certificate has different program requirements for graduation. Grades of "C" or better are required in core courses to fulfill graduation requirements. Core courses are designated in each college program. See the "Programs" section of this catalog for program requirements.

**Associate Degrees** generally are granted upon the successful completion of a program, usually two years in length, which has been outlined by the College faculty and approved by the Arizona Community College Board. Details of programs offered are listed in the Program section of this catalog.

While a minimum of 60 credit hours of course work at the 100 level or higher is required to earn an associate degree at Pima, it should be noted that the completion of some programs extends beyond the 60-credit hour minimum.

At least 15 semester hours of the total required to qualify for an associate degree must be earned at Pima Community College.

**Basic, Advanced, and Technical Certificates** are awarded in many short-term study program areas. Generally, these programs do not carry the

two-year (60-credit hour) minimum for the associate degrees.

Certificates are granted upon the completion of a prescribed program curriculum of this catalog.

At least 6 semester hours of the total required to qualify for a certificate must be earned at Pima Community College.

**Degree and Certificate Requirements** must be met before a degree, certificate, or course credit is granted. These requirements involve program and course requirements.

Faculty and staff are available to help students understand and arrange to meet these requirements, but students are responsible for fulfilling them. If the requirements have not been satisfied at the end of the student's course of study, the degree, certificate, or course credit will not be granted. For this reason, it is important for each student to complete the General Education requirements as well as other requirements as outlined in this graduation section and to keep currently informed of changes that may occur at Pima Community College or, in some cases, the transfer institution.

## Catalog Under Which a Student Graduates

This catalog does not establish a contractual relationship. It does, however, summarize the requirements students must meet to qualify for degree or certificate recommendation to the Governing Board of the Pima County Community College District.

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 single catalog in effect during subsequent terms of continuous enrollment. Students may maintain continuous enrollment whether attending a single public community college or university in Arizona or transferring among public institutions in Arizona while pursuing their degrees.

1. A semester in which a student earns course credit will be counted toward continuous enrollment. Noncredit courses, audited courses, failed courses, or courses from which the student withdraws do not count toward the determination of continuous enrollment for catalog purposes.

### Example:

Admitted & Earned Credit at a Community College	Fall 96	96/97 or subsequent catalog
Continued at a Community College	Sp 97, Fall 97	96/97 or subsequent catalog
Transferred to a University	Sp 98	96/97 or subsequent catalog

2. Students who do not meet the minimum enrollment standard stipulated in No. 1 during three consecutive semesters (fall/spring) and the intervening summer term\* at any public Arizona community college or university are no longer considered continuously enrolled, and must meet requirements of the public Arizona community college or university catalog in effect at the time they are re-enrolled or of any single catalog in effect during subsequent terms of continuous enrollment after readmission.

### Example A:

Admitted & Earned Credit at a Community College	Fall 96	96/97 or subsequent catalog
Nonattendance	Sp 97, Fall 97, Sp 98	Inactive for 3 semesters/ loss of catalog after Sp 98
Re-enrolled & Earned Credit at a Community College	Fall 98	98/99 or subsequent catalog
Transferred to a University	Sp 99	98/99 or subsequent catalog

### Example B:

Admitted & Earned Credit at a Community College	Fall 96	96/97 or subsequent catalog
Nonattendance	Sp 97	Inactive/no loss of catalog
Re-enrolled & Earned Credit at a Community College	Sum 97	96/97 or subsequent catalog
Nonattendance	Fall 97, Sp 98	Inactive/no loss of catalog
Transferred to University	Fall 98	96/97 or subsequent catalog

\* Students are not obligated to enroll and earn course credit during summer terms, but summer enrollment may be used to maintain continuous enrollment status.

3. Students admitted or re-enrolled to a public Arizona community college or university during a summer term must follow the requirements of the catalog in effect the following fall semester or of any single catalog in effect during subsequent terms of continuous enrollment.

### Example:

Admitted & Earned Credit at a Community College	Sum 96	96/97 or subsequent catalog
Continued at a Community College	Fall 96, Sp 97	96/97 or subsequent catalog
Nonattendance	Fall 97	Inactive/no loss of catalog



Re-enrolled & Earned Credit at a Community College	Sp 98	96/97 or subsequent catalog
Transferred to a University	Sum 98	96/97 or subsequent catalog

- Students transferring among Arizona public higher education institutions must meet the admission requirements, residency requirements, and all curricular and academic requirements of the degree-granting institution.

## 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 8 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 8-year limit on coursework applies except when program accreditation agencies limit the life of coursework to less than 8 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.

## Graduation Application

Students are required to make application for the receipt of certificates and/or degrees by the dates specified in the college academic calendar. Failure to do so may result in a delay in processing until the following semester.

## Credit by Examination

It is recognized that a student may have already fulfilled expected knowledge and/or competency levels for certain course and program requirements. Therefore, a student shall have the opportunity to officially earn and record advanced placement in the College.

Credit by examination shall include:

- Advanced placement examinations from high school.
- College-Level Examination Program (CLEP).
- Defense Activity for Non-Traditional Education Support (DANTES).
- Special examination for credit.

Students cannot receive credit by examination for a course that is lower than that in which they are currently enrolled or for which they already have received credit.

Students currently or previously enrolled at Pima Community College may earn up to a maximum of 30 credit hours by examination.

## Advanced Placement from High School

These exams are administered in various high schools each year during the month of May and are designed to test competence in specific subject areas at the lower division college level. High school seniors may request the opportunity, through their counselor's office, to pursue college credit by examination in one or more areas of proficiency. A fee is charged for each exam. Pima Community College credit will be awarded in appropriate subject areas to students who receive a score of 3, 4, or 5 on these exams.

## College-Level Examination Program (CLEP)

Two types of exams are available under this program for those who wish to earn college credit by examination.

- General Examinations:** Five general examinations are offered through the Downtown Campus—English Composition, Humanities, Mathematics, Natural Sciences, and Social Sciences and History. Each examination requires a registration and an examination fee. Only currently enrolled student or students who have attended PCC in the last 5 years may take CLEP General Examinations. For further information about taking the general examinations, contact the Assessment Center, Downtown Campus, 884-6370. For information about course equivalency credit, contact the admissions office at any PCC campus.
- Subject Examinations:** These are more specific and intended to cover material typical of college-level courses in each subject area. More than 30 of these examinations are available through the testing office at the University of Arizona. Students are advised that prior to taking a subject examination they need to contact a PCC admissions office about which subject examinations result in course credit. Credit may be earned for one or more Pima Community College course(s) upon completing an appropriate subject examination with a passing score. While the general examinations are offered through the Downtown Campus (see General Examinations above), subject examinations are offered at the University of Arizona, Old Main, Room 223, 621-7589. For information about course equivalency credit, contact the admissions office at any PCC campus.

### Defense Activity for Non-Traditional Education Support (DANTES)

The Downtown Campus Assessment Center offers nearly 50 DANTES Subject Standardized Tests to those students who wish to earn college credit by examination in the areas of Mathematics, Social Science, Business, Applied Technology, Foreign Languages, Humanities, and Physical Science. Each test requires an examination fee. Only currently enrolled students or students who have attended PCC in the last 5 years may take the DANTES Subject Standardized Tests. For further information about taking the DANTES tests, contact the Assessment Center, Downtown Campus, 884-6370. For information on course equivalency credit, contact any Pima Community College admissions office.

### Special Examination for Credit or Grade

Credit by examination may be awarded for selected courses currently taught at Pima Community College. Students should consult with the appropriate departmental chairperson or faculty member for further information. Only students currently enrolled at Pima Community College may receive credit by examination. A student may not receive credit by examination for a course that is equivalent to or of a lower level than that in which he/she is currently enrolled or has already received credit. Credit by examination may not necessarily be transferable to other institutions of higher education. (Credit by examination does not satisfy the 15 hours residency requirement, nor can it be used in qualifying a student for veterans benefits.)

### Graduation with Honors

Graduating degree students who complete 30 credits at Pima Community College and qualify will be granted the following designations:

Graduation with Honors—3.500 to 3.799 grade point average

Graduation with High Honors—3.800 to 4.000 grade point average

These designations will be shown on diplomas and listed on students' official transcripts.

## Student Records

### Grading Policies

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

A—Superior: 4 grade points per credit hour

B—Above Average: 3 grade points per credit hour

C—Average: 2 grade points per credit hour

D—Below Average: 1 grade point per credit hour

F—Failure: 0 grade point per credit hour

P—Pass: C or better without grade differentiation ordinarily indicated by the College grading system. This grade may be given at the student's request and the instructor's option.

I—Incomplete: A record of Incomplete as a grade will be made at the student's request and at the instructor's option. This grade will be kept on record for one year after which it will be automatically changed to a Y. A student receiving a grade of I will be provided with a standard form specifying the work necessary for completion of the course.

W—Official Withdrawal: This grade may be requested by the student only during the first two-thirds of any session. This grade may be given by the instructor on or before the official census reporting date to students who have ceased attending class before that date.

Y—General Withdrawal: This grade may be given by the instructor at his/her discretion at the end of the term when circumstances dictate that none of the other grades are appropriate.

X—An X placed next to the grade indicates the grade was earned through the successful completion of a proficiency test.

AU—Audit: To audit a course 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 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.

### Graduation Requirements

Graduation requirements include a 2.0 overall grade point average (GPA). The GPA is found by multiplying the number of credit hours for each course by the number of points for the grade and dividing the sum of the total points by the total number of credit hours of A, B, C, D, and F grades. D grades do not fulfill graduation requirements if they are received in core courses. F grades do not fulfill any requirements. The GPA is based only on

work completed at Pima Community College. A complete record of all credit courses attempted at Pima Community College is maintained for each student. Grade reports are mailed to each student at the end of each session.

### Official Withdrawal Guidelines

Students may request a grade of "W" (official withdrawal) only during the first two-thirds of the calendar days of any session based upon beginning and ending dates for classes as contained in the College Schedule of Classes. For Open Entry/Open Exit classes, the two-thirds deadline is based upon calendar days between the date of a student's initial registration and the last day of the semester or session. In classes of two or less calendar days, instructor approval will be required if the "W" grade is requested after the class begins.

Instructors may award a "W" grade only on or before the official census reporting date to students who have ceased attending class before that date.

### Course Repeat

The higher of two grades earned for the same course will be used for the computation of the GPA. Both courses will remain on the student's transcript.

## Academic Standards of Progress

The following criteria will be applied to determine good academic standing at Pima Community College. All students will be in good academic standing provided 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 Pima Community College with a grade of A, B, C, D, F, or P.

### Academic Alert

Students will be placed on academic alert when:

1. Their Cumulative Grade Point Average does not meet the minimum standards for good academic standing.
2. They have appealed and been reinstated after having been placed on academic disqualification.

The Academic Alert system:

1. Informs students of academic status.
2. Allows students one semester to raise their GPA to the minimum GPA for good academic standing.
3. Advises students of available College resources which may assist in improving academic performance.

### Academic Disqualification

A student on academic alert will be academically disqualified under the following condition:

- After the academic alert semester, he/she has not raised the cumulative GPA to the required minimum identified above. (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.)

A student who has been academically disqualified will not be permitted to enroll until he/she has been reinstated through the College appeal procedure. Specific procedures for appeal are outlined within the notification letter that is provided to students who are disqualified.

### Appeal of Academic Disqualification

- A student who has been academically disqualified must follow established College appeal procedures for reinstatement.
- A student who feels that unusual circumstances contributed to the unsatisfactory academic progress, may follow the established College appeal procedures to request immediate reinstatement.

### Appeal of Grades

There is an appeal process for grade challenges. Please refer to the *Student Rights and Responsibilities* document that can be obtained from the Dean of Instruction's office.

### Reinstatement

Students appeal the academic disqualification in the accordance with established College appeals procedures. (See *Student Rights and Responsibilities* document.) After reinstatement the student will be placed on academic alert status.

## 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 or 6 or more credit hours for a ten-week summer session or 4 or more credit

hours for a six-week session will be classified as full-time students.

### **Part-Time Student**

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

### **Freshman**

Students who have earned 27 or fewer credit hours will be considered freshmen.

### **Sophomore**

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

## **Family Educational Rights and Privacy Act**

Pima Community College informs its students annually of the Family Educational Rights and Privacy Act of 1974. This act, with which the institution intends to fully comply, was designated 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 through informal and formal hearings. Students also have the right to file complaints with the Family Educational Rights and Privacy Act Office concerning alleged failures by the institution to comply with the act.

Questions concerning the Family Educational Rights and Privacy Act may be referred to one of the College admissions offices.

### **Student Information Covered under the Act**

Pima Community College hereby designates categories of student information as public or directory information. Such information may be disclosed by the College for any purpose at its discretion.

Public or directory information includes the student's name, address, telephone number, date and place of birth, major field of study, classification status (freshman, sophomore, full-time, part-time), participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees, honors, awards received, and most-recent previous educational agency or institution attended by the student.

Although the College does not publish and release a student directory, **currently enrolled students may instruct the College not to disclose public or directory information** under the Family Educational Rights and Privacy Act of 1974. To withhold disclosure, written notification must be received by a campus office of Admissions and Records prior to the end of drop/add for each semester concerned. A form is published in the Fall,

Spring and Summer editions of the Schedule of Classes.

Pima Community College assumes that any student who does not specifically request the withholding of public or directory information indicates individual approval for disclosure.

## **Articulated Courses Statement**

Pima Community College has articulation agreements with local school districts and other institutions. Such agreements permit credit to be awarded for instruction in high schools or other classes once the conditions of the agreement are met. While these articulated courses may fulfill a portion of the requirements for Pima Community College certificates and degrees, other colleges or a university to which a student transfers may not recognize articulated credit.

# **Student Services**

The Student Development staff provides students with a variety of services to meet their educational, personal, and career goals. These services are provided at all campuses.

## **Counseling**

Counseling services are provided to students as they identify and pursue their goals. The counseling faculty provide assistance to students deciding on a career or college major, or seeking help with academic and personal problem solving. Students should call the campus counseling centers for appointments.

## **Human Development**

Students seeking to enhance their personal growth can enroll in a variety of Human Development Education courses. Each semester a series of courses are offered, giving students an opportunity to focus on adult life skills. Courses offered are Approaching Mathematics Positively, College Success Skills, Becoming a Master Student, Transfer Strategies, Developing Self-Esteem, Personal Development, Overcoming Co-Dependency, Stress Management, Wellness, Assertiveness Training, Dynamics of Leadership, and Career Exploration. Check the Schedule of Classes under Human Development Education (HDE) for times and locations.

## Special Programs

Special programs are designed to assist minority students (Native Americans, Hispanics, African Americans), reentry women, international students, veterans, or physically impaired or limited-mobility students. These programs may assist qualified students in obtaining financial aid or benefits, career information, counseling, advising, and tutoring. Some campuses offer specific activities for target populations. Contact the campus Student Development office for information.

## Career Centers

Career Centers, located in the Student Center at the West Campus, the Campus Center at the Downtown Campus, the Advising Center at the Desert Vista Campus, and in the Student Union at the East Campus, provide information on various careers, training for different careers, salary projections, future outlooks for employment, special job requirements, résumé writing, and job seeking skills. Students can use computer software programs to determine careers related to their interests. Career counseling is available through campus counseling centers.

## Job Placement

The College offers job placement services on each campus. The centers provide assistance with preparing for employment and maintain a listing of part-time and full-time temporary jobs for students.

## Disabled Student Resources

Pima Community College is committed to providing college-wide educational support assistance for students with documented disabilities. Disabled Student Resources (DSR) assists students and instructors in providing accommodations to allow each individual to function to the best of his/her ability within the scope of the College. The department also refers disabled students to other College departments and community agencies that can enhance and support their educational experience. When appropriate, services provided by Disabled Student Resources may include academic and career advising, classroom assistance, note taking, sign language interpreting, mobility assistance, availability of specialized equipment, and workshops for administration, faculty, and staff, which emphasize services and accommodations available for students with disabilities.

## Computer Information Access

The Pima Community College Information System allows students to find answers to many of their own questions. The system is currently accessible in several ways. Touchscreen computer kiosks are located at each of the campuses and at Davis Monthan Air Force Base, Nogales/Santa Cruz Education Center, Pascua Yaqui Reservation, Canyon del Oro High School,





Rincon High School, Tucson Urban League, Tucson Medical Centers. The system is also available to students who have access to a personal computer and a modem by dialing (520) 884-6060 and typing in the user name PIMAINFO. The system includes access to:

#### **College Information and Services**

College locations and maps, College policies, and more.

#### **Academic Information and Services**

Getting Started: academic calendars, information on admissions, advising, assessments, new student orientation, counseling, registration, costs, financial aid, veterans affairs, disabled student resources, international student services, and more.

The Right Tools: College course and program catalog, student job placement, schedule of classes, interactive schedule planner, access to your own schedule listings, grades, and more.

#### **Library Catalog and Internet Resources**

PIMALINK (Pima Community College Library Online Public Access Catalog) and access to links to Arizona resources and educational resources.

## **Financial Aid/Scholarships General Information**

To provide students with access to the College and to assist them to defray their cost of education, a full range of student financial aid is offered through the Financial Aid Office. The financial aid program funds are from federal and state programs and private donors. Funds are awarded to students based on financial need, academic achievement, and program of study. Completing the Free Application for Federal Financial Aid is the first step in the application process. A separate application may be required for certain scholarships.

To ensure that students are given priority consideration for assistance, they should complete the entire application process prior to May 31 for the fall semester that begins in August. It is important to note that May 31 is a priority date, not an application deadline.

All students are encouraged to apply for financial aid. Students who do not have financial need may still qualify for scholarships, temporary short-term loans or other programs.

### **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 eligibility and bases the awards to students on their dependency status, enrollment, and living accommodations. The Pell Grant, unlike a loan, does not have to be repaid.

#### **Federal Stafford Loans Program**

The Federal Stafford Loans program offers subsidized and unsubsidized loans. 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 begins repayment. 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 disbursed until the loan is paid in full. Students have the option to pay the interest as it accrues or to let it accumulate and add the interest to the loan. Students can receive both subsidized and unsubsidized loans. Repayment of the loans begins 6 months after the student graduates, leaves school, or drops below half-time enrollment. In addition to the Free Application for Federal Student Aid, students must complete the Federal Stafford Loan Application and Promissory Note.



### **Federal Plus Loans**

Federal Plus Loans are for parents of dependent students. This loan program enables parents with good credit histories to borrow to pay for the education expenses of each child who is a dependent, undergraduate student enrolled at least half-time. The yearly limit of Plus Loans is equal to the student's cost of education less any other financial aid the student is eligible to receive. The interest rate is variable, but it will never exceed nine percent. The interest rate is adjusted each year on July 1. Payment of principal and interest begins within 60 days after the final loan disbursement and interest begins to accrue at the time the first disbursement is made.

### **Campus-based Programs**

The College participates in three campus-based programs and receives a yearly allocation. Eligibility is based on financial need. Funds will be awarded to the neediest students first. Since the funds allocated to the College are limited, students are encouraged to apply as early as possible to meet the priority date. The three programs are Federal Educational Opportunity Grants, Federal Work Study, and Federal Perkins Loans.

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

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

### **Federal Work Study**

The Federal Work-Study Program provides jobs for students with financial need. Students may work up to 20 hours per week in an on-campus or off-campus placement. The program encourages community service work and work related to the student's course of study.

### **Federal Perkins Loans**

A Federal Perkins Loan is a low-interest (5 percent) loan. The College determines the amount of the loan based on exceptional financial need. These loans must be repaid. Repayment starts 6 months after the student borrower is no longer enrolled in school. There are different deferment provisions available for community service, unemployment or economic hardship.

### **Arizona State Student Incentive Grant Program (SSIG)**

The Arizona State Student Incentive Grant Program (SSIG) makes grants available to students with exceptional financial need. The College determines the amount of award based on need and enrollment status.

### **Institutional Student Aid**

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 1/2

hours per week. For application and placement information, students should contact the Job Placement Office at any campus.

### **Short-Term Loans**

This program is intended to assist a student in meeting emergencies or funding problems. The loans are to be paid 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, on a combination of financial need and merit, and on program of study. Contact any campus financial aid office for scholarship application information. The current scholarships include:

- The Altrusa Club of Tucson Scholarship  
Source: The Altrusa Club of Tucson, Inc. (International Women's Service Organization)  
Eligibility: Preference for a second year woman student in career fields such as Nursing, Medical Technology, Social Service, Corrections, Computer Technology, or Education. Financial need, Arizona resident, with a 3.0 or better G.P.A.  
Value: Amount varies, one award per year
- American Business Women's Association  
Source: American Business Women's Association of Tucson  
Eligibility: Female students interested in the business field  
Value: \$120, one award per year
- American Legion Post #66 Nursing Scholarship  
Source: Green Valley Post #66  
Eligibility: Needy, deserving student in RN program  
Value: \$400, one award per year
- Arizona Repertory Singers/Del Webb's Sun City Tucson Choral Scholarship  
Source: Arizona Repertory Singers/Del Webb's Sun City Tucson  
Eligibility: Full-time vocal music student  
Value: \$504, one award each year
- William A. Barnes Memorial Scholarship  
Source: William A. Barnes Estate  
Eligibility: Demonstrated proficiency in math, mechanical trades, electronics, and drafting, or pursuit of RN or LPN.  
Value: Amount and number of awards varies.
- Chef's Association of Southern Arizona  
Source: The Association  
Eligibility: Promising students in hospitality/culinary arts  
Value: Amount and number of awards varies

- Delta Nu Alpha Scholarship  
Source: Delta Nu Alpha Organization  
Eligibility: Promising full-time students in the Transportation and Traffic Management Program  
Value: \$150, number of awards varies
- Margaret Ernst Memorial Scholarship  
Source: Family and friends  
Eligibility: Promising and needy students  
Value: Amount and number of awards varies
- Exchange Clubs of Tucson Temporary Loan Fund  
Source: Exchange Clubs of Tucson  
Eligibility: Second semester students  
Value: Up to \$50 for books, number of awards varies
- Kim Fackelman Memorial Scholarship  
Source: Family and Friends  
Eligibility: Worthy and deserving student in Computer Science  
Value: Amount varies, one award per year
- First Interstate Bank Scholarship  
Source: First Interstate Bank of Arizona  
Eligibility: Students in the business field  
Value: \$400, three awards per year
- Forty & Eight Scholarship  
Source: Voiture #73 - Forty & Eight  
Eligibility: Needy and deserving students in RN program  
Value: \$150 per semester, number of awards varies
- Frederick B. Ginsburg Memorial Scholarship  
Source: Family and friends  
Eligibility: Deserving students in any field of study  
Value: \$300 per year, one award each year
- Golden Plate Scholarship  
Source: Educational Foundation of the National Restaurant Association  
Eligibility: Full-time student in Hospitality Education Program  
Value: \$750, number of awards varies
- Hughes Aircraft Company Scholarship  
Source: Hughes Aircraft Company, TMD  
Eligibility: Promising and needy students pursuing a four-year degree  
Value: \$500, two awards each year
- International Association of Hospitality Accountants, Inc., Greater Tucson Chapter  
Source: The Association  
Eligibility: Hospitality education majors  
Value: Amount and number of awards varies
- Kiwanis Club of Green Valley Scholarship  
Source: Kiwanis Club of Green Valley  
Eligibility: Promising and needy students  
Value: \$350, one award per year
- Kiwanis Club of Tucson Scholarship  
Source: Kiwanis Club of Tucson  
Eligibility: Promising and needy students  
Value: \$400, four awards per year
- Sharon Krieg Memorial Scholarship Fund  
Source: Family and friends  
Eligibility: Promising and needy students  
Value: Amount and number of awards varies
- League of Mexican-American Women Scholarship  
Source: League of Mexican-American Women  
Eligibility: Promising Mexican-American students  
Value: Amount and number of awards varies
- Little Chapel of All Nations Scholarship  
Eligibility: Promising and needy full-time students in the records management sequence of administrative support careers  
Value: \$500
- Mary Macon Memorial Scholarship for Office Education Students  
Source: Family and friends  
Eligibility: Promising and needy students in administrative support careers  
Value: Amount and number of awards varies
- Marshall Foundation Fund - Allied Health  
Source: Marshall Foundation  
Eligibility: Students enrolled in an Allied Health program  
Value: Amount and number of awards varies
- Marshall Foundation Fund - Nursing  
Source: Marshall Foundation  
Eligibility: Female students enrolled in the RN program  
Value: Amount and number of awards varies
- Andrew P. Martin Scholarship Fund  
Source: Estate of the late Andrew P. Martin  
Eligibility: Graduate of a Tucson high school, enrolled in a one- or two-year building, electronics, or mechanical trade course of study  
Value: \$300, number of awards varies, renewable
- M.E.Ch.A. - Lizzie Lopez Memorial Temporary Loan Fund  
Source: M.E.Ch.A. Club  
Eligibility: Promising and needy students  
Value: Amount and number of awards varies

- Medical Secretary Society of Pima County  
Source: Medical Secretaries Society of Pima County  
Eligibility: Full-time enrollment in the medical assistants or an allied medical program  
Value: \$150, one award per year
- Marilyn A. Nevin Memorial Nursing Scholarship  
Source: Family  
Eligibility: Promising and deserving full-time students  
Value: Amount and number varies
- Old Pueblo Rotary Club  
Source: Old Pueblo Rotary Club  
Eligibility: Full-time students ineligible for other aid, maintaining a 2.8 G.P.A., in a degree program  
Value: \$300, two awards per year
- Pima Community College Faculty/Staff Scholarship Fund  
Source: Donations from faculty and staff  
Eligibility: Deserving students in any field  
Value: \$120, number of awards varies
- Pima Community College Foundation, Inc.  
Source: Various Donors  
Eligibility: Outstanding scholastic achievement and financial need  
Value: \$200, number of awards varies
- Pima Community College General Scholarship Fund  
Source: General donations to the fund  
Eligibility: Promising students in any field  
Value: Amount and number of awards varies
- Pima Community College Hospitality Department Transfer Student Scholarship  
Source: Northern Arizona University School of Hotel and Restaurant Management  
Eligibility: Graduates from the Hospitality Department  
Value: \$500, one award per year
- Pima County Sheriff's Posse - Law Enforcement Scholarship  
Source: Pima County Sheriff's Posse  
Eligibility: Career oriented in law enforcement and show economic need  
Value: \$1,000, two or more awards per year
- Andrew J. Pizzini Memorial Fund  
Source: The estate  
Eligibility: Promising and needy students  
Value: Amount, number and type of awards vary
- Prince Hall Masonic Scholarship  
Source: Beautiful Star Chapter #133 O.E.S.  
Eligibility: Re-entry student, preference to one with tie to Prince Hall Masonic  
Value: \$200, one award per year

- Radiologic Technology Scholarship  
Source: Temporary Techs of Arizona, Inc.  
Eligibility: Second year student in Radiologic Technology  
Value: \$800, one award per year
- Recognition Award  
Source: Pima Community College Student Association  
Eligibility: Participation in extra-curricular college activities and departmental recommendation  
Value: Up to \$308, number of awards varies
- Respiratory Therapy Book Scholarship  
Source: Temporary Techs of Arizona, Inc.  
Eligibility: Second year student in Respiratory Therapy  
Value: \$250, one award per year
- Rodeo Club Scholarship  
Source: Various  
Eligibility: Active participation in Rodeo Club  
Value: Amount and number of awards varies
- Jeffrey H. Ross Memorial Scholarship  
Source: Family and Friends  
Eligibility: Students in law enforcement  
Value: Amount and number of awards varies
- Rotary Club of Tucson Scholarship  
Source: Rotary Club of Tucson  
Eligibility: Worthy and deserving students  
Value: Amount and number of awards varies
- David Scott Memorial Scholarship for Handicapped Students  
Source: Family and Friends  
Eligibility: Promising and needy handicapped students  
Value: Amount and number of awards varies
- Southern Arizona Chapter of A.C.U.L.  
Source: Southern Arizona Credit Unions  
Eligibility: Credit Union members pursuing the credit union degree program  
Value: \$408 per year, number of awards varies
- Southern Arizona Mortgage Bankers Association Scholarship  
Source: Southern Arizona Mortgage Bankers Association  
Eligibility: Sophomore, financial need, Business Administration, Finance, interest in Real Estate preferred  
Value: \$1000, one or more per year
- Southern Arizona Restaurant Association  
Source: The Association  
Eligibility: Promising Pima County resident in Foodservice  
Value: \$600, one award per year



- Southern Arizona Tucson Innkeepers Association Scholarship  
Source: The Association  
Eligibility: Promising second-year students in the hospitality/tourism program  
Value: \$400, two awards per year
- Suburban Women's Club Scholarship  
Source: Suburban Women's Club of Tucson  
Eligibility: Promising and needy students  
Value: \$120, number of awards varies
- Tucson Jaycee-ettes Scholarship  
Source: Tucson Jaycee-ettes  
Eligibility: Full-time needy students in RN Program or Allied Health Program  
Value: \$250, two awards per year
- Tucson Medical Center Scholarship  
Source: Tucson Medical Center Auxiliary  
Eligibility: Employees enrolled in Health Fields  
Value: \$600, number of awards varies
- Tucson Transportation Club Scholarship  
Source: Tucson Transportation Club  
Eligibility: Promising, full-time students in the Transportation and Traffic Management Program  
Value: \$150, number of awards varies
- Tucson Woman's Club Scholarship  
Source: Lela McKay Scholarship Fund  
Eligibility: Worthy and deserving students  
Value: Amount varies, two awards per year
- Maria Urquides Scholarship  
Source: League of Mexican-American Women  
Eligibility: Promising and needy students  
Value: \$250, two awards per year
- Adrian Van de Verde Memorial Scholarship  
Source: Alice Van de Verde  
Eligibility: Promising student in Nursing  
Value: \$100, one award per year
- Kara Watchman Memorial Scholarship  
Source: Family and friends  
Eligibility: Needy and deserving second-year students in RN program  
Value: Amount varies, one book award per year
- William R. Weaver Memorial Scholarship Fund  
Source: Family and friends  
Eligibility: Economic need and intent to pursue degree in manufacturing, engineering or drafting  
Value: Amount and number of awards varies

## Department of Veterans Affairs (DVA) Educational Assistance

Pima Community College is approved for the enrollment of veterans, survivors and dependents under Title 38 of the U.S. Code (chapters 30, 32, and 35), and Selected Reservists (chapter 106) under Title 10 of the U.S. Code. Eligible persons should select an approved program of study prior to registration in order to receive DVA assistance. All persons approved for DVA benefits are required to comply with the Academic Standards of Progress contained in this catalog. Students who qualify should contact a Veterans Office at any campus.

### Enrollment Requirements

An eligible person must be enrolled for 12 or more credit hours to receive full-time benefits, 9 to 11 hours for three-quarters benefits, and 6 to 8 hours for half benefits. Those enrolled for less than 6 credits may be reimbursed for tuition and fees only. Active duty military students will be paid for tuition and fees (lump sum payment is only available for less than half-time). The monthly benefit rate varies by "chapter" of eligibility.

Recipients of DVA assistance enrolled in nonstandard semester courses (i.e. open entry/open exit or short-term courses) should be aware that the monthly level of assistance may vary depending on the number of credits undertaken, the length of the nonstandard semester courses, and whether the student is combining standard and nonstandard courses. Open entry/Open exit classes will not be certified until completion of the term.

Veterans interested in independent study and/or television courses should contact the District Veterans Office **prior** to enrolling in these classes.

### Transfer of Previously-Earned Credits

The DVA requires that eligible students who have prior military training or have attended another college or university prior to enrollment at Pima must provide an official transcript and/or DD Form 214 for consideration. The College will award appropriate credit for previous education where applicable and report this to the DVA during the first semester of attendance.

If transcripts or DD Form 214 are not furnished and the College cannot provide "credit allowed for prior training" by the end of the semester, the DVA may retroactively terminate benefits for that semester. This will enter the veteran into "overpaid" status and no further action will be undertaken by the DVA until the evaluation is submitted.

### Enrollment Certification and Limitations

Eligible persons must complete an "enrollment certification" **each** semester immediately after registration to initiate or continue receiving benefits.

Students who have accumulated 45 credits, including transferred credits, must apply for a Veteran Coursework Evaluation, thereby becoming a

"restricted student". Enrollment certification for students in this restricted status cannot be submitted until the Veteran Coursework Evaluation is completed. Students in the General Studies Program may select a specific program of study and then request an evaluation and submit a DVA "change of program" **prior** to enrollment certification. Veterans are limited to one program change in a twelve-month period. DVA will charge a program change if there is a material loss of 12 credits or more (not transferable to the new course of study). DVA must approve all program changes. Veterans will only be certified for those classes that are in pursuit of their objective identified on the Veteran Coursework evaluation.

Educational benefits will not be paid for courses unless they are used in computing graduation requirements. Students receiving the grade of General or Official Withdrawal in any of their courses will have to reimburse the DVA retroactive to the beginning of the semester unless there are mitigating circumstances which are then approved by the DVA.

### Additional Benefits

Students eligible for DVA benefits and completing the enrollment certification may also apply for tutorial and/or work-study assistance. These programs are available in addition to the educational benefits. Certain requirements must be met to determine eligibility. Contact any Campus Veterans Office for information.



# Campus Libraries

Library services for all college students, faculty, and staff members, and Pima County residents are available at the Desert Vista, Downtown, East, and West campus libraries. College library resources are listed in a single computerized catalog and shared through courier and telefacsimile services. These resources include books, journals, videos, audio tapes, compact disks, and microforms. The computer system, PIMALINK, also contains a directory to special CD-ROM databases at each campus library.

Public services staff are available at all libraries to answer reference questions and to assist users in locating and utilizing information. They provide bibliographies, online database searching, student and faculty manuals, course reserve services, and referral to other information resources. Campus libraries may also provide formal library skills classes (LIB 100 and HON 203), informal individual classes and assignments, a library orientation video, classroom presentations, individualized consultancies, and the use of calculators, typewriters, microcomputers, and video players. A list of library materials is available on the online catalog, PIMALINK, which also contains *Magazine Index/Plus*, *Expanded Academic Index*, and *ERIC*, three journal citation databases. Through PIMALINK menu selections, users may access other databases such as the University of Arizona's SABIO and the World Wide Web (WWW). The WWW is a hypertext system that provides electronic access to documents from across the globe via the Internet. Librarians can provide information about how to access PIMALINK using home computers and modems.

Community Campus students taking courses at locations throughout the college district are urged to use library sources at their closest campus library. Instructors often place reserve materials at these locations as well as at participating public libraries. Telecourse students may view videotapes of all telecourses at any campus library. In addition, these tapes are available at the Davis Monthan Air Force Base library and the Community Campus. The Community Campus originates these broadcasts, and therefore, has the entire telecourse tape collection available. Due to editing, there is a delay of one week for all live-broadcast tapes before placement in the libraries.

The Desert Vista Campus library, located in room CO1, has a collection of over 10,000 items of print and nonprint materials for reference, curriculum support, and personal interest. Current magazines and local/national newspapers are available for informational and leisure reading. The library also features a variety of CD-ROM, DOS-, and MAC-brand reference resources. A microform reader/printer, a coin- and card-operated copy machine and several card-operated laser printers are also available.

The Downtown Campus library, located on the second floor of the Campus Center, houses a collection of approximately 30,000 items of print and non-

print materials for reference, curriculum support, and personal interest. This library specializes in the areas of automotive technology, welding, graphic technology, communication graphics, hospitality, and legal assistant. Current magazines and newspapers are available for informational and leisure reading.

The East Campus library has a collection of 25,000 items, both print and non-print, for reference, curriculum support, and personal interest. Magazines and newspapers are available for current information, and a varied backfile collection for research. Specialized collections at this library include children's literature, emergency medical services, environmental technology, and equine science. The library also has available a coin-operated copy machine, IBM and Macintosh computers, and VHS and 3/4 inch video players.

The West Campus library, located on the third floor of the Library/Administration Building, has a multi-media collection of 140,000 items, 630 periodical subscriptions, and extensive periodical backfiles. The collection is particularly strong in the areas of allied health, art, ethnic studies, law enforcement, literature, business and legal reference, and Mexican history. The library features a number of special collections—Spanish language, children's literature, paperback leisure reading, *SAMS Photofact* repair manuals, videos, current best sellers, CDs and records, college archives, college catalogs on microfilm, and the CD-ROM indexes *Readers' Guide Abstracts* and *Newsbank*. Study tables, equipped carrels, and lounge areas can accommodate over 300 students. The library also provides users with numerous microform reader-printers and coin- and card-operated photocopy machines.

## Who May Borrow from the Library?

All library users must have a Pima Community College student I.D. with a barcode for use with the library's computer system. Information on obtaining these cards is available at each campus. A Special Borrower Card may be granted to library patrons who are not registered as students.

The library loan period is for three weeks. Special loan periods are available for faculty, staff, and Honors Program students.

Grades, transcripts, diplomas, and registration privileges, or any combination thereof, are withheld for any student or former student who is charged with the possession of overdue library materials.

Lost library materials may be paid for at their replacement cost plus a non-refundable processing fee of \$10 per item.





# Learning Centers

## Community Campus

The Community Campus provides tutoring in computer science at various times during the week. Students should contact the Instructional Support Services office.

The Community Campus also offers assessment tests in reading, writing, and mathematics. The Student Development staff offers assessment services at various off-campus locations in Southern Arizona. Assessment is also provided as a part of new student orientation.

## Downtown Campus

Alternative Learning Centers in relocatable buildings at Ash and Helen Street offer credit courses and supplemental tutorial assistance. The Math Center (AMC), the Reading Center (ARC) and the Writing Center (AWC) provide students with the ability to schedule courses during the day and evening as well as self-paced study. Personal and individual attention is given to the students by instructors, lab assistants, and tutors in the one, two, three and/or four credit-hour courses.

Tutoring in math, reading, and writing is offered. Students may drop in during regularly scheduled tutoring hours and during afternoon hours when there are no regularly scheduled classes. The Math Tutoring Center (ATC), located nearby, offers tutoring assistance for all campus math courses during the day and in the early evening Monday through Friday.

## East Campus

The Tutoring Center provides free tutoring in accounting, biology, chemistry, computer science, economics, English as a Second Language (ESL), environmental technology, French, history, humanities, Japanese, math, social sciences, Spanish, and writing. Students may make appointments for tutoring sessions, or they may be tutored on a walk-in basis.

The Testing Center offers assessments in biology, chemistry, computer science, math, reading, and writing to help students in selecting appropriate courses. Many instructors use the Testing Center to administer their class examinations.

## West Campus

The Tutoring Center offers tutorial assistance in math, writing, English as a Second Language (ESL), and sciences. Tutorial assistance is available on a walk-in basis.

The Instructional Testing Center provides an alternative to classroom testing. Extended hours of operation offer students increased flexibility in meeting their classroom testing requirements. The Center is available to meet the alternative testing needs of all interested faculty.

# Student Activities

Information on student government, student clubs and organizations, and cultural events can be obtained by consulting the Student Activities office on any campus.

## Student Leadership

Students have a voice in College functions through recognized student government associations at each of the campuses, 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 Governing Board 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 Student Activities Office on any campus.

## Intercollegiate Athletics, Intramural, and Recreation Sports

Pima Community College offers well-rounded athletic, intramural, and campus recreation programs, plus physical education classes, to meet a variety of student interests. Complete details on intercollegiate athletics, intramural, and campus recreation programs can be obtained from the Athletic office on the second floor of the West Campus gymnasium. Physical education programs are handled by the Fitness and Sport Sciences Department of the Health Related Professions Division of the West Campus.

## Intercollegiate Athletics

Pima is a member of the Arizona Community College Athletic Association, National Junior College Athletic Association, and the NJCAA Region #1. Eligibility requirements are set by the sports organizations which govern our participation. The basic stipulations are that the student athlete be enrolled full-time, making satisfactory academic progress, and that he or she has been granted a medical clearance for participation. Competition includes soccer (men), cross country (men and women), basketball (men and women), tennis (men and women), track (men and women), baseball (men), volleyball (women), golf (men), and softball (women).

## Intramural Sports

Intramural activities are open to any member of the College—students, faculty, and staff—with sports 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.

### **Recreation Sports**

Recreation Sports are an integral component of athletics. Current and active club sports include Karate, Ice Hockey, Rodeo (men and women), Tae Kwon Do, Judo, Indoor Track, Marathon, Soccer (women), Volleyball (men), Wrestling, Pep Squad (men and women), and Los Dorados (Sundays).

### **Student Publications**

Student publications include *The Aztec Press*, a weekly newspaper, and a literary magazine.

Those who would like to serve on the newspaper staff in any capacity should contact either the Arts Division office or *The Aztec Press*, West Campus, AL-G81.

Students interested in publishing a literary magazine may enroll in Writing 162, Literary Magazine Workshop, at either the West or Downtown Campus.

The West Campus workshop annually publishes *SandScript*, an award-winning magazine distributed throughout the Tucson area. West Campus students, faculty, and staff may submit contributions to *SandScript*, Arts Division, West Campus, and include a self-addressed, stamped envelope.

The Downtown Campus workshop annually publishes *Cababi*, which is printed by the Downtown Campus Graphic Technology students. *Cababi*, also sponsors an annual art contest for the magazine covers and center pages. Downtown Campus students, faculty, and staff may submit contributions to Building RV, Room 119, Downtown Campus.

## **Student Life and Conduct**

### **Student Housing**

Pima Community College does not own or operate student housing either on campus or in the community. Student Development provides information to students on request regarding community agencies and organizations providing housing.

### **Student Health Services**

First aid is available at all Campus Police offices. Accident insurance is provided under a blanket policy for Pima Community College students enrolled

for credit courses without additional cost. 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.

### **Parking and Bus Service**

Free parking is available on all Pima Community College campuses. For carpool information, call RideShare 884-7433.

Sun Tran provides bus service to all campuses. Copies of current bus schedules are available in the student activities area of each campus. Or call Sun Tran, 792-9222 for schedule information.

### **Emissions Control Compliance**

Pursuant to A.R.S. 15-1444 C, no vehicle shall be allowed to park in any college parking lot unless it complies with A.R.S. 49-542 (the annual vehicle emissions inspection program). At the time of course registration, all out-of-county and out-of-state students will be required to sign an affidavit stating that the student's vehicle meets the requirements of A.R.S. 49-542. Vehicles which are not in compliance are subject to being towed at the owner's expense.

### **Student Rights and Responsibilities**

All students at Pima Community College are considered responsible adults and, as such, are accountable for their own personal behavior. All students are expected to conform to local, state, and federal laws and duly established College standards of conduct. Student complaint procedures, rights and responsibilities are contained in the *Student Rights and Responsibilities*. Copies of these documents are available through the offices of the campus Deans of Student Development and Instruction, campus advising centers, and campus libraries.

### **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, counselling, treatment, or rehabilitation or reentry programs that may be available in the community. Contact the counselling center on any campus for information.

# Educational Options



## Evening, Weekend, and Flexible Schedule Classes

Many Pima classes are offered in the evening, on weekends, or on a flexible schedule. These courses cover many areas of interest and are offered at many places in Tucson. Courses can be found in degree programs, job training, and special interest areas. Students may work for a degree for transfer to a four-year college or for a special certificate. They may also attend for self-interest.

### Accelerated Weekend Classes

Accelerated weekend classes provide students with opportunities to earn credits rapidly over the duration of one or more weekends. The presentation of course content is accelerated so that students can complete the total number of required classroom hours without attending class for an entire semester. It is typical for these classes to meet for more than 9 or 10 hours per day for 2 nonconsecutive weekends. Accelerated weekend classes may be cancelled 10 days prior to the scheduled start date due to low enrollment. Enrolled students are notified in the event of a cancellation.

### Classes on Flexible Schedule

Some classes are designed to include all of the content and requirements of the regular fifteen-week classes in fewer weeks.

## Honors Program

The Honors Program recognizes the special needs of students who are highly motivated and who can benefit from an intensified course of study. The program encourages its students to gain experience and skill needed for success in a university or four-year college Honors program.

Overall, the intent of the Honors Program is to create a unique association of highly motivated students, outstanding instructors, and intensified approaches to traditional academic disciplines. Honors Program students are required to complete HON 201 or HON 204, and HON 203.

Successful completion of the Honors Program is indicated on the student's diploma upon graduation from Pima Community College.

Students may apply for the program if they meet one of the following criteria:

1. Students have completed at least 9 hours of college-level courses (courses numbered 100 or above) at Pima Community College or another institution with a GPA of 3.7 or above and must have met the College's reading requirement.
2. Students who have not completed 9 hours of college-level courses may be admitted with assessment scores that qualify them for WRT 101, MAT 122, and they must have met the College's reading requirement.

Students who meet either of the criteria may obtain applications from Community Campus, Downtown Campus, and East Campus Counseling Centers, and from West Campus Career Center.

In addition to the Honors Program, the College offers students the opportunity to join Phi Theta Kappa, the international honor society for two-year colleges. Phi Theta Kappa membership is conferred by invitation only. See a campus representative for more details on general eligibility standards.

## Military Service Members Opportunity College

Pima Community College has been designated as an institutional member of Service Members Opportunity Colleges (SOC), a group of over 400 colleges and universities providing voluntary postsecondary education to members of the military throughout the world. As a SOC member, Pima Community College recognizes the unique nature of the military lifestyle and has committed itself to easing the transfer of relevant course credits and providing flexible academic residency requirements.

SOC has been developed jointly by educational representatives of each of the Armed Services, the Office of the Secretary of Defense, and a consortium of thirteen leading national higher education associations. It is sponsored by the American Association of State Colleges and Universities (AASCU) and the American Association of Community Colleges (AACC).

For information on Department of Veteran Affairs (DVA) educational assistance, refer to the "Financial Aid/Scholarships" in the student resources section.



# Summer School Program

Three sessions beginning in late May are offered each summer with courses determined by student demand. Sessions normally run for 5 weeks or 8 to 10 weeks at a time.

## Cooperative Education

Cooperative Education Programs at Pima Community College provide students with an opportunity to supplement their academic studies with career-related work experience.

Students in the program are assigned a Cooperative Education instructor who works with them individually and offers assistance in job placement, career development, and upgrading employment skills. A one-credit hour related class is required of all students registered for Cooperative Education for the first time. The content and design of the related class is determined by the instructor and is based upon student and program needs. In addition, one semester hour of credit may be granted for each 75 hours of verified on-the-job-training. The number of Cooperative Education college credits which may be applied toward a certificate or degree may be limited by individual program requirements. If a student is enrolled in courses at the College and working part time, the maximum number of credits that can be applied toward graduation is 12.

Pima Community College recognizes that relevant productive work can be an integral part of a student's regular academic program and grants credit through Cooperative Education for learning that takes place in the work environment. Students need to talk with an advisor about the availability of Cooperative Education classes.

## Bilingual Education

Pima Community College offers students a unique educational opportunity through bilingual courses. The courses serve students with a variety of backgrounds and needs.

Bilingual courses are taught in English with assistance in Spanish. Bilingual instructors help students understand and learn by using English and Spanish in presenting class, answering questions, or giving assistance.

### Office of Minority Education

The Office of Minority Education supports activities that focus on priorities outlined in College Policy and Regulation addressing access, equity, and campus climate conducive to ethnic minority student retention and achievement. The Office works with instructional programs and student services to ensure proportional enrollments of minorities and comparable achievement across disciplines that include an increase in graduation and transfer rates.

### Take Other Courses While Studying English

Bilingual courses make it possible for students with limited English proficiency to begin credit work in a subject which interests them. As there are only a limited number of bilingual courses offered each semester, some students need to take English as a Second Language (ESL) classes while they are taking bilingual courses. The vast majority of the classes offered at Pima Community College are taught only in English; therefore, it is most important for students to take ESL, as well as reading and writing courses to attain proficiency in English.

### Develop Skills in Another Language

The variety of courses offered in a Spanish/English bilingual mode provides English-speaking students with an opportunity to gain vocabulary skills and multicultural perspectives through the study of bilingual courses. Areas of study include office education, business administration, and teacher training. For information on courses offered bilingually each semester, refer to the Schedule of Classes or see a campus advisor.

### Cursos Bilingües

El colegio ofrece una variedad de cursos usando inglés y español como base de instrucción para personas que ya hablan español y desean un enfoque bilingüe/bicultural.

Se ofrecen clases bilingües de secretariado, pedagogía, arte, psicología, matemáticas, bailes folklóricos, español para nativos, historia, biología, etc.

### Los estudiantes que estudian inglés

Porque la gran mayoría de cursos que ofrece el colegio son en inglés, se recomienda que los estudiantes tomen cursos de inglés para recibir un certificado o diploma del Colegio Pima or para transferir a nivel universitario.

### Los estudiantes que desean destrezas en español

La variedad de cursos que se ofrecen en una forma bilingüe dan destrezas lingüísticas y conocimientos culturales adicionales a estudiantes que tomen cursos bilingües.

# International/Intercultural Education

By virtue of its mixed cultural heritage and its proximity to Mexico, the Tucson area is an international/intercultural community. The need for international/intercultural education is recognized by the College and is embodied in the mission statement:

"The College will proactively value and reflect the bilingual and multicultural diversity of the larger community, enriching its students and the community by celebrating this pluralism."

To respond to this need, the College endeavors to provide transitional language and cultural training through internationalized curriculum. The focus is international trade and community development, cultural exchange, and enrichment opportunities for all students.

As part of its academic program, and through several United States Department of Education grants, the College offers some sections of courses which have been modified to include international studies content. The modified courses, in addition to the regular subject material outlined in the course descriptions in this catalog, contain material to help students understand the course content on an international level. Students who take these courses can expect to gain a better understanding of other cultures and/or to obtain better information about international events which affect their daily lives.

The following is a list of these courses:

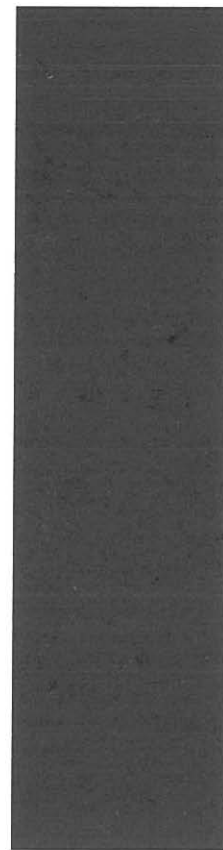
ART 135	Pre-Columbian Art
ART 136	Masks
ASC 251	Business Communications I
BUS 100	Introduction to Business
BUS 210	International Business
FRE 210	Intermediate French I
GEO 103	Cultural Geography
HUM 110	Humanities I
HUM 111	Humanities II
HUM 251	Western Humanities I
HUM 252	Western Humanities II
HUM 253	Western Humanities III
IBS 135	The International Career
IBS 136	Global Economy
IBS 140	Basic Techniques of International Trade
IBS 160	Hosting Foreign Business Personnel
IBS 170	Doing Business with Mexico
IBS 298	Advanced Topics in International Business:
MAN 110	Human Relations in Business and Industry
MAN 122	Supervision
MAN 124	Small Business Management
MAN 278	Labor/Management Relations
MAN 280	Business Organization and Management
MKT 111	Marketing
PHI 101	Introduction to Philosophy I
PSY 250	Introduction to Social Psychology
PSY 296	Individual Studies in Psychology
REL 130	Asian Religions
SPA 110	Elementary Spanish I
SPA 217	El Español Para Los Negocios (Spanish for Business Communications)
SPE 120	Business and Professional Communication
WRT 102	Writing II
WRT 106	Writing Fundamentals for International Students

Students interested in these internationalized classes should consult the Schedule of Classes each semester for specific sections identified with the statement "contains international studies content."

In addition, the College offers an associate degree in International Business Studies.

# Educational Programs

Degrees & Certificates



# Degrees and Certificates

AA	Associate of Arts Degree
AS	Associate of Science Degree
AAA	Associate of Applied Arts Degree
AAS	Associate of Applied Science Degree
AGS	Associate of General Studies Degree
BC	Basic Certificate
AC	Advanced Certificate
TC	Technical Certificate

## Programs for College/University Transfer

Program	Degree	Code
<b>Administration of Justice Studies</b>	AS	105-30-01
<b>American Indian Studies</b>	AA	125-00-01
<b>Anthropology</b>	AA	130-00-01
<b>Archaeology</b>	AS	140-00-02
<b>Arts, Fine</b>	AA	150-00-01
<b>Asian Studies</b>	AA	155-00-01
<b>Automotive Technology</b>	AS	160-00-02
<b>Business</b>		
Business Administration	AS	180-00-02
Business Administration—Retailing	AS	180-05-02
<b>Computer Science</b>	AS	190-00-02
<b>Construction</b>	AS	195-00-02
<b>Drama</b>	AA	240-00-01
<b>Engineering</b>	AS	265-00-02
<b>Fitness and Sport Sciences</b>		
Fitness and Sport Sciences	AA	285-00-01
Fitness/Wellness Technician	AS	285-30-02
<b>Hospitality</b>	AS	310-00-02
<b>Interdisciplinary Sciences</b>	AS	320-10-02
<b>Liberal Arts and Sciences</b>		
<i>UA Options</i>		
Art History	AA	345-02-01
Astronomy	AA	345-03-01
Atmospheric Sciences	AA	345-04-01
Biochemistry	AA	345-05-01

Biology	AA	345-06-01
Chemistry	AA	345-07-01
Classics	AA	345-08-01
Creative Writing	AA	345-11-01
East Asian Studies	AA	345-13-01
Ecology and Evolutionary Biology	AA	345-14-01
Economics	AA	345-15-01
Elementary Education	AA	345-16-01
English	AA	345-17-01
French	AA	345-18-01
Geography	AA	345-19-01
Geosciences (Geology)	AA	345-20-01
German	AA	345-21-01
Greek	AA	345-12-01
History	AA	345-22-01
Interdisciplinary Studies	AA	345-23-01
Italian	AA	345-24-01
Journalism (Media Communications— Print Media Sequence)	AA	345-25-01
Judaic Studies	AA	345-26-01
Latin	AA	345-28-01
Latin American Studies	AA	345-29-01
Linguistics	AA	345-30-01
Mathematics	AA	345-31-01
Media Arts (Media Communications— Telecommunications Sequence)	AA	345-32-01
Mexican American Studies	AA	345-33-01
Microbiology	AA	345-34-01
Molecular/Cellular Biology	AA	345-35-01
Near Eastern Studies	AA	345-37-01
Philosophy	AA	345-38-01
Physics	AA	345-39-01
Portuguese	AA	345-41-01
Pre-Law	AA	345-00-01
Psychology	AA	345-43-01
Regional Development	AA	345-44-01
Religious Studies	AA	345-46-01
Russian	AA	345-47-01
Russian and Soviet Studies	AA	345-48-01
Secondary Education	AA	345-49-01
Spanish	AA	345-52-01
Special Education and Rehabilitation	AA	345-53-01
Speech and Hearing Sciences	AA	345-54-01
Theater Arts	AA	345-55-01
Women's Studies	AA	345-56-01
UA Option - General †	AA	345-00-01

ASU/NAU Option - General †	AA	346-00-01
Manufacturing Technology	AS	350-40-02
Music	AA	375-00-01
Political Science	AA	400-00-01
Pre-Optical Sciences, Interdisciplinary Sciences	AS	320-00-02
Public Administration	AS	410-00-02
Social Services		
Social Services	AA	435-00-01
Gerontology Specialty	AA	435-10-01
Substance Abuse Specialty	AA	435-20-01
Sociology	AA	440-00-01
Speech Communication	AA	445-00-01
Youth Care Rehabilitation	AA	465-10-01

## Programs for Direct Employment

Program	Degree	Code
<b>Accounting</b>		
Accounting	AC	100-00-06
Accounting	AAS	100-00-03
<b>Administration of Justice Studies</b>	AAS	105-30-03
<b>Administrative Support Careers</b>		
Administrative Aide	BC	107-00-08
Administrative Specialist	AC	107-00-06
Administrative Assistant	AAS	107-00-03
Records Management		
(Business Administration Option)	AC	385-30-06
Records Management		
(Business Administration Option)	AAS	385-30-03
Records Management		
(Medical Record Option)	AC	385-40-06
Records Management		
(Medical Record Option)	AAS	385-40-03
<b>Apprentice Related Instruction</b>		
Trade and Industrial Technology	AAS	135-00-03
<b>Archaeology</b>		
Field Archaeology	BC	140-10-08
Archaeological Fieldwork	AC	140-10-06
Computer Archaeology and Cartography	TC	140-20-05

<b>Arts, Applied</b>	AAA	145-00-09
<b>Automotive Technology</b>		
Automotive Engine Repair and Overhaul	BC	160-10-08
Automotive Tune-Up and Air Conditioning	BC	160-20-08
Power Transmission	BC	160-30-08
Suspension and Brakes	BC	160-40-08
Automotive Mechanics	TC	160-50-05
Automotive Technology	AAS	160-00-03
<b>Aviation Technology</b>		
Airframe Mechanics	BC	165-10-08
Airframe and Powerplant Mechanics	TC	165-20-05
Aviation Structural Repair	TC	165-30-05
Aviation Structural Repair	AAS	165-30-03
<b>Bilingual Business Administration</b>	BC	180-10-08
<b>Building Technology</b>		
Building Technology	BC	177-00-08
Building Technology	TC	177-00-05
Building Technology	AAS	177-00-03
<b>Business</b>		
Business	BC	180-00-08
Business	AC	180-00-06
Business	AAS	180-00-03
<b>Communication Graphics</b>		
Communication Graphics	AC	187-00-06
Communication Graphics	AAS	187-00-03
<b>Computer Science</b>		
Data Entry Operator	BC	190-10-08
Data Entry Operator	AC	190-10-06
Small Business Computer Specialist	AAS	190-20-03
Computer Programmer/Analyst	AAS	190-30-03
<b>Construction Drafting</b>		
Construction Drafting	BC	200-00-08
Construction Drafting	TC	200-00-05
Construction Drafting	AAS	200-00-03
<b>Construction Technology</b>		
Residential and Light Commercial Option	AC	205-10-06
Residential and Light Commercial Option	AAS	205-10-03
Commercial Building Option	BC	205-20-08
Commercial Building Option	AC	205-20-06
Commercial Building Option	AAS	205-20-03

Grading and Paving Option	AC	205-30-06
Grading and Paving Option	AAS	205-30-03
Pre-Architecture	TC	205-40-05
<b>Court Support Services</b>		
Court Support Services	AC	210-00-06
Court Support Services	AAS	210-00-03
<b>Dental Assisting Education</b>	AC	215-00-06
<b>Dental Hygiene</b>	AAS	220-00-03
<b>Dental Laboratory Technology</b>	AAS	225-00-03
<b>Design</b>	AAA	230-10-09
<b>Drafting Technology</b>		
Drafting, Electro-Mechanical/ Mechanical	TC	235-10-05
Drafting, Electro-Mechanical or Mechanical	AAS	235-20-03
<b>Early Childhood Education</b>		
Teacher Aide/Assistant	AC	245-10-06
Teacher/Director	AAS	245-20-03
<b>Emergency Medical Technology</b>		
Emergency Medical Technology	BC	260-00-08
Emergency Medical Technology	TC	260-00-05
Emergency Medical Technology Paramedic	AC	260-10-06
<b>Environmental Technology</b>		
Environmental Laboratory Analysis	AC	270-05-06
Hazardous Materials Management	AC	270-10-06
Water and Wastewater Technology	AC	270-30-06
Environmental Technology	AAS	270-00-03
<b>Finance</b>		
Banking	AAS	275-10-03
Credit Union	BC	275-20-08
Credit Union	AC	275-20-06
Credit Union	AAS	275-20-03
Savings Bank	BC	275-40-08
Savings Bank	AC	275-40-06
Savings Bank	AAS	275-40-03
<b>Fire Science</b>	AAS	280-00-03
<b>Graphic Technology (Offset Printing)</b>		
Graphic Technology (Offset Printing)	BC	300-00-08
Graphic Technology (Offset Printing)	AC	300-00-06
Graphic Technology (Offset Printing)	AAS	300-00-03
Graphic Technology—Pre-Press Artist Option	AAS	300-10-03

## Hospitality/Tourism

### *Hotel/Motel Management Options:*

Hotel Operations	BC	310-11-08
Hotel Food and Beverage Management	BC	310-12-08
Hospitality Restaurant Management	AAS	310-10-03

### *Housekeeping Departments/Hospitality Industry Options:*

Housekeeping, Executive	BC	310-20-08
Housekeeping, Executive	AC	310-20-06

### *Restaurant, Culinary and Foodservice Management Options:*

Restaurant Management	BC	310-31-08
Culinary Arts	BC	310-32-08
Culinary Arts	AAS	310-30-03

### *Travel Industry Operations Options:*

Travel Industry Operations	AC	310-42-06
Tourism and Destination Development	AAS	310-43-03

### *Hospitality Sales and Marketing Application Options:*

Hospitality Sales and Marketing Application	BC	310-50-08
Hospitality Sales and Marketing Application	AC	310-50-06

### *Meetings and Convention*

<i>Management Options:</i>		
Meetings and Convention Management	BC	310-60-08
Meetings and Convention Management	AC	310-60-06

## International Business Studies

International Business Studies	AAS	325-00-03
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## Interpreter Training Program

Sign Language	BC	330-10-08
Interpreter Training Program	AAA	330-00-09

## Landscape Technician

Landscape Technician	AC	335-00-06
Landscape Technician	AAS	335-00-03

## Legal Assistant

	AAS	340-00-03
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## Machine Tool Technology

Machine Shop Fundamentals	BC	350-10-08
Machinist's Standard Certificate	TC	350-20-05
Machine Tool Technology	AAS	350-00-03



Machine Tool Technology-Computer Numerical Control Machinist Option	TC	350-30-05
Machine Tool Technology-Computer Numerical Control Machinist Option	AAS	350-30-03
<b>Media Communications</b>		
Print Media Sequence	AAS	360-10-03
Telecommunications Sequence	AC	360-20-06
Telecommunications Sequence	AAS	360-20-03
<b>Microcomputer Repair</b>		
Microcomputer Repair	BC	255-10-08
Microcomputer Repair	TC	255-10-05
<b>Nursing</b>		
Associate Degree Nursing	AAS	380-00-03
Practical Nursing	AC	380-10-06
Nursing Assistant	BC	380-30-08
<b>Pharmacy Technology</b>		
Pharmacy Technology	TC	390-00-05
Pharmacy Technology	AAS	390-00-03
<b>Radiologic Technology</b>	AAS	420-00-03
<b>Real Estate</b>		
Real Estate Sales/Brokerage	BC	425-10-08
Real Estate Sales/Brokerage	AC	425-10-06
Real Estate Sales/Brokerage	AAS	425-10-03
<b>Reserve Officers Training Corps</b>		
ROTC-Air Force	BC	370-10-08
ROTC-Army	BC	370-20-08
ROTC-Navy	BC	370-30-08
<b>Respiratory Therapist Program</b>		
Respiratory Care	AAS	430-00-03
<b>Social Services</b>		
Social Services	AAS	435-00-03
Gerontology Specialty	AAS	435-10-03
Substance Abuse Specialty	AAS	435-20-03
Social Services	BC	435-00-08
Substance Abuse	BC	435-20-08
Domestic Violence Intervention	BC	435-30-08
Eating Disorders	BC	435-40-08
<b>Technology</b>		
Technology	AC	447-00-06
Semiconductors Manufacturing Technology	AAS	447-20-03
Electronics Technology	AAS	447-05-03
Electronics Telecommunications Technology	AAS	447-10-03

Microcomputer Technology	AAS	447-15-03
Microcomputer Technology	AC	447-15-06
Systems Networking Technology	AAS	447-25-03
<b>Teleservices</b>		
Teleservices	BC	449-00-08
<b>Welding</b>		
Welding	BC	460-00-08
Welding	TC	460-00-05
Welding	AAS	460-00-03
<b>Youth Care</b>		
Youth Care	AC	465-00-06
Youth Care	AAS	465-00-03

## Other Programs

Program	Degree	Code
General Studies	AGS	950-00-10
Special Interest, No Program † *		951-00-00
Undecided † *		999-00-00

### † Note for Undecided Students

If you are undecided as to your major (program) and are interested in transferring to a four-year college or university, select Liberal Arts and Sciences (345-00-01 or 346-00-01).

If you are undecided as to your major (program) and are not interested in transferring to a four-year college or university, select Undecided (999-00-00).\*

If you are taking classes only for personal interest, select Special Interest, No Program (951-00-00).\*

### \* Note for Veterans Benefits and Financial Aid Recipients

Veterans benefits and financial aid recipients cannot use these categories.

If you are uncertain as to which code to use, please see an advisor.

# Associate of Arts 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.) 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 indicated institution. One of the standards for transfer requires that fifty percent (50%) 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 fifty percent (50%) 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 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 (89% 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 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 articulation 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 for transfer information.

## Abbreviations:

ASU = Arizona State University  
NAU = Northern Arizona University  
WNMU = Western New Mexico University

UA = University of Arizona  
UPHX = University of Phoenix

	ASU	NAU	UA	OTHER
<b>Administration of Justice Studies</b>				
A.A.	63%	75%	NT	WNMU: 100%
<b>American Indian Studies</b>				
A.A.	100%	83%	100%	
<b>Anthropology</b>				
A.A.	100%	100%	100%	
<b>Archaeology</b>				
A.S.	93%	93%	93%	
<b>Asian Studies</b>				
A.A.	89%	100%	100%	
<b>Automotive Technology</b>				
A.S.	NT	NT	NT	WNMU: 100%
<b>Business Administration</b>				
A.S.	93%	100%	100%	UPHX: 100%
Business Administration— Retailing - A.S.	71%	71%	79%	
<b>Computer Science</b>				
A.S.	67%	73%	82%	
<b>Construction</b>				
A.S.	88%	100%	NT	
<b>Drama</b>				
A.A.	85%	100%	100%	
<b>Engineering</b>				
A.S.	92%	82%	100%	
<b>Fine Arts</b>				
A.A.	100%	94%	86%	

	ASU	NAU	UA	OTHER
<b>Fitness and Sport Sciences</b>				
A.A.	95%	95%	100%	
Fitness/Wellness Technician - A.S.	94%	78%	94%	
<b>Hospitality/Tourism</b>				
Hospitality - A.S.	NT	100%	NT	
<b>Liberal Arts and Sciences</b>				
UA Options - A.A.			100%	
ASU/NAU Option - A.A.	100%	100%		
<b>Machine Tool Technology</b>				
Manufacturing Technology - A.S.	85%	69%	NT	WNMU: 100%
<b>Music</b>				
A.A.	100%	85%	100%	
<b>Political Science</b>				
A.A.	100%	100%	100%	
<b>Pre-Optical Sciences, Interdisciplinary Sciences</b>				
Pre-Optical Sciences - A.S.	100%	100%	100%	
<b>Public Administration</b>				
A.S.	86%	86%	93%	UPHX: 100%
<b>Social Services</b>				
A.A.	71%	86%	NT	
Social Services Gerontology Specialty - A.A.	55%	90%	NT	
Social Services Substance Abuse Specialty - A.A.	NT	91%	NT	
<b>Sociology</b>				
A.A.	89%	100%	100%	
<b>Speech Communication</b>				
A.A.	100%	100%	100%	
<b>Youth Care</b>				
Youth Care Rehabilitation - A.A.	NT	50%	NT	

Note: Figures pertain to 95/96 CEG information.

## Accounting

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.

### Accounting—Advanced Certificate for Direct Employment

Program Identification Code: 100-00-06

Required Courses (37 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - 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 101*
ACC 150	Payroll Accounting	3	ACC 100*
ACC 200	Accounting on the Microcomputer I	3	ACC 100*
ACC 204	Individual Tax Accounting	4	ACC 100*
<b>Support Courses</b>			
BUS 100	Introduction to Business	3	
BUS 105	Survey of Microcomputer Uses		
or CSC 105	Survey of Microcomputer Uses		
or CSC 100	Introduction to Computers and Information Systems	3	MAT 092*
BUS 200	Business Law I		
or 220	Legal Environment of Business	3	
MAN 110	Human Relations in Business and Industry	3	
MAT 092	Elementary Algebra	3	MAT 082*
ASC 151	Business English		*
or WRT 101	Writing I	3	WRT 100*

**General Education Courses** (See Graduation section of this catalog for the advanced/technical certificate course list.)

Communication (Support courses satisfy this requirement.)	3
Science and/or Mathematics (Support courses satisfy this requirement.)	3

**Suggested Course Sequence** (Read down.)

ASC 151 or WRT 101	BUS/CSC 105 or 100
MAT 092	ACC 150
ACC 100	ACC 204
BUS 100	ACC 200
ACC 101	BUS 200 or 220
ACC 102	MAN 110

\*For additional prerequisite information, check course section.

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

Program Identification Code: 100-00-03

**Required Courses (64-68 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101*
ACC 150	Payroll Accounting	3	ACC 100*
ACC 200	Accounting on the Microcomputer I	3	ACC 100*
ACC 201	Intermediate Accounting I	3	ACC 102
ACC 202	Intermediate Accounting II	3	ACC 201
ACC 203	Cost Accounting	3	ACC 102*
ACC 204	Individual Tax Accounting	4	ACC 100*
ACC 173 or 205	Introduction to Fund Accounting		ACC 101
	Corporate and Partnership Tax Accounting		ACC 101
or 210	Accounting on the Microcomputer II	3-4	ACC 200

**Support Courses**

BUS 100	Introduction to Business	3	
BUS 105 or CSC 105 or 100	Survey of Microcomputer Uses and Information Systems	3	MAT 092*
BUS 200 or 220	Business Law I	3	
ECN 200 or 202	Legal Environment of Business	3	MAT 092
MAN 110	Basic Economic Principles	3	MAT 092
	Macroeconomic Principles	3	
MAN 280	Human Relations in Business and Industry	3	
	Business Organization and Management	3	BUS 100*
MAT	Determined by assessment test at the 100 level or higher	3	
ASC 151 or WRT 101	Business English		*
SPE 120	Writing I	3	WRT 100*
	Business and Professional Communication	3	
ELEC	Other Electives	6-9	
	Complete two courses from the subject areas listed below (must be 100 level or higher): ANT, ECN, HUM, MAT, PHI, POS, PSY, REA, SOC, WRT		

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
(Support courses satisfy this requirement.)	
Social and Behavioral Sciences	3
(Support courses satisfy this requirement.)	

**Suggested Course Sequence**

See an accounting faculty advisor.

\*For additional prerequisite information, check course section.

# Administration of Justice Studies

The Administration of Justice Studies program is designed to serve three types of students:

- Pre-service - for students wishing to secure employment in the criminal justice system
- In-service - the professional who needs to increase his/her skills for their present duties
- Transfer - for students wishing to transfer to a four-year school and pursue a bachelors degree in an area of justice studies (Please see information below.)

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. Students are urged to seek the help of an administration of justice faculty advisor before and during enrollment in the program.

The associate of science degree is specifically designed for students who are planning to transfer to Northern Arizona University or Western New Mexico University. 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 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 counselor or faculty advisor.

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

Program Identification Code: 105-30-03

### Required Courses (64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		



**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 System	3	
AJS 201	Rules of Evidence	3	
AJS 210	Police Community and Human Relations	3	
AJS 212	Juvenile Justice Procedures	3	
AJS 225	Crime and Delinquency	3	
AJS 246	Issues of Race and Ethnicity in the Administration of Justice	3	
AJS 290	Administration of Justice Field Experience	3	*

### 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	
SOC 101	Introduction to Sociology	3	
SPE 120	Business and Professional Communication	3	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
WRT 150 or 154	Practical Communications Technical Communications I	3	WRT 100*

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
Social and Behavioral Sciences	3
(Support courses satisfy this requirement.)	

### Suggested Course Sequence

See an administration of justice faculty advisor.

\*For additional prerequisite information, check course section.

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

**Program Identification Code: 105-30-01**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### Required Courses (67-71 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

**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 System	3
AJS 201	Rules of Evidence	3
AJS 210	Police Community and Human Relations	3
AJS 212	Juvenile Justice Procedures	3
AJS 225	Crime and Delinquency	3
AJS 246	Issues of Race and Ethnicity in the Administration of Justice	3

**General Education Requirements** (See Graduation section of this catalog for associate of science degree course list.)

English Composition	6
Humanities and Fine Arts	6
Biological and Physical Sciences	8-10
Mathematics	6
Social and Behavioral Sciences	6
Other Requirement Options	8-10

### Suggested Course Sequence

See an administration of justice faculty advisor.



# Administrative Support Careers

(Formerly Office Education)

Administrative Support Careers offers a variety of courses and programs. Programs which lead to an associate of applied science degree are given in records management and administrative assistant. A basic certificate is offered for an administrative aide and an advanced certificate is offered for an administrative specialist.

The Administrative Support Careers curriculum offers education in communications, business and management subjects, including computer applications, professional development, and administrative operations.

## Administrative Support Careers—Administrative Aide—Basic Certificate for Direct Employment

**Program Identification Code: 107-00-08**

An administrative aide performs a variety of tasks to facilitate office operations.

### Required Courses (21 Credit Hours)

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

ASC 111	Computer Keyboarding and Document Production	3	
ASC 131	Computer Applications I	4	ASC 111A
ASC 151	Business English	3	ASC 050*
ASC 171	Office Procedures	3	ASC 111*
RIM 132	Records Management: Filing Systems	3	

### Support Courses

ASC 196	Work Based Learning in ASC	2	ASC 111*
BUS 151	Mathematics of Business	3	MAT 082*

### Suggested Course Sequence (Read down.)

ASC 111	BUS 151
ASC 131	ASC 171
RIM 132	ASC 196
ASC 151	

\*For additional prerequisite information, check course section.

## Administrative Specialist—Advanced Certificate for Direct Employment

**Program Identification Code: 107-00-06**

An administrative specialist manages, coordinates, and organizes an office to provide administrative support to an organization.

### Required Courses (44 Credit Hours)

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

ASC 111	Computer Keyboarding and Document Production	3	
ASC 112	Advanced Computer Keyboarding/Document Production	3	ASC 111
ASC 123	Professional Development for Administrative Support	2	ASC 111A*
ASC 131	Computer Applications I	4	ASC 111A
ASC 132	Computer Applications II	4	ASC 131
ASC 151	Business English	3	ASC 050*
ASC 224	Machine Transcription	3	ASC 111*
ASC 251	Business Communications I	3	ASC 151
ASC 171	Office Procedures	3	ASC 111*
RIM 132	Records Management: Filing Systems	3	
RIM 133	Records Management: Development of a Program	3	

### Support Courses

ACC 100	Practical Accounting Procedures	3	
ASC 196	Work Based Learning in ASC	2	ASC 111*
ASC 199	Co-op Related Class in ASC	1	*
ASC 199	Co-op Work in ASC	1	*
BUS 151	Mathematics of Business	3	MAT 082*

**General Education Courses** (See Graduation section of this catalog for advanced certificate course list.)

Communication	3
(Core course satisfies this requirement.)	
Science and/or Mathematics	3
(Support course satisfies this requirement.)	

**Suggested Course Sequence** (Read down.)

ASC 111	ASC 171	ASC 112
ASC 131	ASC 196	ASC 224
RIM 132	ASC 132	ACC 251
ASC 151	RIM 133	ASC 100
BUS 151	ASC 123	ASC 199

\*For additional prerequisite information, check course section.

## Administrative Assistant—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 107-00-03

An administrative assistant provides staff support through a variety of administrative duties and responsibilities performed for an executive of an organization including routine and specialized tasks, as well as anticipating, identifying, and solving problems.

**Required Courses (69 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ASC 111	Computer Keyboarding and Document Production	3	
ASC 112	Advanced Computer Keyboarding: Document Production	3	ASC 111*
ASC 123	Professional Development for Administrative Support	2	ASC 111A*
ASC 131	Computer Applications I	4	ASC 111A
ASC 132	Computer Applications II	4	ASC 131
ASC 151	Business English	3	ASC 050*
ASC 224	Machine Transcription	3	ASC 111*
ASC 233	Computer Applications III	4	ASC 132
ASC 251	Business Communications I	3	ASC 151
ASC 255	Business Communications II	3	ASC 251
ASC 171	Office Procedures	3	ASC 111*

ASC 281	Administrative Support Operations	4	ASC 171
RIM 132	Records Management: Filing Systems	3	
RIM 133	Records Management: Development of a Program	3	
RIM 233	Supervision and Administration of Records	3	RIM 133

**Support Courses**

ACC 100	Practical Accounting Procedures	3	
ASC 196	Work Based Learning in ASC	2	ASC 111*
ASC 199	Co-op Related Class in ASC	1	*
ASC 199	Co-op Work in ASC	1	*
ASC 299	Co-op Related Class in ASC	1	*
ASC 299	Co-op Work in ASC	1	*
BUS 151	Mathematics of Business	3	MAT 082*
MAN 122	Supervision	3	

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communications	6
(Core courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
(Support courses satisfy this requirement.)	
Social and Behavioral Science	3

**Suggested Course Sequence** (Read down.)

ASC 111	RIM 133	ASC 233
ASC 131	ASC 123	ASC 255
RIM 132	ASC 112	ASC 281
ASC 151	ASC 251	MAN 122
BUS 151	ACC 100	Humanities and Fine Arts elective
ASC 171	ASC 199	Social and Behavioral Sciences elective
ASC 196	ASC 224	ASC 299
ASC 132	RIM 233	

\*For additional prerequisite information, check course section.

## Records Management (Business Administration Option)—Advanced Certificate for Direct Employment

Program Identification Code: 385-30-06

### Required Courses (33 Credit Hours)

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

ASC 151	Business English	3	*
RIM 131	Records Management: Development of a Program	3	
RIM 132	Records Management: Filing Systems	3	

### Support Courses

ACC 101	Financial Accounting	3	
BUS 100	Introduction to Business	3	
BUS 200	Business Law I	3	
ECN 201	Microeconomic Principles	3	MAT 092
MAN 110	Human Relations in Business and Industry	3	
ASC 111	Computer Keyboarding and Document Production	3	
POS 110	American National Government and Politics	3	

**General Education Courses** (See Graduation section of this catalog for the advanced/technical certificate course list.)

Communication	3	
Science and/or Mathematics		
MAT 122	Intermediate Algebra	3 MAT 092*

### Suggested Course Sequence (Read down.)

POS 110	RIM 131	RIM 132
ACC 101	BUS 200	MAN 110
BUS 100	ECN 201	MAT 122
ASC 111	ASC 151	

\*For additional prerequisite information, check course section.

## Records Management (Business Administration Option)—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 385-30-03

### Required Courses (60-62 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
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REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		
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**Core Courses** - A grade of C or better is required for graduation.

ASC 151	Business English	3	*
ASC 251	Business Communications I	3	ASC 151
RIM 132	Records Management: Filing Systems	3	
RIM 133	Records Management: Development of a Program	3	
RIM 231A	Records Management: Forms Management	1	RIM 133
RIM 231B	Records Management: Micrographics	1	RIM 133
RIM 231C	Records Management: Automated Retrieval	1	RIM 133
RIM 232	Records Management: Supervision	3	RIM 133

### Support Courses

ASC 114	Computer Keyboarding: Skill Building	1	ASC 111*
ASC 111	Computer Keyboarding and Document Production	3	
ASC 199	Co-op Related Class in ASC	1	*
ASC 199	Co-op Work in ASC	1-3	*
BUS 100	Introduction to Business	3	
BUS 105	Survey of Microcomputer Uses	3	
BUS 200	Business Law I	3	
BUS 201	Business Law II	3	BUS 200
ECN 201	Microeconomic Principles	3	MAT 092
MAN 276	Personnel Management	3	BUS 100
POS 110	American National Government and Politics	3	

ELECTIVE	Complete one of the following courses: ECN 202 or SPE 120, WRT 101, 102.		
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**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communications	6	
Humanities and Fine Arts	3	
Science and/or Mathematics		
ACC 101 Financial Accounting	3	
MAT 122 Intermediate Algebra	3	MAT 092*
Social and Behavioral Sciences		
MAN 110 Human Relations in Business and Industry	3	

**Suggested Course Sequence** (Read down.)

Reading requirement	ASC 151	BUS 201
POS 110	RIM 132	RIM 231A, B, C
ACC 101	MAN 110	Elective
BUS 100	MAT 122	ASC 199
ASC 111	ASC 114	ASC 199
RIM 133	ASC 251	RIM 232
BUS 200	MAN 276	Humanities and Fine Arts
ECN 201	BUS 105	elective

\*For additional prerequisite information, check course section.

## Records Management (Medical Record Option)— Advanced Certificate for Direct Employment

Program Identification Code: 385-40-06

**Required Courses (33-34 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
ASC 151	Business English	3	*
RIM 121	Introduction to Medical Record Science	1	
RIM 131	Records Management: Development of a Program	3	
RIM 132	Records Management: Filing Systems	3	

## General Education and Support Courses

ACC 101	Financial Accounting	3	
BIO 201	Human Anatomy and Physiology I	4	BIO 156
HCA 154	Introduction to Health Care	3	
MAN 110	Human Relations in Business and Industry	3	
MAT 122	Intermediate Algebra	3	MAT 092*
ASC 111	Computer Keyboarding and Document Processing	3	
Science and/or Mathematics		4-5	
Complete one of the following: BIO 100, 205, or CHM 130			

**Suggested Course Sequence** (Read down.)

Science elective	RIM 131	RIM 132
ACC 101	HCA 154	MAN 110
BIO 201	RIM 121	MAT 122
ASC 111	ASC 151	

\*For additional prerequisite information, check course section.

## Records Management (Medical Record Option)— Associate of Applied Science Degree for Direct Employment

Program Identification Code: 385-40-03

**Required Courses (65-69 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		
<b>Core Courses</b> - A grade of C or better is required for graduation.			
ASC 151	Business English	3	*
ASC 251	Business Communications I	3	ASC 151
RIM 121	Introduction to Medical Record Science	1	
RIM 132	Records Management: Filing Systems	3	

RIM 133	Records Management: Development of a Program	3	
RIM 221	Medical/Health Record Coding	3	ASC 262*
RIM 231A	Records Management: Forms Management	1	RIM 133
RIM 231B	Records Management: Micrographics	1	RIM 133
RIM 231C	Records Management: Automated Retrieval	1	RIM 133
RIM 232	Records Management: Supervision	3	RIM 133

#### General Education and Support Courses

ACC 101	Financial Accounting	3	
ASC 111	Computer Keyboarding and Document Production	3	
ASC 114	Computer Keyboarding: Skill Building	1	ASC 111*
ASC 162	Medical Terms I	3	BIO 160*
ASC 199	Co-op Related Class in ASC	1	*
ASC 199	Co-op Work in ASC	1-3	*
BIO 201	Human Anatomy and Physiology I	4	BIO 156
BIO 202	Human Anatomy and Physiology II	4	BIO 201
BIO 204	Survey of Human Diseases	4	*
BUS 105	Survey of Microcomputer Uses	3	
HCA 154	Introduction to Health Care	3	
MAN 110	Human Relations in Business and Industry	3	
MAT 122	Intermediate Algebra	3	MAT 092*
Humanities and Fine Arts		3-4	
(See Graduation section of this catalog for associate of applied science degree course list.)			
Science and/or Mathematics		4-5	
	Complete one of the following:		
	BIO 100, 205, or CHM 130		

#### Suggested Course Sequence (Read down.)

Reading requirement	ASC 151	BIO 202
Science elective	RIM 132	RIM 231A, B, C
ACC 101	MAN 110	BIO 204
BIO 201	MAT 122	ASC 199
ASC 111	ASC 114	ASC 199
RIM 133	ASC 251	RIM 232
HCA 154	ASC 162	Humanities and Fine Arts elective
RIM 121	BUS 105	RIM 221

\*For additional prerequisite information, check course section.

## American Indian Studies

This program would be both for Native American students and for non-native American students. It is designed as a classic Liberal Arts and Science transfer Associate of Arts degree, with all the requirements for general education transfer within it. This means, that in addition to preparing students for further 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. Additionally, with a few minor adjustments in mathematics, a student so identified, can help prepare for the additional rigor of the Business/Public Administration program.

In addition to the academic preparation for transfer to the University this program will, by its existence, make the symbolic and literal statement that Pima Community College, does in essence value and reflect cultural and linguistic diversity.

Students planning to transfer to the University of Arizona, Arizona State University, or Northern Arizona University must see an advisor for requirements unique to each school.

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

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

**Program Identification Code: 125-00-01**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

#### Required Courses (60-72 Credit Hours)

Course Number	Course Title	Credit Hour	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

**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

### Support Courses

#### FOREIGN LANGUAGE REQUIREMENT 4-16

Completion of a language course numbered 211, fourth-semester level, or completion of SPA 202 or SLG 202.

Exceptions:

1. Bilingual or international students should consult an advisor concerning exceptions to this requirement.
2. Native American students may also test out of this requirement. See an advisor in American Indian Studies at the University of Arizona.

If a student satisfies the language requirement in fewer than 4 credits, additional credit hours of transferable electives must be completed to meet the minimum associate degree requirement of 60 credit hours. See a faculty advisor.

**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition	6
Humanities and Fine Arts	9
Biological and Physical Sciences	8
Mathematics	3
(Complete MAT 142 or above.)	
Social and Behavioral Sciences	9
(If the student plans to transfer to the University of Arizona, complete 9 credit hours from at least two subject areas, and one of the courses must include	

unique content in matters of gender, class, race or ethnicity. Currently HIS 127, HIS 150, HIS 160, HIS 170, SOC 201 and SOC 204 fulfill this unique content requirement; however, this requirement could be met at the U of A at either the lower or upper division level. HUM 260 in the core fulfills 3 of the 9 credits required.)

Other Requirement Options

6

Select 6 credits from the following:

ANT 102
POS 100, 120, 140
LIT 260, 266, 267

### Suggested Course Sequence

See an American Indian Studies faculty advisor.

\*For additional prerequisite information, check course section.

## Anthropology

(See also Archaeology.)

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 transfer degree program as well as basic and advanced certificates that emphasize archaeological fieldwork.

The associate of arts degree 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.

All students must complete the core curriculum of 18 credit hours (ANT 101, 102, 200, 210, 215 and 225). In addition, students with interests in archaeology and physical anthropology must also complete Option 1 and students with interests in cultural anthropology and linguistics must complete Option 2 as outlined here. (One option must be selected by each student.) Those with specific interests in field archaeology may pursue the course outlined under the archaeological fieldwork certificates.



## Anthropology—Associate of Arts Degree for Transfer

Program Identification Code: 130-00-01

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 the associate of arts degree in anthropology will fulfill the Pima Community College and University of Arizona general education requirements as well as the lower division requirements for anthropology majors at the University of Arizona.

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### Required Courses (60-66 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

**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 102
ANT 215	The Nature of Language	3	**
ANT 225	Archaeology	3	**

### Support Courses

FOREIGN LANGUAGE REQUIREMENT	4-8
Complete two language courses at the 100 level or higher. Students may satisfy the language requirement by testing out of or completing any language course numbered 211. (Bilingual or international students should	

consult an advisor concerning exceptions to this requirement.)

NON-WEST CIV	Non-Western Civilization	3
ANT 205	Complete one of the following: Introduction to Southwestern Prehistory	
or		
ANT 206	Contemporary Native Americans of the Southwest	
ANT ELEC	Complete 6-8 credit hours of electives after consultation with an anthropology faculty advisor OR continue with the second year of a transferable foreign language.	6-8

**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition	6
Humanities and Fine Arts (See an anthropology faculty advisor for recommended courses.)	9
Biological and Physical Sciences	8
Mathematics (MAT 142 or above)	3
Social and Behavioral Sciences (ANT 101 and ANT 102 satisfy 6 credit hours of this requirement. To satisfy the remaining 3 credit hours, complete either SOC 201 or SOC 204.)	9
Other Requirement Options (Support courses satisfy this requirement.)	5-6

### Suggested Course Sequence (Read down.)

First Year:	Second Year:
Reading requirement	Biological and Physical Sciences requirement
ANT 101	Humanities and Fine Arts requirement
ANT 102	Mathematics requirement
English composition	ANT 205 or ANT 206
Foreign language	ANT elective
SOC 201 or 204	ANT 200 level core course
ANT 200 level core course	ANT 200 level core course
ANT 200 level core course	Biological and Physical Sciences requirement
English composition	Humanities and Fine Arts requirement



Foreign language  
Humanities and Fine Arts  
requirement

ANT elective

\*For additional prerequisite information, check course section.

\*\*NOTE: 200 level courses are not necessarily offered each semester. Consult with an anthropology faculty advisor to determine when specific courses will be offered.

## Apprentice Related Instruction

Pima Community College works jointly with local and state apprenticeship groups to offer related instruction in a number of 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) and registered with the U.S. Department of Labor's Bureau of Apprenticeship and Training, and the organization operating a specific training program. Apprentice related instruction at Pima Community College is presently offered in these areas:

Cableman	Machinist
Carpentry	Masonry
Custodial Development	Meterman
Electric Distribution Developer	Painting and Decorating
Engineering Technician	Pipe Fitting
General Construction	Plumbing
Heating, Ventilating	Roofing
Air Conditioning	Sheet Metal
Inside Electrical Wireman	Shop Electrician
Ironworking	Substation Electrician
Lineman	

**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 64 credit hours. Students must complete 46 credit

hours of apprentice-related instruction, and/or college technical courses as well as satisfy the college reading requirement. The college technical courses must be approved by the department chair.

## Trade and Industrial Technology—Associate of Applied Science Degree

Program Identification Code: 135-00-03

### Required Courses (64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

Apprenticeship related instruction and/or technical courses with the approval of the Department Chair.

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**General Education Courses** (See Graduation Section of this catalog for associate of applied science degree course list.)

Communication	6
Humanities and Fine Arts	3
Science and/or Mathematics	6
Social and Behavioral Sciences	3

### Suggested Course Sequence (Read down.)

Apprenticeship Related Instruction  
Reading Requirement  
College Technical Courses  
Communication Electives  
Science/Mathematics Electives  
Social and Behavioral Sciences Elective  
Humanities and Fine Arts Elective

# Archaeology

(See also Anthropology)

## Field Archaeology

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.

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 basic certificate in field archaeology or an advanced certificate in archaeological fieldwork, a technical certificate in computer archaeology and cartography, or an associate of science degree in archaeology.

## Field Archaeology—Basic Certificate

Program Identification Code: 140-10-08

### Required Courses (20 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
ANT/ARC 101	Human Origins and Prehistory	3	
ANT 102	Introduction to Cultural Anthropology and Linguistics	3	
ARC 180	Artifact Identification	1	
ANT/ARC 205	Introduction to Southwestern Prehistory	3	
ANT/ARC 207	Southwestern Prehistory Lab	1	ARC 205*
ANT/ARC 225	Archaeology	3	
ANT/ARC 275	Archaeological Excavation I	3	
ANT/ARC 276	Archaeological Exploration I	3	ARC 180*

### Suggested Course Sequence

See an archaeology faculty advisor.

\*For additional prerequisite information, check course section.

## Archaeological Fieldwork—Advanced Certificate

Program Identification Code: 140-10-06

### Required Courses (45 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
ANT/ARC 101	Human Origins and Prehistory	3	
ARC 180	Artifact Identification	1	
ANT/ARC 205	Introduction to Southwestern Prehistory	3	
ANT/ARC 207	Southwestern Prehistory Lab	1	ARC 205*
ANT/ARC 225	Archaeology	3	
ANT/ARC 250	Archaeology Laboratory	3	ARC 101
ANT/ARC 275	Archaeological Excavation I	3	
ANT/ARC 276	Archaeological Exploration I	3	ARC 180*
ANT/ARC 277	Archaeological Excavation II	3	ARC 275
ANT/ARC 278	Archaeological Exploration II	3	ARC 276*
ANT/ARC 285	Field Mapping I	3	ARC 275
BUS 105	Survey of Microcomputer Uses	3	
ENG 110	Construction Surveying		MAT 110
or 130	Elementary Surveying	3	MAT 152*
GLG 101	Introductory Geology I	4	
MAT 111	Technical Mathematics II		MAT 110
or 182	Trigonometry	3	MAT 152*
WRT 254	Technical Communications II	3	WRT 154*

### General Education Courses

Communication (Satisfied by core courses.)	3
Science and/or Mathematics (Satisfied by core courses.)	3

### Suggested Course Sequence

See an archaeology faculty advisor.

\*For additional prerequisite information, check course section.

## Computer Archaeology and Cartography—Technical Certificate

Program Identification Code: 140-20-05

### Required Courses (43-46 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
ARC 180	Artifact Identification	1	
ANT/ARC 225	Archaeology	3	
ANT/ARC 250	Archaeology Laboratory	3	ARC 101
ANT/ARC 275	Archaeological Excavation I	3	
ANT/ARC 276	Archaeological Exploration I	3	ARC 180*
ANT/ARC 281	Field Computers	1	BUS 105
ANT/ARC 282	Managing Archaeological Data	2	ARC 275*
ANT/ARC 283	ArchaeoCAD	3	BUS 105
ANT/ARC 284	Archaeocartography	3	BUS 105
ANT/ARC 285	Field Mapping I	3	ARC 275
ANT/ARC 286	Field Mapping II	3	ARC 285*
ANT/ARC 289	Field Instruments	3	ARC 286*
ENG 110	Construction Surveying		MAT 110
or 130	Elementary Surveying	3	MAT 152*
MAT 111	Technical Mathematics II		MAT 110
or 182	Trigonometry	3	MAT 152*
WRT 254	Technical Communications II	3	WRT 154*
CSC**	Programming languages	3-6	

### General Education Courses

Communication (Satisfied by core courses.)	3
Science and/or Mathematics (Satisfied by core courses.)	3

### Suggested Course Sequence

See an archaeology faculty advisor.

\*For additional prerequisite information, check course section.

\*\*To be selected in consultation with Archaeology faculty advisor.

## Archaeology—Associate of Science Degree for Transfer

**Program Identification Code: 140-00-02**

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.

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### Required Courses (68-70 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ANT/ARC 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 102
ANT 215	The Nature of Language	3	**
ANT/ARC 225	Archaeology	3	**
ANT/ARC 275	Archaeological Excavation I	3	**

### Support Courses

FOREIGN LANGUAGE REQUIREMENT	8
MUST complete two language courses. Students may satisfy the language requirement by testing out of or completing any language course numbered 211. (Bilingual or international students should consult an advisor concerning exceptions to this requirement.)	

ARC ELEC	Complete 6-8 credit hours of electives after consultation with an anthropology/archaeology faculty advisor OR continue with the second year of a transferable foreign language.	6-8	
BIO 109	Natural History of the Southwest	4	
BUS 105	Survey of Microcomputer Uses	3	
GLG 101	Introductory Geology I	4	
GLG 102	Introductory Geology II	4	
MAT 152	College Algebra	3	MAT 122*
MAT 182	Trigonometry	3	MAT 152*

**General Education Requirements** (See Graduation section of this catalog for associate of science degree course list.)

English Composition	6
Humanities and Fine Arts (See an anthropology faculty advisor for recommended courses.)	6
Biological and Physical Sciences (Support courses satisfy this requirement.)	8-10
Mathematics (Support courses satisfy this requirement.)	6
Social and Behavioral Sciences (Core courses satisfy this requirement.)	6
Other Requirement Options (Support courses satisfy this requirement.)	8-10

### Suggested Course Sequence (Read down.)

First Year:	Second Year:
Reading requirement	GLG 101
ANT/ARC 101	Humanities and Fine Arts requirement
ANT 102	ANT 200 level core course
MAT 152	MAT 182
English composition	BIO 109
Foreign language	ARC elective
BUS 105	ANT 200 level core course
ANT 200 level core course	GLG 102
English composition	ANT/ARC 200 level core course
Foreign language	ARC elective
Humanities and Fine Arts requirement	ANT/ARC 200 level core course

\*For additional prerequisite information, check course section.

\*\*NOTE: 200 level courses are not necessarily offered each semester. Consult with an anthropology faculty advisor to determine when specific courses will be offered.

## Art History

**Program Identification Code: 345-02-01**

A student planning on obtaining a degree with an option in Art History should follow the Liberal Arts and Sciences Associate Degree for Transfer. See an advisor and complete a program of study form using the Transfer Guide.

## Arts, Applied

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, screenprinting, art history and sculpture. 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 are located on the West Campus.

### Applied Arts—Associate of Applied Arts Degree

**Program Identification Code: 145-00-09**

**Required Courses (60 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ART 100	Basic Design	3	
ART 110	Drawing I	3	ART 100
ART 115	Color and Design	3	ART 100
ART 120	Sculptural Design	3	ART 100
ART 130	Art and Culture I	3	
ART 131	Art and Culture II	3	

### Support Courses

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
ART ELEC	Art Electives	24	
Complete eight courses at the 100 level or higher from any of the following categories:			

### Arts and Crafts

ART 160	Ceramics I	3	ART 100*
ART 170	Metalwork I: Jewelry	3	ART 100
ART 180	Weaving I: Four-Harness Loom	3	ART 100
ART 181	Fiber Structures	3	ART 100
ART 260	Ceramics II	3	ART 160
ART 261	Ceramics III	3	ART 260
ART 262	Ceramics IV	3	ART 260
ART 270	Metalwork II: Jewelry	3	ART 170
ART 271	Metalwork II: Smithing and Casting	3	ART 170
ART 280	Weaving II	3	ART 180

### Photography

ART 140	Photography I	3	ART 100
ART 141	Photography II	3	ART 140
ART 143	Commercial Photography	3	ART 141
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	
ART 231	History, Philosophy and Psychology of Art and Design	3	*

### Drawing and Sculpture

ART 210	Drawing II	3	ART 110
ART 212	Printmaking I	3	ART 100
ART 213	Life Drawing	3	ART 100
ART 214	Printmaking II	3	ART 212



ART 215	Painting I	3	ART 110
ART 216	Screenprinting I	3	ART 100
ART 217	Painting II	3	ART 115*
ART 218	Screenprinting II	3	ART 216
ART 219	Printmaking III	3	ART 214
ART 220	Sculpture II	3	ART 120

**General Education Courses** (See Graduation section of this catalog for associate of applied arts degree course list.)

Communication 6  
(Support courses satisfy this requirement.)

Humanities and Fine Arts 6  
Choose six credits from courses not listed in the program requirements.

Science and/or Mathematics 3  
Social and Behavioral Sciences 3

**Suggested Course Sequence** (Read down.)

Reading requirement	ART 120
WRT 101	ART 131
ART 100	Art electives
ART 110	WRT 102
ART 130	Social and Behavioral
Humanities and Fine	Sciences elective
Arts elective	Science/Mathematics
ART 115	electives

\*For additional prerequisite information, check course section.

## Arts, Fine

### Fine Arts—Associate of Arts Degree for Transfer

**Program Identification Code: 150-00-01**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

#### Required Courses (67-68 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ART 100	Basic Design	3	
ART 110	Drawing I	3	ART 100
ART 115	Color and Design	3	ART 100
ART 120	Sculptural Design	3	ART 100
ART 130	Art and Culture I	3	
ART 131	Art and Culture II	3	
ART 210	Drawing II		ART 110
or 213	Life Drawing	3	ART 100

#### Support Courses

ART ELEC	Art Electives	15	
	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 100*
ART 170	Metalwork I: Jewelry	3	ART 100
ART 180	Weaving I: Four-Harness Loom	3	ART 100
ART 181	Fiber Structures	3	ART 100
ART 260	Ceramics II	3	ART 160
ART 261	Ceramics III	3	ART 260
ART 262	Ceramics IV	3	ART 260
ART 270	Metalwork II: Jewelry	3	ART 170



ART 271	Metalwork II: Smithing and Casting	3	ART 170
ART 280	Weaving II	3	ART 180

#### Photography

ART 140	Photography I	3	ART 100
ART 141	Photography II	3	ART 140
ART 143	Commercial Photography	3	ART 141
ART 230	History of Photography	3	

#### Art History

ART 132	Modern Art Survey	3	
ART 135	Pre-Columbian Art	3	
ART 136	Masks	3	
ART 231	History, Philosophy and Psychology of Art and Design	3	*

#### Drawing, Painting, and Sculpture

ART 210	Drawing II	3	ART 110
ART 213	Life Drawing	3	ART 100
ART 215	Painting I	3	ART 110
ART 217	Painting II	3	ART 115*
ART 220	Sculpture II	3	ART 120

#### Printmaking

ART 212	Printmaking I	3	ART 100
ART 214	Printmaking II	3	ART 212
ART 216	Screenprinting I	3	ART 100
ART 218	Screenprinting II	3	ART 216
ART 219	Printmaking III	3	ART 214

**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition	6
Humanities and Fine Arts	9
(Core courses satisfy this requirement.)	
Biological and Physical Sciences	8
Mathematics (MAT 142 or above)	3
Social and Behavioral Sciences	9
Other Requirement Options	5-6

### Suggested Course Sequence (Read down.)

Reading requirement	English composition
English composition	Social and Behavioral
ART 100	Sciences requirements
ART 110	Other General Education
ART 130	requirements
Humanities and Fine	Biological and Physical
Arts requirement	Sciences requirements
ART 115	ART 210 or 213
ART 120	Arts electives
ART 131	Mathematics requirement

\*For additional prerequisite information, check course section.

## Asian Studies

The Asian Studies program prepares graduates for further academic studies at a four-year college or university by providing a broad based, multidisciplinary, multicultural, comparative, social science approach to the study of Asia.

Students will be required to complete four semesters of an Asian language and a selection of courses designed to provide students with an introduction to the histories and cultures of Asia and the West.

Core courses in geography, history, humanities and religion will give the student a broad based, multidisciplinary introduction to the program area. Recognizing that Asia does not exist in a cultural vacuum, but, on the contrary, is and has been an integral part of world history, the program's support courses in anthropology, art, history, humanities, literature, and political science will expand the student's knowledge of Asia as well as provide background for comparative studies between Asia and the West.

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

## Asian Studies Program—Associate of Arts Degree for Transfer

Program Identification Code: 155-00-01

### Required Courses (65-71 Credit Hours)

Course Number	Course Title	Credit Hour	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

GEO 103	Cultural Geography	4	
HIS 113	Chinese Civilization	3	
HIS 114	Japanese Civilization	3	
HUM 260	Intercultural Perspectives	3	
JPN 110	Elementary Japanese	5	
JPN 111	Elementary Japanese II	5	JPN 110
JPN 210	Intermediate Japanese I	5	JPN 111
JPN 211	Intermediate Japanese II	5	JPN 210
(Exceptions: Bilingual or international students should consult an Asian Studies advisor concerning exceptions to this requirement. If a student satisfies the language requirement in fewer than 15 credit hours, additional credit hours of transferable electives must be completed to meet the minimum associate degree requirement of 60 credit hours.)			
REL 130	Asian Religions	3	

### Support Courses

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

## Support Electives

(Select at least 6 credit hours from the following list.)

ANT 102	Introduction to Cultural Anthropology and Linguistics	3	
ART 130	Art and Culture I	3	
ART 131	Art and Culture II	3	
HUM 251	Western Humanities I	3	
HUM 252	Western Humanities II	3	
LIT 267	World Literature: Narrative	3	WRT 102
POS 120	Introduction to International Relations	3	
POS 140	Introduction to Comparative Politics	3	

**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition	6
Humanities and Fine Arts (HUM 260 in the core will satisfy 3 credit hours of this requirement. Support electives may satisfy 6 credit hours of this requirement.)	9
Biological and Physical Sciences	8
Mathematics (Complete MAT 142 or above.)	3
Social and Behavioral Sciences (GEO 103 in the core will satisfy 4 credit hours of this requirement. HIS 101 and 102 will satisfy 3 credit hours of this requirement.)	9
Other Requirement Options (Core courses satisfy these requirements.)	6

## Suggested Course Sequence (Read down.)

Reading requirement	Support elective	Biological and Physical Sciences requirement
JPN 110	English Composition	JPN 211
REL 130	HIS 102	HIS 114
Support elective	JPN 210	HUM 260
English composition	HIS 113	Support elective
HIS 101	Support elective	Biological and Physical Sciences requirement
JPN 111	Math requirement	
GEO 103		

\*For additional prerequisite information, check course section.

# Astronomy

**Program Identification Code: 345-03-01**

A student planning on obtaining a degree with an option in Astronomy should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

# Atmospheric Sciences

**Program Identification Code: 345-04-01**

A student planning on obtaining a degree with an option in Atmospheric Sciences should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

# Automotive Technology

The automotive classes on the Downtown Campus are offered in an open-entry/open-exit, self-paced format. Students may enter classes any time of the year including summer 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 on the Downtown Campus.

Automotive courses meet the needs of the beginner, the mechanic who wants to update his skills and the do-it-yourself person. The degree program may also help students enter the automotive field in positions other than auto mechanic. The automotive department offers a two-year associate degree program, a two-year technical certificate program, four basic certificate programs and special interest courses.

Students in the automotive mechanics technical certificate program are trained in general automotive repair. The four basic mechanic certificate programs offer courses for selected areas of automotive repair. Persons who later decide to move up to the technical certificate or degree level may use the basic certificate programs as the first step. Programs can also be arranged for students planning to attend four-year colleges. Students should follow the first two-year requirements of the school to which they plan to transfer.

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

A person majoring in automotive technology may find that cooperative education offers a good way to get extra experience while enrolled in classes. See the cooperative education teacher-coordinator for details.

## Automotive Engine Repair and Overhaul—Basic Certificate for Direct Employment

**Program Identification Code: 160-10-08**

Students seeking training in engine tune-up beyond that offered in this program may take AUT 124 Automotive Diesel Engine Tune-up (3 credit hours).

### Required Courses (16 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
AUT 120	Internal Combustion Engines	4	
AUT 122	Automotive Engine Service Repair	3	
AUT 125	Tune-up and Emissions Troubleshooting	3	
AUT 128	Automotive Electrical Fundamentals and Applications	3	

### Support Course

MAN 110	Human Relations in Business and Industry	3	
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### Suggested Course Sequence

See an automotive technology faculty advisor.

## Automotive Tune-up and Air Conditioning—Basic Certificate for Direct Employment

**Program Identification Code: 160-20-08**

Students seeking training in engine tune-up and/or adjustment beyond that offered in this program may take AUT 124 Automotive Diesel Engine Tune-up (3 credit hours).

### Required Courses (22 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
AUT 120	Internal Combustion Engines	4	
AUT 125	Tune-up and Emissions Troubleshooting	3	
AUT 126	Engine Performance and Driveability Troubleshooting	3	
AUT 128	Automotive Electrical Fundamentals and Applications	3	
AUT 129	Automotive Electrical Accessories	3	
AUT 142	Automotive Air Conditioning	3	

### Support Course

MAN 110	Human Relations in Business and Industry	3	
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### Suggested Course Sequence

See an automotive technology faculty advisor.

## Power Transmission—Basic Certificate for Direct Employment

Program Identification Code: 160-30-08

### Required Courses (15 Credit Hours)

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

AUT 132	Automotive Transmission Removal, Replacement and In-Car Repair	4	
AUT 133	Automotive Transmission Rebuilding	4	
AUT 136	Automotive Driveline	4	

### General Education Course

MAN 110	Human Relations in Business and Industry	3	
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### Suggested Course Sequence

See an automotive technology faculty advisor.

## Suspension and Brakes—Basic Certificate for Direct Employment

Program Identification Code: 160-40-08

### Required Courses (15 Credit Hours)

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

AUT 136	Automotive Driveline	4	
AUT 138	Automotive Chassis	4	
AUT 140	Automotive Brakes	4	

### General Education Course

MAN 110	Human Relations in Business and Industry	3	
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### Suggested Course Sequence

See an automotive technology faculty advisor.

## Automotive Mechanics—Technical Certificate for Direct Employment

Program Identification Code: 160-50-05

Students seeking training in engine tune-up and/or adjustment beyond that offered in this program may take AUT 124 Automotive Diesel Tune-up (3 credit hours).

### Required Courses (54 Credit Hours)

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

AUT 120	Internal Combustion Engines	4	
AUT 122	Automotive Engine Service Repair	3	
AUT 125	Tune-up and Emissions Troubleshooting	3	
AUT 126	Engine Performance and Driveability Troubleshooting	3	
AUT 128	Automotive Electrical Fundamentals and Applications	3	
AUT 129	Automotive Electrical Accessories	3	
AUT 132	Automotive Transmission Removal, Replacement and In-Car Repair	4	
AUT 133	Automotive Transmission Rebuilding	4	
AUT 136	Automotive Driveline	4	
AUT 138	Automotive Chassis	4	
AUT 140	Automotive Brakes	4	
AUT 142	Automotive Air Conditioning	3	

### Support Courses

MAN 110	Human Relations in Business and Industry	3	
PHY 101	Technical Physics I	3	MAT 060*

### General Education Courses

Communication			
WRT 150	Practical Communications	3	
Science and/or Mathematics			
MAT 110	Technical Mathematics I	3	MAT 082*

### Suggested Course Sequence

See an automotive technology faculty advisor.

\*For additional prerequisite information, check course section.



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

Program Identification Code: 160-00-03

Students seeking training in engine tune-up and/or adjustment beyond that offered in this program may take AUT 124 Automotive Diesel Engine Tune-up (3 credit hours).

### Required Courses (66 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		
<b>Core Courses</b> - A grade of C or better is required for graduation.			
AUT 120	Internal Combustion Engines	4	
AUT 122	Automotive Engine Service Repair	3	
AUT 125	Tune-up and Emissions Troubleshooting	3	
AUT 126	Engine Performance and Driveability Troubleshooting	3	
AUT 128	Automotive Electrical Fundamentals and Applications	3	
AUT 129	Automotive Electrical Accessories	3	
AUT 132	Automotive Transmission Removal, Replacement and In-Car Repair	4	
AUT 133	Automotive Transmission Rebuilding	4	
AUT 136	Automotive Driveline	4	
AUT 138	Automotive Chassis	4	
AUT 140	Automotive Brakes	4	
AUT 142	Automotive Air Conditioning	3	

### Support Courses

PHY 101	Technical Physics I	3	MAT 082*
PHY 102	Technical Physics II	3	MAT 092*

### General Education Courses

Communication			
WRT 150	Practical Communications	3	
WRT 154	Technical Communications I	3	WRT 100*
Science and/or Mathematics			
MAT 110	Technical Mathematics I	3	MAT 082*
MAT 111	Technical Mathematics II	3	MAT 110
Social and Behavioral Sciences			
MAN 110	Human Relations in Business and Industry	3	

### Humanities and Fine Arts

(See Graduate section of this catalog for the associate of applied science degree course list.)

### Suggested Course Sequence

See an automotive technology faculty advisor.

\*For additional prerequisite information, check course section.

## Automotive Technology—Associate of Science Degree for Transfer

Program Identification Code: 160-00-02

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

For this program, 40-44 credit hours of general education courses are required. Students should verify transferability of coursework to the college or university to which the student plans to transfer.

### Required Courses (62-69 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

AUT See an automotive technology 22-25  
faculty advisor to select  
22-25 credits from the following  
list of courses:  
AUT 120, 122, 124, 125, 128,  
129, 132, 133, 136, 138, 142

**General Education Requirements** (See Graduation  
section of this catalog for associate of science degree  
course list.)

English Composition	6
Humanities and Fine Arts	6
Biological and Physical Sciences	8-10
Mathematics (MAT 142 or above)	6
Social and Behavioral Sciences	6
Other Requirement Options	8-10

**Suggested Course Sequence**

See an automotive technology faculty advisor.

\*For additional prerequisite information, check course section.

## Aviation Technology

The airframe and powerplant courses prepare experienced aircraft mechanics for federal airframe and powerplant certification. Course entry requires at least 30 months of experience in performing the duties of airframe and powerplant maintenance or at least 18 months of experience in performing duties that fit the desired rating. A review of experience must be made by the Downtown Campus instructor in all cases before registration. Basic certificates also are awarded to qualified students.

### Airframe Mechanics—Basic Certificate for Direct Employment

**Program Identification Code: 165-10-08**

**Required Courses (16 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
AVM 120	Aviation Electricity I	4	
AVM 220	Airframe Structures	6	*
AVM 221	Airframe Systems and Components	6	*

**Suggested Course Sequence** (Read down.)

AVM 120  
AVM 220  
AVM 221

\*For additional prerequisite information, check course section.

## Airframe and Powerplant Mechanics—Technical Certificate for Direct Employment

Program Identification Code: 165-20-05

### Required Courses (36 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
AVM 105	Aircraft Sheetmetal Repair	4	
AVM 120	Aviation Electricity I	4	
AVM 220	Airframe Structures	6	*
AVM 221	Airframe Systems and Components	6	*
AVM 230	Powerplant Mechanics	6	*

### Support Course

WLD 160	Arc Welding	4	
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### General Education Courses

#### Communication

WRT 100	Writing Fundamentals	3	WRT 070*
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Science and/or Mathematics

MAT	Determined by assessment at the 100 level or higher	3	
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### Suggested Course Sequence (Read down.)

Math course	AVM 221
AVM 105	AVM 230
AVM 120	WLD 160
AVM 220	WRT 100

\*For additional prerequisite information, check course section.

## Aviation Structural Repair—Technical Certificate for Direct Employment

Program Identification Code: 165-30-05

The Aviation Structural Repair program will prepare people for entry level work in the alteration, modification, and repair of small through large aircraft. Training will include a sequence of structural repair courses, airframe and powerplant familiarization, metallurgy, hardware and fasteners, radome, fiberglass and composite repair. The program provides a Technical Certificate.

### Required Courses (58 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
AVM 101	Structural Repair I	4	*
AVM 102	Structural Repair II	4	AVM 101
AVM 110	Aircraft Blueprint Reading	3	
AVM 123	Airframe Familiarization	3	
AVM 150	Structural Repair III	4	AVM 102
AVM 151	Structural Repair IV	4	AVM 150
AVM 160	Aircraft Materials and Metallurgy	3	
AVM 165	Aircraft Hardware and Fasteners	3	
AVM 170	Aircraft Powerplant Familiarization	3	
AMV 203	Structural Repair V	4	AVM 151*
AVM 204	Structural Repair VI	4	AVM 203
AVM 210	Advanced Composite Aircraft Repair I	5	AVM 204
AVM 250	Structural Repair VII	4	AVM 210
AVM 260	Advanced Composite Aircraft Repair II	4	AVM 250

**General Education Courses** (See Graduation section of this catalog for technical certificate course list.)

Communication	3	
Science and/or Mathematics		
MAT 110	Technical Mathematics I	3
		MAT 082*

**Suggested Course Sequence** (Read down.)

Reading requirement	AVM 165
AVM 101	AVM 170
AVM 102	AVM 203
AVM 110	AVM 204
MAT 110	AVM 210
AVM 123	AVM 250
AVM 150	AVM 260
AVM 151	Communication elective
AVM 160	

\*For additional prerequisite information, check course section.

## Aviation Structural Repair—Associate of Applied Science Degree for Direct Employment

**Program Identification Code: 165-30-03**

The Aviation Structural Repair program will prepare people for entry level work in the alteration, modification and repair of small through large aircraft. Training will include a sequence of structural repair courses, airframe and powerplant familiarization, metallurgy, hardware and fasteners, radome, fiberglass and composite repair. The program provides an Associate of Applied Science degree.

**Required Courses (73 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

AVM 101	Structural Repair I	4	*
AVM 102	Structural Repair II	4	AVM 101
AVM 110	Aircraft Blueprint Reading	3	
AVM 115	Applied Aircraft Mathematics	3	
AVM 123	Airframe Familiarization	3	
AVM 150	Structural Repair III	4	AVM 102
AVM 151	Structural Repair IV	4	AVM 150

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 151*
AVM 204	Structural Repair VI	4	AVM 203
AVM 210	Advanced Composite Aircraft Repair I	5	AVM 204
AVM 250	Structural Repair VII	4	AVM 210
AVM 260	Advanced Composite Aircraft Repair II	4	AVM 250

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
Humanities and Fine Arts	3
Science and/or Mathematics	6
Social and Behavioral Sciences	3

**Suggested Course Sequence** (Read down)

Reading requirement	AVM 165	Humanities and
AVM 101	AVM 170	Fine Arts electives
AVM 102	AVM 203	Communications
AVM 110	AVM 204	electives
AVM 115	AVM 210	Social and Behavioral
AVM 123	AVM 250	Sciences electives
AVM 150	AVM 260	
AVM 151	Science/Mathematics	
AVM 160	electives	

\*For additional prerequisite information, check course section.



# Bilingual Business Administration

In order to receive a basic certificate in bilingual business administration, ACC 100, BUS 100, 151 and MAN 110 must be taken in a bilingual mode. Only students who have a command of both Spanish and English may register for these bilingual courses.

## Bilingual Business Administration—Basic Certificate for Direct Employment

Program Identification Code: 180-10-08

Required Courses (15 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
ACC 100	Procedimientos Prácticos de Contabilidad	3	
BUS 100	Introducción a los Negocios	3	
BUS 151	Matemáticas Comerciales	3	
MAN 110	Relaciones Humanas en los Negocios	3	
WRT	Una clase de inglés, la cual será determinada por medio de un examen.	3	
English version of above course titles are listed below.			
ACC 100	Practical Accounting Procedures		
BUS 100	Introduction to Business		
BUS 151	Business Math		
MAN 110	Human Relations in Business and Industry		
WRT	Writing class determined by assessment.		

### Programa Bilingüe

El colegio ofrece una variedad de cursos usando inglés y español como base para personas que ya hablan español y desean un enfoque bilingüe/bicultural.

Una gran variedad de cursos forman parte de este programa: clases de secretariado, educación, arte, psicología, administración, matemáticas, deportes, bailes folklóricos, español para nativos, economía, cocina, historia, etc.

### El estudiante que estudia inglés

Mientras el estudiante estudia inglés, puede tomar clases bilingües en algún campo que le interesa acumulando créditos para un certificado o diploma del Colegio Pima o para transferir a nivel universitario.

### El estudiante que desea destrezas en español

La variedad de cursos que se ofrecen en una forma bilingüe dan destrezas lingüísticas y conocimientos culturales adicionales a estudiantes que desean algo extra. Por ejemplo, las personas en el campo secretarial o en el campo de la educación, aprenden el vocabulario y la expresión necesaria para encontrar un mejor empleo.

# Biochemistry

Program Identification Code: 345-05-01

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

# Biology

## Biology—Liberal Arts and Sciences—Associate of Arts Degree for Transfer

Program Identification Code: 345-06-01

A student planning on obtaining a biology degree should follow the Liberal Arts and Sciences - Associate of Arts Degree for Transfer program in this catalog. Refer to the appropriate university transfer option (UA or ASU/NAU). Biology majors should pay special attention in selecting courses from the biological and physical science areas. In particular they need to take BIO 181 and 182, and CHM 151 and 152.



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.

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

## Building Technology

(Formerly Air Conditioning)

This program area provides training in residential, commercial, and industrial facilities maintenance; heating, ventilation, air conditioning, and refrigeration (HVAC-R); and electrical. Three programs are offered:

- a basic certificate providing the applicant with basic skill levels for entry level helper positions in facilities maintenance; HVAC-R, and electrical;
- a technical certificate with major areas of concentration in facilities maintenance, HVAC-R, and electrical;
- an associate of applied science degree in building technology with major areas of concentration in facilities maintenance, HVAC-R, and electrical.

The design of the program is to get the applicants involved with the work place within six months after starting the program and continuing their education in the technical certificate or associate degree status. This program uses the self-paced, competency-based instruction which provides open entry/open exit scheduling flexibility. 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, high levels of self esteem, dedication to learning, the ability to follow instructions, and excellent study habits. Program courses and advising are available at the Downtown Campus.

## Building Technology—Basic Certificate for Direct Employment

Program Identification Code: 177-00-08

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; heating, ventilation, air conditioning, and refrigeration (HVAC-R); electrical; or plumbing. Students can advance from a basic certificate to the technical certificate and on to the associate of applied science degree.

### Required Courses (19 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
ACD 100	Introduction to Facilities Maintenance/Management	3	
ACD 101	Principles and Concepts for HVAC	3	MAT 082*
ACD 106	Soldering and Brazing for Building Technology	4	
ACD 115	Electrical Theory and Applications	4	ACD 100
ACD 140	Gas Furnace Heating	4	

### Support Courses

ASC 111A	Computer Keyboarding and Document Production: Keyboard	1	
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### Suggested Course Sequence (Read down.)

ASC 111A	ACD 106
ACD 100	ACD 115
ACD 101	ACD 140

\*For additional prerequisite information, check course section.

## Building Technology—Technical Certificate for Direct Employment

Program Identification Code: 177-00-05

This program provides advanced skill levels found in the entry level technician/journeyman levels of these crafts and trades. Applicants with this level of skills 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/journeyman in supervisory positions in order to be successful in the workplace.

### Required Courses (33-38 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
ACD 100	Introduction to Facilities Maintenance/Management	3	
ACD 101	Principles and Concepts for HVAC	3	MAT 082*
ACD 106	Soldering and Brazing for Building Technology	4	
ACD 115	Electrical Theory and Applications	4	ACD 100
ACD 140	Gas Furnace Heating	4	
Choose one of the following options:			
<b>Facilities Maintenance</b>			
ACD 120	HVAC Electricity, Circuitry, and Controls	4	ACD 101
ACD 130	EPA Clean Air Act: Section 608	1	ACD 101
ACD 150	Facilities Maintenance: Plumbing	4	ACD 100
ACD 221	Electrical Distribution and Motor Controls for Buildings	4	ACD 120
<b>HVAC-R</b>			
ACD 120	HVAC Electricity, Circuitry, and Controls	4	ACD 101
ACD 123	HVAC Systems Applications	4	ACD 101
ACD 125	HVAC Systems Service and Repair	4	ACD 123
ACD 130	EPA Clean Air Act: Section 608	1	ACD 101
<b>Electrical</b>			
ACD 120	HVAC Electricity, Circuitry, and Controls	4	ACD 101
ACD 135	National Electrical Code Wiring Applications	4	ACD 115

### Support Courses

ASC 111A	Computer Keyboarding and Document Production: Keyboard	1
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### General Education Courses

Communication		3	
WRT 100	Writing Fundamentals		WRT 070*
or 154	Technical Communications I		WRT 100*
Science and/or Mathematics		3	
MAT 110	Technical Mathematics I		MAT 082*

### Suggested Course Sequence

See a building technology faculty advisor.

\*For additional prerequisite information, check course section.

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

Program Identification Code: 177-00-03

Graduates of this program have the skills necessary to become engineering technicians in facilities maintenance, engineering/application technicians for manufacturers and contractors in heating ventilation air conditioning and refrigeration (HVAC-R), and journeyman electricians. This program provides the background necessary for movement into engineering or other professional programs. Applicants who complete this program possess the necessary knowledge and skills to be employed at the upper end of the pay scale and can look forward to careers as maintenance managers, estimators, service managers, and business managers or owners within the building technology field. This level of employment requires good basic reading, writing, math and area of concentration skills. In addition, it requires good work habits, high self esteem, good moral character, reliability and the ability to follow instructions given by employers and more advanced technicians/journeyman in supervision positions in order to be successful in the work place.

### Required Courses (64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ACD 100	Introduction to Facilities Maintenance/Management	3	
ACD 101	Principles and Concepts for HVAC	3	MAT 082
ACD 106	Soldering and Brazing for Building Technology	4	
ACD 115	Electrical Theory and Applications	4	ACD 100
ACD 140	Gas Furnace Heating	4	

Choose one of the following options:

**Facilities Maintenance**

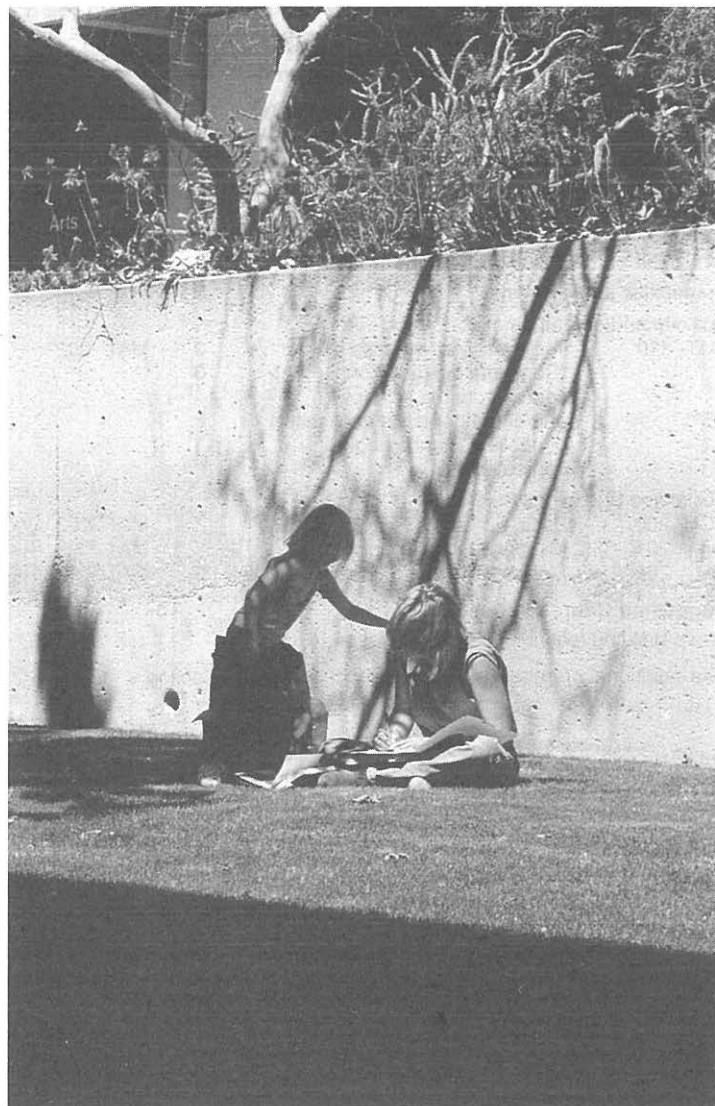
ACD 120	HVAC Electricity, Circuitry, and Controls	4	ACD 101
ACD 123	HVAC Systems Applications	4	ACD 101
ACD 130	EPA Clean Air Act: Section 608	1	ACD 101
ACD 150	Facilities Maintenance: Plumbing	4	ACD 100
ACD 221	Electrical Distribution and Motor Controls for Buildings	4	ACD 100*
	Technical Electives (With approval of a building technology faculty advisor)	10	

**HVAC-R**

ACD 120	HVAC Electricity, Circuitry, and Controls	4	ACD 101
ACD 123	HVAC Systems Applications	4	ACD 101
ACD 125	HVAC Systems Service and Repair	4	ACD 123*
ACD 130	EPA Clean Air Act: Section 608	1	ACD 101
ACD 150	Facilities Maintenance: Plumbing	4	ACD 100
ACD 210	Commercial HVAC Systems	4	ACD 125*
ACD 212	Pneumatic HVAC Controls	3	ACD 210*
	Technical Electives (With approval of a building technology faculty advisor)	3	

**Electrical**

ACD 120	HVAC Electricity, Circuitry and Controls	4	ACD 101
ACD 135	National Electrical Code Wiring Applications	4	ACD 115
ACD 221	Electrical Distribution and Motor Controls for Buildings	4	ACD 120
	Technical Electives (With approval of a building technology faculty advisor)	15	



### Support Course

ASC 111A	Computer Keyboarding and Document Production: Keyboard	1
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**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

#### Communication

WRT 100	Writing Fundamentals	3	WRT 070*
WRT 101	Writing I		WRT 100*
or 154	Technical Communications I	3	WRT 100*

Humanities and Fine Arts	3
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#### Science and/or Mathematics

MAT 110	Technical Mathematics I	3	MAT 082*
	(Complete one additional course from the science and/or mathematics associate of applied science degree course list.)	3	

#### Social and Behavioral Sciences

ECN 200	Basic Economic Principles		MAT 092
or 201	Microeconomic Principles		MAT 092
or 202	Macroeconomic Principles	3	MAT 092

### Suggested Course Sequence

See a building technology faculty advisor.

\*For additional prerequisite information, check course section.

## Business

The Business programs are designed to meet the goals of students:

- interested in exploring business as a career
- desiring appropriate skills to enter the business field
- needing skills to aid in opening a small business
- planning to transfer to a four-year institution as a business major

The certificate/degrees include:

- A **basic certificate** designed to introduce the student to basic business courses
- An **associate of applied science degree** with a specialty in management or marketing for students seeking employment after graduation
- An **associate of science 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 science degree** in retailing for students wishing to transfer to the University of Arizona.

### Business—Basic Certificate For Direct Employment

Program Identification Code: 180-00-08

#### Required Courses (15 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
ACC 100	Practical Accounting Procedures	3	
BUS 100	Introduction to Business	3	
BUS 151	Mathematics of Business	3	MAT 082*
MAN 110	Human Relations in Business and Industry	3	
ASC 151	Business English		*
or WRT	Determined by assessment test score	3	

#### Suggested Course Sequence

See a business faculty advisor.

\*For additional prerequisite information, check Course Section.

## Business —Advanced Certificate For Direct Employment

Program Identification Code: 180-00-06

### Required Courses (33 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101*
MAN 110	Human Relations in Business and Industry	3	
MKT 111	Marketing	3	

### Support Courses

BUS 100	Introduction to Business	3	
BUS 105	Survey of Microcomputer Uses	3	
BUS 151	Mathematics of Business		MAT 082*
or MAT	Determined by assessment test at the 100 level or higher	3	
BUS 200	Business Law I		
or 220	Legal Environment of Business	3	
MAN 280	Business Organization and Management	3	BUS 100*
ASC 251	Business Communications		ASC 151
or WRT 102	Writing II	3	WRT 101

**General Education Courses** (See Graduation section of this catalog for advanced/technical certificate course list.)

Communication		3	
ASC 151	Business English		ASC 050*
or WRT 101	Writing I		WRT 100*
Science and/or Mathematics		3	

(Support courses satisfy this requirement.)

## Suggested Course Sequence

See a business faculty advisor.

\*For additional prerequisite information, check course section.

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

Program Identification Code: 180-00-03

### Required Courses (63 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101*
BUS 100	Introduction to Business	3	
BUS 105	Survey of Microcomputer Uses	3	
BUS 151	Mathematics of Business	3	MAT 082*
BUS 200	Business Law I		
or 220	Legal Environment of Business	3	
ECN 200	Principles of Economics	3	
MAN 110	Human Relations in Business and Industry	3	
MAN 280	Business Organization and Management	3	BUS 100*
MKT 111	Marketing	3	

### Support Courses

Electives	Select 9 credit hours from the following: ACC, BUS, CSC, FIN, IBS, MAN, MKT	9	
Options	Select a minimum of 15 credit hours from either Option A or B.		
Option A - Management Specialty			
BUS 210	International Business	3	

MAN 122	Supervision	3	
MAN 124	Small Business Management	3	
MAN 270	Computer Applications for Managers	3	
MAN 276	Human Resources	3	BUS 100
MAN 278	Labor/Management Relationships	3	BUS 100
Option B - Marketing Specialty			
BUS 210	International Business	3	
MKT 113	Professional Sales	3	
MKT 125	Advertising	3	
MKT 139	Retailing	3	
MKT 150	Physical Distribution Management	3	
MKT 299	Co-op Related Class in MKT	1	
MKT 299	Co-op Related Work in MKT	3	

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
ASC 151 and 251 or WRT 101 and 102	
Humanities and Fine Arts	3
Science and/or Mathematics (Core and support courses satisfy this requirement.)	6
Social and Behavioral Sciences (Core courses satisfy this requirement.)	3

#### **Suggested Course Sequence**

See a business faculty advisor.

\*For additional prerequisite information, check course section.

## **Business Administration —Associate of Science Degree For Transfer**

**Program Identification Code: 180-00-02**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

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. There are options for:

The University of Arizona  
University of Phoenix  
Arizona State University  
Northern Arizona University

For additional information on degree transferability to regional universities, please refer to the chart in the front section of this catalog. Please note that 64 credits may transfer to Arizona State University, 70 credits may transfer to Northern Arizona University, 69 credits may transfer to the University of Phoenix, and 72 credits may be transferred to the University of Arizona. Students should check with program faculty advisors for further information.

New students are required to take the math assessment which is administered during registration. The prerequisite for MAT 172 and 212 is MAT 152 or satisfactory score on mathematics assessment.

## **University of Arizona Option**

### **Required Courses (67-69 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101
BUS 220	Legal Environment of Business	3	
CSC 100	Introduction to Computers and Information Systems	3	MAT 092
ECN 200**	Principles of Economics	3	MAT 092
MAT 172	Finite Mathematics	3	MAT 152*
MAT 212	Topics in Calculus	3	MAT 152

\*\*ECN 200 is preferred by the University of Arizona, however the combination of ECN 201 and 202 is acceptable.



### Support Courses

INTER-NATIONAL MULTI-CULTURAL EXPERIENCE	Complete two of the following courses: BUS 210, GEO 103, IBS 120 POS 120, 140	6
NON-WESTERN CIVILIZATION	Complete one of the following courses: HIS 113, 114, 170	3
WESTERN CIVILIZATION	Complete one of the following courses: HIS 101, 102, 141, 142 HUM 110, 111, 251, 252, 260 PHI 140 REL 140	3
ART/LIT	Complete two of the following courses: ART 130, 131, 135 DRA 140, 141 MUS 151, 201, 202 LIT 231, 260, 261, 262, 265 266, 267	6
SOC/BEH/ ETHICS	Complete one course from Option 1 (SOC/BEH) and one from Option 2 (ETHICS)  Option 1 ANT 102, 112, 202, 203, 205, 206 PSY 100A, 100B or 101, 216, 218, 230, 250, 265 SOC 101, 103, 120, 201, 204  Option 2 PHI 101, 130	6
SECOND LANGUAGE	Complete two courses from the following courses: FRE 110, 111, 210, 211 GER 110, 111, 210, 211 ITA 110, 111, 210, 211 RUS 110, 111 SPA 110, 111, 210, 211	8

**General Education Requirements** (See Graduation section of this catalog for associate of science degree course lists.)

English Composition	6
Humanities and Fine Arts (Support courses satisfy this requirement.)	6
Biological and Physical Sciences	8-10
Mathematics (MAT 142 or above) (Core courses satisfy this requirement.)	6
Social and Behavioral Sciences (Support courses satisfy this requirement.)	6
Other Requirement Options (Core and support courses satisfy this requirement.)	8-10

### Suggested Course Sequence

See a business public/administration faculty advisor.

\*For additional prerequisite information, check Course Section.

## University of Phoenix Option

### Required Courses 60-64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101
BUS 220	Legal Environment of Business	3	
CSC 100	Introduction to Computers and Information Systems	3	MAT 092
ECN 201	Introduction to Microeconomics	3	MAT 092
ECN 202	Introduction to Macroeconomics	3	MAT 092
MAT 152	College Algebra	3	MAT 122*
MAT 172	Finite Mathematics	3	MAT 152

Options	Complete 10-12 credits from the following options:
Accounting:	ACC 200, 201, 202, 203
Business:	BUS 100, 105, 210, CSC 135, FIN 107, 145, 213, 217
Management:	MAN 110, 122, 124, 270, 276, 278, 280
Marketing:	MKT 111, 113, 125, 139, 150

### Support Courses

Communication	6
Complete two of the following: SPE 102, 110, 130	

**General Education Courses** (See Graduation section of this catalog for associate of science degree course list.)

English Composition	6
Humanities and Fine Arts	6

Complete two of the following:  
ART 130, 131, 135  
HUM 110, 111, 251, 252, 253  
LIT 231, 260, 261, 262, 265, 266, 267, 268  
MUS 201, 202  
PHI 101, 130, 140  
REL 120, 121, 125, 140

Biological and Physical Sciences	8-10
Mathematics (MAT 142 or above) (Support courses satisfy this requirement.)	6
Social and Behavioral Sciences (Support courses satisfy this requirement.)	6
Other requirement options (Core and support courses satisfy this requirement.)	8-10

### Suggested Course Sequence

See a business/public administration faculty advisor.

## Arizona State University Option

### Required Courses (62-64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101
BUS 205	Statistical Methods in Economics and Business	3	MAT 172
BUS 220	Legal Environment of Business	3	
CSC 100	Introduction to Computers and Information Systems	3	MAT 092
ECN 201	Introduction to Microeconomics	3	MAT 092
ECN 202	Introduction to Macroeconomics	3	MAT 092
MAT 172	Finite Mathematics	3	MAT 152*
MAT 212	Topics in Calculus	3	MAT 152
PHI 120	An Introduction to Logic	3	

### Support Courses

Communication	3
Complete one of the following: SPE 102, 130	
CULTURAL AWARENESS	3
Complete one of the following: ANT 148, 150, 205, 206 HIS 148, 150, 180 HUM 260 SOC 204	
GLOBAL AWARENESS	3
Complete one of the following: ANT 102 POS 120, 140	
HISTORICAL AWARENESS	3
Complete one of the following: ART 130 DRA 140, 141 HIS 101, 102, 113, 114, 141, 142, 148, 150 HUM 110, 111, 251, 252, 253 REL 120	

**General Education Courses** (See Graduation section of this catalog for associate of science degree course list.)

English Composition	6
Humanities and Fine Arts	6
ART 130, 131	
DRA 140, 141	
HUM 110, 111, 251, 252, 253, 260	
LIT 231, 266 and 267	
(LIT 266 and 267 must be completed together.)	
PHI 101, 130	
REL 120, 121, 125	
Biological and Physical Sciences	8-10
Mathematics (MAT 142 or above)	6
(Core courses satisfy this requirement.)	
Social and Behavioral Sciences	6
(Core courses satisfy this requirement.)	
Other requirement options	8-10
(Core and support courses satisfy this requirement.)	

### Suggested Course Sequence

See a business/public administration faculty advisor.

\*For additional prerequisite information, check course section.

## Northern Arizona University Option

### Required Courses (62-64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101
BUS 205	Statistical Methods in Economics and Business	3	MAT 172

BUS 220	Legal Environment of Business	3	
CSC 100	Introduction to Computers and Information Systems	3	MAT 092
ECN 201	Introduction to Microeconomics	3	MAT 092
ECN 202	Introduction to Macroeconomics	3	MAT 092
MAT 152	College Algebra	3	MAT 122*
MAT 172	Finite Mathematics	3	MAT 152*
MAT 212	Topics in Calculus	3	MAT 152

### Support Courses

ARTS	Complete two of the following:	6	
	ART 130, 131		
	DRA 140, 141		
	HUM 110, 111, 251, 252, 253		
	LIT 231		
	MUS 102, 151, 201, 202		
LANGUAGE AND ANALYSIS SKILLS	Complete one of the following:	3	
	SPE 102, 110		
WORLD AND CULTURAL DIVERSITY	Complete one of the following:	3	
	ANT 148, 150, 205, 206		
	HIS 148, 150		
	SOC 204		

**General Education Courses** (See Graduation section of this catalog for associate of science degree course list.)

English Composition	6
Humanities and Fine Arts	6
	HIS 101, 102, 113, 114, 141, 142, 148, 160, 161
	LIT 260, 261, 265, 266, 267, 268, 286
	PHI 101, 130, 140
	REL 120, 121, 140
Biological and Physical Sciences	8-10
Mathematics (MAT 142 or above)	6
(Core courses satisfy this requirement.)	
Social and Behavioral Sciences	6
(Core courses satisfy this requirement.)	
Other requirement options	8-10
(Core and support courses satisfy this requirement.)	

## Suggested Course Sequence

See a business/public administrator faculty advisor.

\*For additional prerequisite information, check course section.

## Business Administration—Retailing

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. Career opportunities exist such as entrepreneur, department/store manager, buyer, merchandise analyst, visual/fashion merchandise, wholesaler showroom manager, catalog manager, mall manager, district/regional manager, and general merchandise manager.

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. In completion of upper division requirements, students may specialize in international retailing, visual merchandising or food retailing as well as work with a major retailer in a paid summer or semester internship program.

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.

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. The courses offered in this program meet the University of Arizona requirements for the first two years. The student needs to select either the bachelor of arts or a bachelor of science degree option. See an advisor for choice of options listed below.

## Business Administration—Retailing—Associate of Science Degree for Transfer

Program Identification Code: 180-05-02

### Required Courses (65-69 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ACC 101	Financial Accounting	3	
BUS 105	Survey of Microcomputer Uses	3	
DES 111	Fundamentals of Design	3	
ECN 201	Introduction to Microeconomics	3	MAT 092
ECN 202	Introduction to Macroeconomics	3	MAT 092
MKT 139	Retailing	3	
MAT 152	College Algebra	3	MAT 122*
MAT 167	Introductory Statistics	3	MAT 122*
ELEC	Complete two of the following courses:	6	
	MAN 124		
	MKT 113, MKT 150		

### Support Courses

PSY 101	Introduction to Psychology	4
SOC 101	Introduction to Sociology	3
NON-WESTERN CIVILIZATION REQUIREMENT	Select one course from the following list:	3
	ANT 205, 206	
	ARC 205	

SECOND LANGUAGE	Complete two courses in one of the following languages:	8-10
	FRE 110, 111, 210, 211	
	GER 110, 111, 210, 211	
	ITA 110, 111, 210, 211	
	JPN 110, 111, 210, 211	
	RUS 110, 111	
	SPA 110, 111, 210, 211	

**General Education Courses** (See Graduation section of this catalog for associate of science degree course list.)

English Composition	6
Humanities and Fine Arts	6
(Support course satisfies three credits.)	
	Select one of the following:
	ART 100, 110, 115, 130, 131
	LIT 260, 261, 265, 266, 267
	MUS 151
Biological and Physical Sciences	8-10
	Complete two of the following:
	CHM 121, 130, 140, 141
	PHY 121, 122

Mathematics (MAT 142 or above) (Core courses satisfies this requirement.)	6
Social and Behavioral Sciences (Core courses satisfy this requirement.)	6
Other requirement options (Core courses satisfy this requirement.)	8-10

### **Suggested Course Sequence**

See a business faculty advisor.

\*For additional prerequisite information, check course section.

## **Chemistry**

### **Chemistry—Liberal Arts and Sciences—Associate of Arts Degree for Transfer**

**Program Identification Code: 345-07-01**

A student planning on obtaining a chemistry degree should follow the Liberal Arts and Sciences—Associate of Arts Degree for Transfer. Consult the appropriate university transfer option (UA or ASU/NAU).

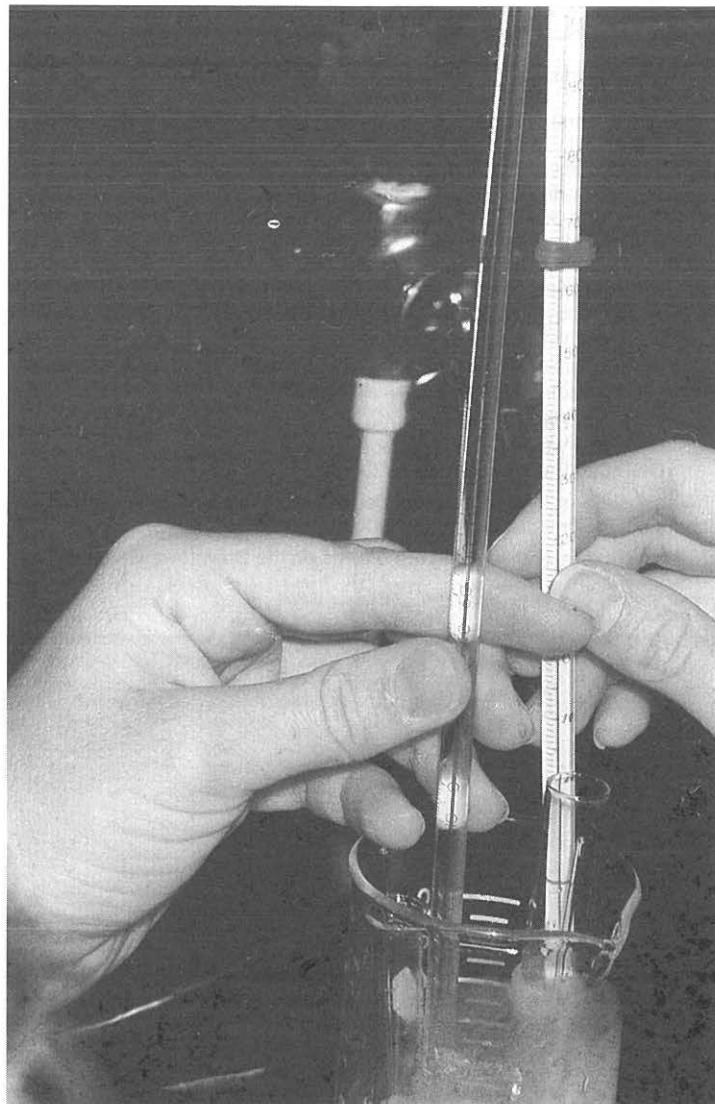
A student seeking a degree must take the math, writing, and reading assessment exams. The student should then meet with a chemistry faculty advisor to plan courses. The student who plans on transferring to an upper division school to complete his/her degree should also contact an advisor from their chosen school for verification of transfer courses.

## **Classics**

**Program Identification Code: 345-08-01**

A student planning on obtaining a degree with an option in Classics should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.



# Communication Graphics

(Formerly Advertising Art and Computer Graphics)

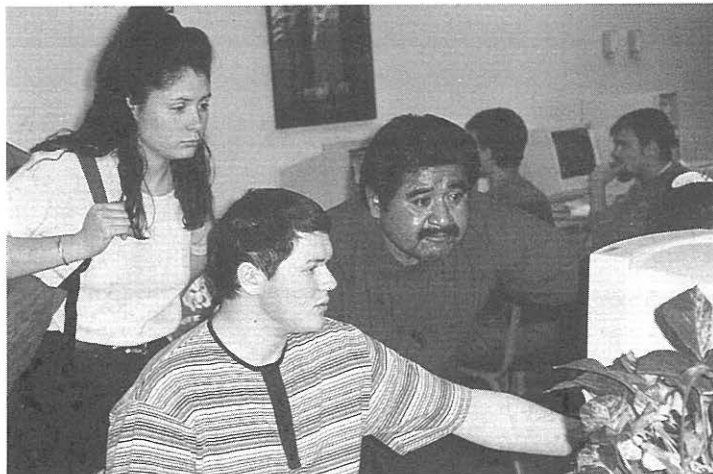
Programs in communication graphics prepare students for direct employment in the field. Their training may include basic drawing, color rendering and advanced figure drawing, graphic design, desktop publishing and computer graphics with Macintosh computers and current software, production techniques, and portfolio development. Specialized training is also offered in cartooning, television commercial design, airbrush techniques, and package design. Two credentials are offered: an advanced certificate and an associate of applied science degree. The advanced certificate course work satisfies core and some general education course work for the associate of applied science degree.

The following basic courses are entry requirements into the advanced certificate or associate of applied science degree:

- CGR 001 Basic Drawing
- CGR 010 Visual Communication
- CGR 020 Basic Macintosh for Computer Graphics

The associate of applied science degree provides four options - design, illustration, multimedia, and production art.

Program courses and advising are offered on the Downtown Campus.



## Communication Graphics—Advanced Certificate for Direct Employment

Program Identification Code: 187-00-06

The advanced certificate program introduces students to the skills required for entry level positions in graphic design illustration and production. Entry requirements for the advanced certificate program are CGR 001, 010, and 020. Advanced certificate courses satisfy core and some general education associate of applied science degree requirements.

### Required Courses (44-46 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
CGR 100	Color Rendering	4	CGR 001
CGR 101	Figure Drawing I	4	CGR 001
CGR 110	Typography	3	CGR 010
CGR 111	Graphic Design I	4	CGR 010*
CGR 121	Desktop Publishing for Communication Graphics: Pagemaker		CGR 020*
or 220	Desktop Publishing for Communication Graphics: QuarkXpress	4	CGR 020*
CGR 122	Desktop Graphics: Adobe Illustrator	4	CGR 020*
CGR 130	Production Techniques and Processes I	3	MAT 082 CGR 101
CGR 200 or 214	Figure Drawing II Communication Graphics Business and Portfolio	4-2	CGR 111 CGR 111
CGR 210 CGR 221	Graphic Design II Photo Image Editing: Adobe Photoshop	3 4	CGR 111 CGR 020*
<b>Support Course</b>			
GRA 101	Graphic Technology I	3	
<b>General Education Courses</b>			
Communication			
WRT 100 or 101	Writing Fundamentals Writing I	3	WRT 070* WRT 100*
Science and/or Mathematics			
MAT	Determined by assessment test at the 100 level or higher	3	



## Suggested Course Sequence

See a communication graphics faculty advisor.

\*For additional prerequisite information, check course section.

## Communication Graphics—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 187-00-03

This program trains students for careers in graphic design, production, illustration, and multimedia. Entry requirements for the associate of applied science degree are CGR 001, 010, and 020. The advanced certificate coursework satisfies requirements toward this degree.

### Required Courses (68-71 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		
<b>Core Courses</b> - A grade of C or better is required for graduation.			
CGR 100	Color Rendering	4	CGR 001
CGR 101	Figure Drawing I	4	CGR 001
CGR 110	Typography	3	CGR 010
CGR 111	Graphic Design I	4	CGR 010*
CGR 121	Desktop Publishing for Communication Graphics: Pagemaker		CGR 020*
or 220	Desktop Publishing for Communication Graphics: QuarkXpress	4	CGR 020*
CGR 122	Desktop Graphics: Adobe Illustrator	4	CGR 020*
CGR 130	Production Techniques and Processes I	3	MAT 082
CGR 210	Graphic Design II	3	CGR 111
CGR 214	Communication Graphics Business and Portfolio	2	CGR 111
CGR 221	Photo Image Editing: Adobe Photoshop	4	CGR 020*

Complete one of the following options:

Design			
CGR 121	Desktop Publishing for Communication Graphics: Pagemaker		CGR 020*
or 220	Desktop Publishing for Communication Graphics: QuarkXpress	4	CGR 020*
CGR 200	Figure Drawing II	4	CGR 101
CGR 211	Graphic Design III	3	CGR 210
CGR 230	Production Techniques and Processes II	4	CGR 130
Illustration			
CGR 140	Illustration I	3	CGR 100*
CGR 142	Airbrush Techniques I		CGR 001
or 201	Figure Drawing III	3-4	CGR 200
CGR 200	Figure Drawing II	4	CGR 101
CGR 223	Computer Painting	4	CGR 001*
CGR 240	Illustration II	3	CGR 140
Multimedia			
CGR 200	Figure Drawing II	4	CGR 101
CGR 223	Computer Painting	4	CGR 020*
CGR 250	Computer 2D Animation	4	CGR 223
CGR 251	Computer 3D Animation	4	CGR 122
CGR 252	Computer Multimedia Design I	4	CGR 020*
Production Art			
CGR 121	Desktop Publishing for Communication Graphics: Pagemaker		CGR 020*
or 220	Desktop Publishing for Communication Graphics: QuarkXpress	4	CGR 020*
CGR 230	Production Techniques and Processes II	4	CGR 130*
CGR 231	Production Techniques and Processes III	4	CGR 230
CGR 232	Production Techniques and Processes IV	4	CGR 231
<b>Support Course**</b>			
GRA 101	Graphic Technology I	3	

**General Education Courses** (See Graduation section of this catalog for the associate of applied science degree course list.)

**Communication**

SPE 120 Business and Professional Communication 3

WRT 100 Writing Fundamentals 3

or 101 Writing I

or 102 Writing II

or 154 Technical Communications I 3

Humanities and Fine Arts 3

(Satisfied by core courses.)

**Science and/or Mathematics**

MAT Determined by assessment test

at the 100 level or higher 3

MAT Second course in sequence

at the 100 level or higher 3

**Social and Behavioral Science**

MAN 110 Human Relations in Business

and Industry 3

**Suggested Course Sequence**

See a computer graphics faculty advisor.

\*For additional prerequisite information, check course section.

\*\*For Design, Illustration, and Production Art options only.

## Computer Science

These programs are designed both to prepare students for employment in the field, mainly as data entry operators and computer programmers and to 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 they 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. The following programs are offered:

**Data Entry Operator**

Basic Certificate For Direct Employment

Advanced Certificate For Direct Employment

**Small Business Computer Specialist**

Associate of Applied Science Degree For Direct Employment

**Computer Programmer/Analyst**

Associate of Applied Science Degree For Direct Employment

**Computer Science**

Associate of Science Degree For Transfer.

The data entry faculty advisors are located on the Downtown Campus; the faculty advisors for the computer science programs are located on the East and West Campuses.

### Data Entry Operator—Basic Certificate for Direct Employment

**Program Identification Code: 190-10-08**

This program offers the student the skills needed to enter the market as an entry-level trainee for such jobs as data entry operator, on-line terminal operator and data entry/microcomputer operator. Success in the program requires good keying and reading skills and the ability to understand and follow directions exactly. Keystroke skill of 8,000 strokes per hour is required in order to be successful in data entry keystroke development courses and to meet certificate requirements. Keystroke development courses are available to assist students in meeting the requirement. See a data entry faculty advisor.

**Required Courses (16-17 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
CSD 123	Data Entry Job Skill Development	2	
CSD 125	Data Entry Procedures and Operations	3	
CSD 126	Data Entry Basic Software Routines	3	CSD 125
CSD 132	Data Entry Simulated Work Site Routines	3	CSD 125*
CSD 134	Data Entry Advanced Keystroke Development	2	CSD 100*

**Support Courses**

BUS 151 or MAT	Mathematics of Business MAT 092 or higher (based on assessment test and if higher degree is being pursued)	3	* MAT 082*
REA 112	College Reading I (if Reading 112 is met by assessment then ASC 111 is required)	3-4	*

**Suggested Course Sequence**

See a data entry faculty advisor.

\*For additional prerequisite information, check course section.

**Data Entry Operator—Advanced Certificate for Direct Employment**

**Program Identification Code: 190-10-06**

The advanced certificate qualifies students to function independently without additional training as beginning level operators of data entry equipment, on-line terminals and microcomputers. In addition, students are trained in word processing and the use of spread sheets and databases. Good reading and listening skills are essential for success in this program. Keystroke skill of 8,000 strokes per hour is required in order to be successful in the data entry keystroke development courses and to meet certificate requirements. Keystroke development courses are available to assist students in meeting the requirement. See a data entry faculty advisor.

**Required Courses (34-35 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
CSD 123	Data Entry Job Skill Development	2	
CSD 125	Data Entry Procedures and Operations	3	
CSD 126	Data Entry Basic Software Routines	3	CSD 125
CSD 127	Data Entry Advanced Software Routines	3	CSD 126
CSD 129	Data Entry Software Procedures	3	
CSD 130	Data Entry Advanced Software Procedures	3	CSD 129
CSD 132	Data Entry Simulated Work Site Routines	3	CSD 125*
CSD 134	Data Entry Keystroke Development	2	CSD 100*

**Support Courses**

ACC 100 or 101	Practical Accounting Procedures Financial Accounting (if higher degree is being pursued)	3	
CSD 199	Co-op Related Class in CSD	1	*
CSD 199	Co-op Work in CSD	2	*
REA 112	College Reading I (if Reading 112 is met by assessment then ASC 111 is required)	3-4	*

**General Education Courses**

Communications			
ASC 151 or WRT 100	Business English  Writing Fundamentals or higher (based on assessment test and if higher degree is being pursued)	3	WRT 070*
Science and/or Mathematics			
BUS 151 or MAT	Mathematics of Business MAT 092 or higher (based on assessment test and if higher degree is being pursued)	3	MAT 082*

**Suggested Course Sequence**

See a data entry faculty advisor.

## Small Business Computer Specialist—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 190-20-03

This program is designed to prepare students for employment in the micro-computer field. Students are trained to be able to select, install and use most small computer systems (both hardware and software). Before taking CSC 130, students must take or test out of CSC 100. (See a faculty advisor for further details regarding this requirement.) Good study habits and strong English skills are important for success in the program.

### Required Courses (67-71 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		
<b>Core Courses</b> - A grade of C or better is required for graduation.			
CSC 104	Spreadsheets	3	CSC 105*
CSC 105	Survey of Microcomputer Uses	3	
CSC 106	Database Concepts I	3	CSC 105*
CSC 108	Microcomputer Operating Systems	3	
CSC 109	Using the Windows Environment	3	CSC 105
CSC 110	Introduction to the Internet for New Computer Users		*
or 120	The Internet for Experienced Computer Users	1	*
CSC 130	Programming Fundamentals	3	CSC 100*
CSC 136	Microcomputer Components	3	
CSC 198	Data Processing Projects I	1-3	
CSC 204	Advanced Spreadsheet Concepts	3	CSC 104*
CSC 206	Database Procedural Language Programming	4	CSC 106
CSC 220	Networking	3	CSC 130*
CSC 238	Integrated Package Project	4	CSC 204*
CSC 280	Systems Analysis	3	CSC 160*

### Support Courses

ACC 100	Practical Accounting Procedures	3	
BUS 151	Mathematics of Business	3	MAT 082*
MAN 124	Small Business Management	3	
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
CSC/ELEC	Complete one of the following options:	6-8	

#### Option 1:

Complete one 100-level and one 200-Level course, or two 200-Level courses from within one of the following areas:

ACC, AJS, ANT, ARC, ASC, AST, BIO, BUS, CAD/DFT, CHM, ECN, ENG, ETR, MAN, MEC, MKT, MAT, NRS, PHY, SOC, SPA, WRT.

#### Option 2:

Co-op Sequences: CSC 199, 299.

#### Option 3:

Business Computing Sequence  
Complete two of the six following CSC courses: 160, 170, 175, 230, 260, 265, 275, 291.

#### Option 4:

Machine Language Sequence  
Complete two of the four following CSC courses: 250, 270, 274, 275.

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
(Support courses satisfy this requirement.)	
Social and Behavioral Sciences	3

### Suggested Course Sequence

See a computer science faculty advisor.

\*For additional prerequisite information, check course section.

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

Program Identification Code: 190-30-03

This program is designed to prepare students for direct employment as programmer/analysts, programmers, programmer trainees, computer sales staff and computer operators. Before taking CSC 130 or 135, students must take or test out of CSC 100. (See a faculty advisor for further details regarding this requirement.) Good study habits and strong logic and English skills are important for success in the program.

### Required Courses (64-67 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		
<b>Core Courses</b> - A grade of C or better is required for graduation.			
CSC 100	Introduction to Computers and Information Systems	3	MAT 092*
CSC 110	Introduction to the Internet for New Computer Users		*
or 120	The Internet for Experienced Computer Users	1	*
CSC 130	Programming Fundamentals		CSC 100*
or 131	Computer Science Concepts	3-4	CSC 100*
CSC 135	Introduction to Computer Operations	3	CSC 100
CSC 140	FORTTRAN Programming		CSC 100*
or 160	COBOL Programming	3	CSC 130*
CSC 198	Data Processing Projects I		
or 298	Data Processing Projects II	1-3	*
CSC 220	Networking	3	CSC 130*
CSC 250	Introduction to Assembly Language	3	CSC 130*
CSC 260	Advanced COBOL/File Management		CSC 160*
or 277	Advanced Programming in C		CSC 265
or 278	C++ and Object-Oriented Programming	4	CSC 265*
CSC 265	The C Programming Language	3	*
CSC 275	Advanced 80x86 Assembly Language		CSC 250
or 291	Database Concepts	4	CSC 260*
CSC 280	Systems Analysis	3	CSC 140*
CSC 281	Systems Design	3	CSC 280

### Support Courses

MAT 122	Intermediate Algebra		MAT 092*
or 152	College Algebra	3	MAT 122*
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
ELEC	Choose four courses from the following list. You must include at least two groupings:	12-14	
	1. ACC 101, 102		
	2. Any CSC 199 or higher level course		
	3. ECN 200, 201, 202, or 210		
	4. ETR 100 or higher course		
	EXCEPT ETR 160 or 255		
	5. MAT 172 or higher		

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
(Support courses satisfy this requirement.)	
Social and Behavioral Sciences	3

### Suggested Course Sequence (Read down.)

Reading requirement	Social & Behavioral	CSC 260 or 277 or 278
WRT 101	Science elective	CSC 265
MAT 122 or 152	CSC 140 or 160	CSC 280
CSC 100	WRT 102	CSC 198 or 298
CSC 135	Humanities & Fine	CSC 220
CSC 130 or 131	Arts elective	CSC 275 or 291
CSC 110 or 120	CSC 250	CSC 281
		Other electives

\*For additional prerequisite information, check course section.

## Computer Science—Associate of Science Degree for Transfer

**Program Identification Code: 190-00-02**

Students planning to transfer to the University of Arizona, Arizona State University, or Northern Arizona University must see an advisor for requirements unique to each school.

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section. Please note that only 72 credits may transfer to the University of Arizona and only 64 credits may transfer to Arizona State University, and only 70 credits may transfer to Northern Arizona University, without petitioning.

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.

### Required Courses (63-68 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

CSC 131	Computer Science Concepts	4	CSC 100*
CSC 230	Data Structures	4	CSC 265
CSC 250	Introduction to Assembly Language	3	CSC 130*
CSC 265	The C Programming Language	3	*
CSC 296	Machine Architecture and Organization	3	CSC 250

### Support Courses

CHM 151	General Chemistry I		MAT 122*
or			
PHY 210	Introductory Mechanics	5	MAT 220*
MAT 220	Calculus I	5	MAT 182*

MAT 231	Calculus II	4	MAT 220
MAT 227	Discrete Mathematics in Computer Science	3-4	MAT 152
LANG	Foreign Language: (Completion of two semesters of a language course numbered 110, 111, 210 or 211. Bilingual or international students should consult an advisor concerning exceptions to this requirement.)	8-10	

**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.**

**General Education Requirements** (See Graduation section of this catalog for associate of science degree course list.)

English Composition	6
Humanities and Fine Arts	6
Biological and Physical Sciences (CHM 151 or PHY 210 satisfies 5 credits of this requirement.)	8-10
Mathematics (Support courses satisfy this requirement.)	6
Social and Behavioral Sciences	6
Other Requirement Options (This requirement is satisfied by the language courses.)	8-10

### Suggested Course Sequence

See a computer science faculty advisor.

\*For additional prerequisite information, check course section.



# Construction

This program is designed to meet the requirements for the first two years of a B.S. degree in Construction.

This program is currently intended to transfer to Arizona State University, Northern Arizona University, and Western New Mexico University. Students wishing to transfer to the University of Arizona, or a different institution should see a Pima College faculty advisor. Please note that only 64 credits may transfer to Arizona State University, and only 70 credits may transfer to Northern Arizona University, without petitioning.

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

## Construction—Associate of Science Degree for Transfer

Program Identification Code: 195-00-02

### Required Courses (61-63 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

CON 201	Cost Estimating	3	CON 101*
CON 212A	Construction Drafting: Structural	1	CON 162
CON 212B	Construction Drafting: Architectural	1	CON 212A
ENG 102**	Problem-solving and Engineering Design	3	MAT 220*
ENG 130	Elementary Surveying	3	MAT 152*
ENG 170	Problem-solving Using Computers	3	ENG 102

### Support Courses

ACC 101	Financial Accounting	3	
ECN 201	Microeconomic Principles	3	MAT 092
ECN 202	Macroeconomic Principles	3	MAT 092
MAT 220	Calculus I	5	MAT 182*
MAT 167	Introductory Statistics	3	MAT 152*
PHY 121	Introductory Physics I	5	MAT 092*
PHY 122	Introductory Physics II	5	PHY 121
SPE 110	Public Speaking	3	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

**General Education Requirements** (See Graduation section of this catalog for associate of science degree course list.)

English Composition	6
(WRT 101 and 102 satisfy this requirement.)	
Humanities and Fine Arts	6
(REL 234 is required. Select 3 additional credits.)	
Biological and Physical Sciences	8-10
(PHY 121 and 122 satisfy this requirement.)	
Mathematics	6
(MAT 167 and 220 satisfy this requirement.)	
Social and Behavioral Sciences	6
(ECN 201 and 202 satisfy this requirement.)	
Other Requirement Options	8-10

Select 8-10 credits from the following:

ANT 102, 206  
CSC 100, 140  
MAT 152, 182, 187  
POS 120, 130  
SPE 102, 130, 136

### Suggested Course Sequence (Read down.)

WRT 101	MAT 220	CON 212A
ENG 170	SPE 110	CON 212B
PHY 121	ECN 202	Humanities and Fine Arts elective
ACC 101	CON 201	ENG 210
WRT 102	REL 234	Elective
ENG 102	Elective	
PHY 122	MAT 167	
ECN 201	Elective	

See a construction faculty advisor.

\*For additional prerequisite information, check course section.

\*\*For ENG 102 AND 170, see a faculty advisor.

## Construction Related Instruction

The construction programs consist of construction skills and professional construction courses and are identified by the CON prefix.

There are five certificate and degree areas in construction professions:

- Construction Drafting
- Construction Technology—Commercial Building Option
- Construction Technology—Grading and Paving Option
- Construction Technology—Residential and Light Commercial Option
- Pre-Architecture

In addition, Pima Community College offers the following programs, open to any student, which lead to a certificate(s) and/or degree(s):

Building Technology  
Design  
Engineering  
Environmental Technology  
Landscape Technician

See Degrees and Certificates Section of this catalog for program and course requirements.

For course descriptions and prerequisite information, check course section.

There are also areas with restricted enrollment, which include Apprentice Related Instruction and Fire Science courses (taught for local firefighters). The Center for Training and Development also teaches building occupations.

In addition to those programs, individual courses are open to any student and are taught under the following prefixes:

CON	Construction
ENV	Environmental Technology
GTC	General Technology
SET	Solar Energy Technology
SML	Sheet Metal

## Construction Drafting

Students can select from a basic certificate program, a technical certificate program or a two-year associate of applied science degree program. The degree program offers courses in drafting techniques, building construction systems and materials. This training may lead to work in the construction industry and related fields.

### Construction Drafting—Basic Certificate for Direct Employment

Program Identification Code: 200-00-08

#### Required Courses (17 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
CON 112	Construction Drafting I	4	
CON 162	Construction Drafting II	4	CON 112*
<b>Support Courses</b>			
ELEC	Electives	9	
Complete 9 credit hours at the 100 level or higher from any of the following: CAD, CON, DES, ENG, or LTP courses.			

#### Suggested Course Sequence (Read down.)

CON 112  
Support course  
CON 162  
Support course  
Support course

\*For additional prerequisite information, check course section.

## Construction Drafting—Technical Certificate for Direct Employment

Program Identification Code: 200-00-05

### Required Courses (29 Credit Hours)

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

CON 112	Construction Drafting I	4	
CON 162	Construction Drafting II	4	CON 112*

#### Support Courses

CSC 105	Survey of Microcomputer Uses	3	
ELEC	Electives	12	
	Complete 12 credit hours at the 100 level or higher from any of the following: CAD, CON, DES, ENG, or LTP courses.		

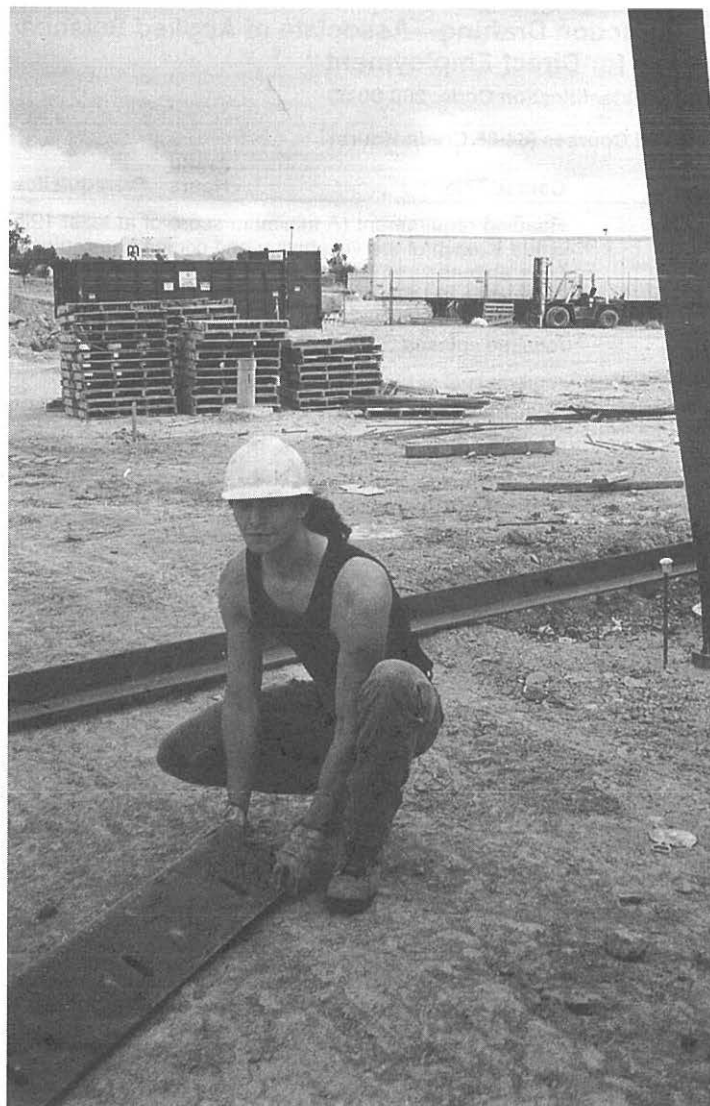
#### General Education Courses

Communication		3	
	Select one course from WRT 101 or WRT 150.		
Science and/or Mathematics		3	
	Complete one MAT course at the 100 level or higher.		

#### Suggested Course Sequence (Read down.)

CON 112	CON 162
Mathematics elective	Support course
WRT 101 or 150	Support course
CSC 105	Support course
Support course	

\*For additional prerequisite information, check course section.



## Construction Drafting—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 200-00-03

### Required Courses (64-65 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

CAD 100	Computer Aided Drafting I for Construction	4	
CAD 150	Computer Aided Drafting II for Construction	4	CAD 100*
CON 100	Principles of Construction	4	
CON 101	Building Materials	3	
CON 112	Construction Drafting I	4	
CON 162	Construction Drafting II	4	CON 112*
CON 212	Construction Drafting III		CON 162
or 199	Co-op Related Class in CON		*
and 199	Co-op Work in CON	4-5	*
CON 222	Site Development Drafting	4	CON 112*

### Support Courses

CSC 105	Survey of Microcomputer Uses	3	
ENG 110	Construction Surveying	3	MAT 110
SPE 120	Business and Professional Communication	3	
ELEC	Electives	6	
	Complete any 6 credits at the 100 level or higher from the following: CAD, CON, DES, ENG, or LTP.		

### General Education Courses (See Graduation section of this catalog for associate of applied science degree course list.)

Communication		6	
	Select 3 credits from WRT 101 or 150 and select 3 credits from WRT 102 or 154.		

Humanities and Fine Arts	3
Science and/or Mathematics	6
Social and Behavioral Sciences	3

### Suggested Course Sequence (Read down.)

Reading requirement	ENG 110
CON 100	CON 212 or 199
CON 112	CAD 100
Mathematics elective	CON 222
WRT 101 or 150	SPE 120
CSC 105	Elective
CON 101	CAD 150
CON 162	Elective
Mathematics elective	Humanities and Fine Arts elective
WRT 102 or 154	Social and Behavioral Sciences elective

\*For additional prerequisite information, check course section.

## Construction Technology

The construction technology program is an occupational program leading to an advanced certificate (one year) and/or associate of applied science degree (two years). Students may follow one of three basic paths toward a certificate/degree: a residential and light commercial construction option, a commercial building construction option or a grading and paving construction option. The residential and light commercial construction option prepares the student for a variety of supervisory positions ranging from superintendent to project manager. The commercial building construction option and the grading and paving construction option provide the student with skill and supervisory training leading to positions at the superintendent level. Employment at these levels in the construction industry also requires job experience.

## Construction Technology-Residential and Light Commercial Option—Advanced Certificate for Direct Employment

Program Identification Code: 205-10-06

### Required Courses (33 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
CON 100	Principles of Construction	4	
CON 101	Building Materials	3	
CON 130	Plumbing	3	
CON 140	Electricity	3	

### General Education and Support Courses

CON 111	Commercial Blueprint Reading I	3	
CON 112	Construction Drafting I	4	
CON 162	Construction Drafting II	4	CON 112*
SPE 120	Business and Professional Communication	3	
ELEC	Mathematics Electives (6 credit hours of math at the 110 level or higher.)	6	

### Suggested Course Sequence (Read down.)

CON 100	CON 101
Math elective	Math elective
CON 112	SPE 120
CON 130	CON 162
CON 111	CON 140

\*For additional prerequisite information, check course section.

## Construction Technology-Residential and Light Commercial Option—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 205-10-03

### Required Courses (63 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

CON 100	Principles of Construction	4	
CON 101	Building Materials	3	
CON 130	Plumbing	3	
CON 140	Electricity	3	
CON 150	Concrete/Masonry	3	
CON 200	Soils and Materials Testing	3	CON 101*
CON 201	Cost Estimating	3	CON 101*
CON 202	Construction Management	3	

### General Education and Support Courses

BUS 100	Introduction to Business	3	
CON 111	Commercial Blueprint Reading I	3	
CON 112	Construction Drafting I	4	
CON 162	Construction Drafting II	4	CON 112*
CSC 105	Survey of Microcomputer Uses	3	
ENG 110	Construction Surveying	3	MAT 110
MAN 110	Human Relations in Business and Industry	3	
SPE 120	Business and Professional Communication	3	
WRT 101 or 150	Writing I Practical Communications	3	WRT 100 *
	Humanities and Fine Arts	3	
(See Graduation section of this catalog for associate of applied science degree course list.)			
MAT ELEC	Mathematics Electives Complete 6 credit hours of math at the 110 level or higher	6	

**Suggested Course Sequence (Read down.)**

Reading requirement	Math elective	ENG 110
CON 100	SPE 120	WRT 101 or 150
Math elective	CON 162	CON 202
CON 112	CON 140	Humanities and Fine
CON 130	CON 200	Arts elective
CON 111	CON 201	MAN 110
CON 101	BUS 100	
CSC 105	CON 150	

\*For additional prerequisite information, check course section.

## Construction Technology-Commercial Building Option—Basic Certificate for Direct Employment

Program Identification Code: 205-20-08

**Required Courses (16 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
CON 111	Commercial Blueprint Reading I	3	
CON 171	Leadership and Motivation	1	
CON 172	Oral and Written Communication	1	
CON 173	Problem Solving and Decision-Making	1	
CON 174	Contract Documents	1	
CON 175	Planning and Scheduling	1	
CON 176	Cost Awareness and Production Control	1	
CON 177	Project Safety and Loss Prevention	1	
CON 178	Project Management	1	
CON 179	Construction Law: Changes, Claims, and Negotiations	1	
CON 180	Productivity Improvement	1	
<b>Support Courses</b>			
MAT ELEC	Mathematics Elective Complete 3 credit hours of math at the 110 level or higher	3	

**Suggested Course Sequence (Read down.)**

CON 111	CON 175
CON 171	CON 176
CON 172	CON 177
CON 173	CON 178
CON 174	CON 179
Math elective	CON 180

## Construction Technology-Commercial Building Option—Advanced Certificate for Direct Employment

Program Identification Code: 205-20-06

**Required Courses (37 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate Requirements		16	
<b>Core Courses</b> - A grade of C or better is required for graduation.			
CON 130	Plumbing	3	
CON 140	Electricity	3	
CON 150	Concrete/Masonry	3	
CON 160	Carpentry I	3	
CON 260	Carpentry II	3	CON 160
<b>General Education Courses</b>			
Communication (See Graduation section of this catalog for advanced/technical certificate course list.)		3	
Science and/or Mathematics MAT Complete 3 credit hours of math at the 110 level or higher		3	

**Suggested Course Sequence (Read down.)**

Math elective	CON 160
CON 130	CON 260
CON 140	Communication elective
CON 150	

\*For additional prerequisite information, check course section.



## Construction Technology-Commercial Building Option—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 205-20-03

### Required Courses (68 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
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Commercial Building Construction Option  
Advanced Certificate Requirements.

37

REA Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.

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

CON 112	Construction Drafting I	4	
CON 200	Soils and Materials Testing	3	CON 101*
CON 201	Cost Estimating	3	CON 101*
CON 211	Commercial Blueprint Reading II	3	CON 111
ENG 110	Construction Surveying	3	MAT 110
MAN 280	Business Organization and Management	3	BUS 100*

### General Education and Support Courses

CSC 105	Survey of Microcomputers	3	
ASC 251	Business Communications		ASC 151
or			
WRT 101	Writing I		WRT 100*
or 154	Technical Communications I	3	WRT 100*

Humanities and Fine Arts  
(See Graduation section of this catalog for  
associate of applied science degree course list.)

3

Social and Behavioral Sciences  
(See Graduation section of this catalog for  
associate of applied science degree course list.)

3

### Suggested Course Sequence (Read down.)

Reading requirement	MAN 280
ENG 110	ASC 251 or WRT 101 or 154
CON 112	Humanities and Fine Arts
CSC 105	elective
CON 200	Social and Behavioral
CON 201	Sciences elective
CON 211	

\*For additional prerequisite information, check course section.

## Construction Technology-Grading and Paving Option—Advanced Certificate for Direct Employment

Program Identification Code: 205-30-06

### Required Courses (34 Credit Hours)

Course Number	Course Title	Credit Hour	Prerequisites
---------------	--------------	-------------	---------------

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

CON 100	Principles of Construction	4	
CON 110	Civil Blueprint Reading I	3	
CON 130	Plumbing	3	
CON 140	Electricity	3	
CON 150	Concrete/Masonry	3	
CON 160	Carpentry I	3	
CON 260	Carpentry II	3	CON 160

### General Education and Support Courses

MAN 110	Human Relations in Business and Industry	3	
SPE 120	Business and Professional Communication	3	

Science and/or Mathematics  
MAT Complete 6 credit hours of  
math at the 110 level or higher

6

### Suggested Course Sequence (Read down.)

CON 100	SPE 120
CON 160	CON 260
CON 110	CON 130
Math elective	Math elective
CON 140	MAN 110
CON 150	

\*For additional prerequisite information, check course section.

## Construction Technology-Grading and Paving Option—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 205-30-03

### Required Courses (64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

Grading and Paving Construction Option  
Advanced Certificate requirements 34

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

BUS 100	Introduction to Business	3	
CON 200	Soils and Materials Testing	3	CON 101*
CON 201	Cost Estimating	3	CON 101*
CON 202	Construction Management	3	
CON 205	Civil Blueprint Reading II	3	CON 110
ECN 201	Microeconomic Principles	3	MAT 092

### Support Courses

CSC 105	Survey of Microcomputer Uses	3	
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*

### General Education Courses (See Graduation Section of this catalog for associate of applied science degree course list.)

Communication (Support courses satisfy this requirement.)	6
Humanities and Fine Arts	3
Science and/or Mathematics (MAT courses in the Advanced Certificate satisfy this requirement.)	6
Social and Behavioral Sciences (ECN 201 satisfies this requirement.)	3

### Suggested Course Sequence (Read down.)

Reading requirement	BUS 100
WRT 101 or 150	CON 202
CSC 105	WRT 102 or 154
CON 200	Humanities and Fine
CON 205	Arts elective
CON 201	ECN 201

\*For additional prerequisite information, check course section.

## Pre-Architecture—Technical Certificate

Program Identification Code: 205-40-05

### Required Courses (30-31 Credit Hours)

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

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
PHY 121	Introductory Physics I	5	MAT 092*

### Support Courses

MAT 187	Precalculus		MAT 122*
or 152	College Algebra		MAT 122*
and 182	Trigonometry	5-6	MAT 152*

ELEC	Electives (Complete 2 courses from the Humanities and Fine Arts general education category in the Graduation section of this catalog for associate of science degree course list.)	6	
ELEC	Other Electives Complete one of the following options:	8	

**Option 1: Drafting.**  
(Recommended for students who  
wish to prepare for techniques  
in drafting.)  
CON 112 and 162.

**Option 2: Science and Technology.**

Select from any transferable courses in AST, BIO, CHM, CSC, GEO 101, GEO 102, GLG, MAT (courses numbered higher than 187)  
PHY 122, 210, 216, 221, 230

### General Education Courses

Communication 3  
(Core courses satisfy this requirement.)

Science and/or Mathematics 3  
(Support courses satisfy this requirement.)

### Architecture Electives

ARCH 112, 114, and 118 are pre-professional courses at the University of Arizona which should be taken concurrently with the above courses at Pima Community College. See a drafting advisor for additional information.

### Suggested Course Sequence (Read down.)

Drafting or Science option	Drafting or Science option
WRT 101	WRT 102
Humanities and Fine Arts elective	Humanities and Fine Arts elective
Math option	PHY 121
ARCH (UA)	ARCH (UA)
ARCH (UA)	

\*For additional prerequisite information, check course section.

Students meeting writing and/or mathematics requirements must see a pre-architecture faculty advisor.

## Court Support Services

Desert Vista Campus offers a program leading to an Advanced Certificate for Direct Employment and an Associate of Applied Science Degree for Direct Employment in Court Support Services. Completion of the program prepares the student for employment in important support areas of the court system.

The Court Support Services Program offers a combination of classroom and field experiences preparing students for careers in the court support areas. The court support field includes, but is not limited to, areas of: docketing, calendaring, scheduling, court security, budget support, office support, jury management, and procedure specialists.

### Court Support Services—Advanced Certificate for Direct Employment

**Program Identification Code: 210-00-06**

This program is designed to provide basic skills in court support services. Field experience is required.

#### Required Courses (30 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

AJS 101	Introduction to Administration of Justice Systems	3	
CSS 101	Survey of Court Systems I	3	
CSS 290	Court Support Services Field Experiences	3	CSS 101
CSC 105	Survey of Microcomputer Uses	3	
RIM 132	Records Management: Filing Systems	3	

**General Education Courses** (See Graduation section of this catalog for advanced certificate course list.)

Communication	3
Science and/or Mathematics	3
Electives	9

**Suggested Course Sequence**

See an advisor.

\*For additional prerequisite information, check course section.

## Court Support Services—Associate of Applied Science Degree for Direct Employment

**Program Identification Code: 210-00-03**

**Required Courses (60 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

AJS 101	Introduction to Administration of Justice Systems	3	
CSS 101	Survey of Court Systems I	3	
CSS 201	Survey of Court Systems II	3	CSS 101
CSS 210	Judicial System Communications	3	
CSS 290	Court Support Services Field Experiences	3	CSS 101
CSC 105	Survey of Microcomputer Uses	3	
RIM 132	Records Management: Filing Systems	3	

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication		3	WRT 100
WRT 101	Writing I		
WRT 102	Writing II	3	WRT 101
Humanities and Fine Arts		3	
Science and/or Mathematics		6	
Social and Behavioral Sciences		3	
Electives		21	

**Suggested Course Sequence**

See an advisor.

\*For additional prerequisite information, check course section.

## Creative Writing

**Program Identification Code: 345-11-01**

A student planning on obtaining a degree with an option in Creative Writing should follow the Liberal Arts and Sciences Associate Degree for Transfer. See an advisor and complete a program of study form using the Transfer Guide.

# Dental Assisting Education

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 an advanced certificate for direct employment from Pima Community College and will be eligible to take the national certification examination and state oral radiography licensure examination.

Admission to the Dental Assisting Education program requires a separate application procedure.

Students are encouraged to meet with an advisor.

Students seeking admission to the Dental Assisting Education program must be in the process of completing the following basic requirements before receiving an application:

- High School diploma or GED
- Admission to Pima Community College
- Completion of the Math and Reading assessment tests
- One semester of high school or college biology or zoology

## General Requirements:

- Total required credits: 38 credit hours
- DAE coursework: 29 credit hours
- Other coursework including General Education courses: 9 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—Advanced Certificate For Direct Employment

**Program Identification Code: 215-00-06**

Students in this program should enroll in a special section of HCA 154. This course should be taken during the first semester of the program.

## Required Courses (38 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
DAE 160	Orientation to Dental Care	1	*
DAE 161	Biomedical Dental Science	3	*
DAE 162	Dental Assisting I	3	*
DAE 163	Oral Radiography	3	*
DAE 164	Dental Materials	3	*
DAE 165	Pre-Clinical Procedures	2	*
DAE 166	Dental Assisting II	3	DAE 160*
DAE 167	Dental Assisting III	3	DAE 161*
DAE 168	Clinical Procedures	8	DAE 161*
HCA 154	Introduction to Health Care	3	

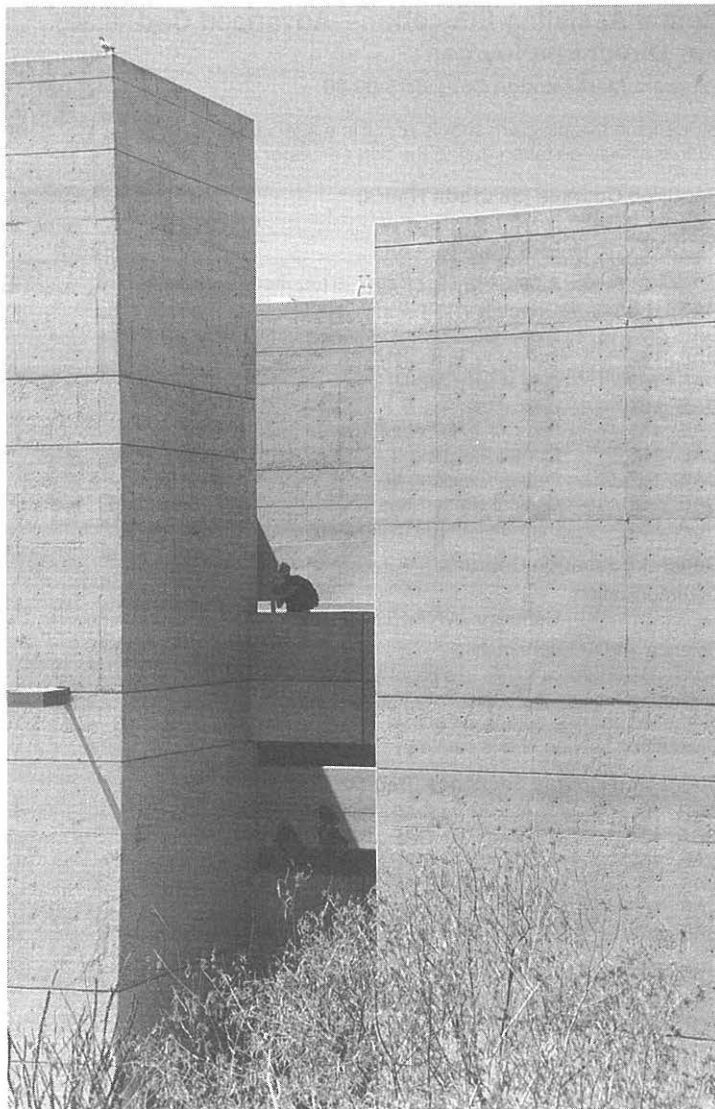
## General Education Courses

Communication	3
Complete WRT 150.	
Science and/or Mathematics	3
(MAT 082 or higher fulfills this requirement or choose a science course from the associate of applied science course list in the Graduation section of this catalog.)	

## Suggested Course Sequence (Read down.)

WRT 150	DAE 164
HCA 154	DAE 165
DAE 160	DAE 166
DAE 161	DAE 167
DAE 162	DAE 168
DAE 163	Mathematics or Science elective

\*For additional prerequisite information, check course section.



## Dental Hygiene

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.

Admission to the Dental Hygiene program requires a separate application procedure.

Students are encouraged to meet with an advisor.

Students seeking admission to the Dental Hygiene program must have completed the following basic requirements and prerequisites before receiving an application:

- 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 152 or higher, or completion of MAT 122 with a grade of "C" or better
- BIO 201 with a grade of "C" or better within the last 6 years  
Note BIO 156 is a prerequisite for BIO 201
- BIO 202 with a grade of "C" or better within the last 6 years
- BIO 205 with a grade of "C" or better within the last 6 years
- CHM 140 with a grade of "C" or better within the last 6 years

### General Requirements

- Total required credits: 64 credit hours
- DHE coursework: 46 credit hours
- Other coursework including General Education courses: 18 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

Program Identification Code: 220-00-03

### Required Courses (64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (Satisfied by program prerequisites.)		

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

DHE 101	Pre-Clinical Dental Hygiene	4	*
DHE 104	Dental And Oral Morphology	1	*
DHE 107	Oral Embryology And Histology	2	*
DHE 110	Computers And Practice Management	2	*
DHE 113	Clinical Dental Hygiene I	4	DHE 101*
DHE 116	Oral Radiography	3	DHE 101*
DHE 119	Periodontology	1	DHE 101*
DHE 121	Nutrition and Preventive Dentistry	3	*
DHE 124	Clinical Dental Hygiene II	3	*
DHE 127	Dental Materials	3	*
DHE 201	Clinical Dental Hygiene III	5	*
DHE 204	Oral Pathology	2	DHE 101*
DHE 207	Pharmacology	3	DHE 101*
DHE 208	Pain and Anxiety Control for Dental Hygiene	1	DHE 207*
DHE 210	Clinical Dental Hygiene IV	4	DHE 201*
DHE 213	Advanced Periodontal Services	2	DHE 201*
DHE 216	Community and Dental Health Education	3	DHE 201*

### Support Courses

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
SOC 101	Introduction to Sociology	3	
SPE 102	Introduction to Oral Communication	3	
PSY 100A	Psychology I	3	

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication (Support courses satisfy this requirement.)	6
Humanities and Fine Arts	3
Science and/or Mathematics (Satisfied by entry requirements for program.)	6
Social and Behavioral Sciences (Support courses satisfy this requirement.)	3

### Suggested Course Sequence (Read Down.)

WRT 101	DHE 119	DHE 127
DHE 101	DHE 121	DHE 208
DHE 104	DHE 124	PSY 100A
DHE 107	DHE 207	DHE 210
DHE 110	SOC 101	DHE 213
WRT 102	SPE 102	DHE 216
DHE 113	DHE 201	Humanities and Fine Arts elective
DHE 116	DHE 204	

\*For additional prerequisite information, check course section.

# Dental Laboratory Technology

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.

Admission to the Dental Laboratory Technology program requires a separate application procedure.

Students are encouraged to meet with an advisor.

Students seeking admission to the Dental Laboratory Technology program must be in the process of completing the following basic requirements before receiving an application:

- 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: 70 credit hours
- DLT coursework: 47 credit hours
- Other coursework including General Education courses: 23 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

Program Identification Code: 225-00-03

## Required Courses (70 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

DLT 101	Dental Morphology	3	*
DLT 102	Nonmetallic Dental Materials	3	DLT 101*
DLT 103	Complete Dentures	4	DLT 101*
DLT 104	Dental Laboratory I	4	DLT 101*
DLT 105	Partial Denture Construction	4	DLT 101*
DLT 106	Orthodontics and Maxillofacial Construction	3	DLT 101*
DLT 108	Laboratory Management	3	DLT 101*
DLT 201	Dental Laboratory II	3	DLT 101*
DLT 202	Dental Metallurgy I	3	DLT 101*
DLT 203	Fixed Bridgework	4	DLT 101*
DLT 204	Dental Laboratory III	3	DLT 101*
DLT 206	Dental Ceramics	4	DLT 101*
DLT 207	Advanced Dental Laboratory Technology	6	DLT 101*

## Support Courses

CHM 130	Fundamental Chemistry	5	
MAN 124	Small Business Management	3	
MAN 110	Human Relations in Business and Industry	3	
PHY 101	Technical Physics I	3	MAT 082*
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication (Support courses satisfy this requirement.)	6
Humanities and Fine Arts	3
Science and/or Mathematics (Support courses satisfy this requirement.)	6
Social and Behavioral Sciences (Support courses satisfy this requirement.)	3

**Suggested Course Sequence** (Read down.)

Reading requirement	DLT 104	DLT 203
WRT 101	DLT 105	MAN 110
CHM 130	DLT 106	Humanities and Fine
PHY 101	DLT 108	Arts elective
DLT 101	MAN 124	DLT 204
DLT 102	DLT 201	DLT 206
DLT 103	DLT 202	DLT 207
		WRT 102

\*For additional prerequisite information, check course section.

## Design

Pima Community College offers as associate of applied arts in design with either a specialty in Fashion Design or Interior Design.

The fashion design curriculum provides the student with an educational and practical background in the clothing design profession including its many occupational specialties. Students completing the fashion design option under Design will be able to design and illustrate apparel and/or costumes, draft patterns, specify fabrics and notions, and sew garments as samples or for individual clients. Courses apply to merchandising clothing in terms of understanding quality, price, trends, supply and demand, and production.

The interior design curriculum provides the student with a knowledge of the profession including basic design, color theory, history of architecture and furniture, interior materials, business procedures, drafting, and presentation techniques. Studio projects allow the student to identify, research, and solve both residential and contract design issues.

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

**Program Identification Code: 230-10-09**

**Required Courses (61-64 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

DES 100	Introduction to Design	3
DES 111	Fundamentals of Design	3
DES 122	Graphic Communication I	3
DES 152	Color and Lighting Theory	3
FDC 126	Textiles	3
MKT 111	Marketing	
or DES 110	Marketing	3

## Support Courses

CAD 100	Computer Aided Drafting I for Construction	4	
Complete either Option A or Option B.			
OPTION A - Fashion Design			
FDC 111	Clothing Construction (Beginning) I	3	
FDC 121	Applied Dress Design	3	
FDC 122	History of Fashion	3	
FDC 131	Clothing Selection	3	
or 132	Psychology of Dress	3	
FDC 141	Fashion Design I	3	
FDC 241	Fashion Design II	3	
FDC 211	Clothing Construction (Advanced) II	3	FDC 111*
OPTION B - Interior Design			
DES 150	Programming and Planning for Design	3	
DES 151	Structural Concepts	3	
DES 212	History of Design	3	
DES 220	Interior Methods and Materials	3	
DES 222	Graphic Communication II	3	DES 122
DES 230	Business/Professional Practices	3	
DES 255	Spatial Concepts	3	DES 122
DES 256	Human/Environmental Factors	3	DES 122

**General Education Courses** (See Graduation section of this catalog for associate of applied arts degree course list.)

Communication	6
Humanities and Fine Arts	6
Science and/or Mathematics	3
Social and Behavioral Sciences	3

## Suggested Course Sequence

See a design faculty advisor.

\*For additional prerequisite information, check course section.

# Drafting Technology

This two-year program, which leads to an associate of applied science degree, allows the students to develop skills which prepare them for careers in drafting as found in several types of industry. Also available is a one-year technical drafting certificate program.

## Drafting, Electro-Mechanical/Mechanical—Technical Certificate

Program Identification Code: 235-10-05

### Required Courses (31-32 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
DFT 150	Technical Drafting I	4	
DFT 151	Technical Drafting II	4	DFT 150
DFT 154	Electronic Drafting	4	DFT 150*
DFT 180	Computer Aided Drafting I	4	DFT 150*
DFT 240	Manufacturing Processes I	3	

### Support Courses

MAT 111	Technical Mathematics II	3	MAT 110
ELEC	Technical Electives	3-4	
	Complete one of the following:		
	DFT 199, 201, 211, 261, 299		
	MAC 110		
	ETR (any course 100 or higher)		
	ENG (any course)		

### General Education Courses

Communication			
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
Science and/or Mathematics			
MAT 110	Technical Mathematics I	3	MAT 082*

**Suggested Course Sequence** (Read down.)

WRT 101 or 150	DFT 151
MAT 110	DFT 180
DFT 150	DFT 154
DFT 240	MAT 111
Technical elective	

\*For additional prerequisite information, check course section.

## Drafting, Electro-Mechanical or Mechanical— Associate of Applied Science Degree

Program Identification Code: 235-20-03

**Required Courses (61-63 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

DFT 150	Technical Drafting I	4	
DFT 151	Technical Drafting II	4	DFT 150
DFT 154	Electronic Drafting	4	DFT 150*
DFT 180	Computer Aided Drafting I	4	DFT 150*
DFT 211	Advanced Computer Aided Drafting: Three-Dimensional	4	DFT 180*
DFT 240	Manufacturing Processes I	3	
DFT 245	Manufacturing Processes II	3	

Complete one of the following options:

**Option 1:**

For Electro-Mechanical Drafting Majors:

DFT 254	Computer Aided Drafting: Electro-Mechanical Design	4	DFT 151*
DFT 270	Computer Aided Drafting: Microelectric Design	4	DFT 245*

**Option 2:**

For Mechanical Drafting Majors:

DFT 256	Computer Aided Drafting: Mechanical Design I	4	DFT 151*
DFT 257	Computer Aided Drafting: Mechanical Design II	4	DFT 256*

**Support Courses**

PHY 101	Technical Physics I	3	MAT 082*
ELEC	Technical Electives	6-8	
Complete two of the following:			
	DFT 199, 201, 261, 299		
	MAC 110		
	ETR (any course 100 or higher)		
	ENG (any course)		

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication			
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
Humanities and Fine Arts			
		3	
Science and/or Mathematics			
MAT 110	Technical Mathematics I	3	MAT 082*
MAT 111	Technical Mathematics II	3	MAT 110
Social and Behavioral Sciences			
MAN 110	Human Relations in Business and Industry	3	

**Suggested Course Sequence** (Read down.)

Reading requirement	MAT 111	DFT 270 or 257
DFT 150	WRT 102 or 154	(Option 1 or 2)
MAT 110	DFT 254 or 256	DFT 245
WRT 101 or 150	(Option 1 or 2)	MAN 110
DFT 151	DFT 240	Humanities and Fine
Technical elective	DFT 211	Arts elective
DFT 154	PHY 101	Technical elective
DFT 180		

\*For additional prerequisite information, check course section.

# Drama

The drama program, leading to an associate of arts degree, prepares students for transfer to a four-year college, leading to a bachelor of arts in drama production, drama education, or drama theory. This program provides extensive experience and training in performing and all other areas of drama production.

## Drama—Associate of Arts Degree for Transfer

**Program Identification Code: 240-00-01**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

Because the University of Arizona will accept only 72 credit hours for transfer, transfer students should carefully plan their course work with a drama department faculty advisor.

### Required Courses (72-73 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

DRA 103	Voice and Movement for the Actor I	1	
DRA 104	Voice and Movement for the Actor II	1	DRA 103
DRA 111	Stagecraft	2	
DRA 112	Stagecraft Laboratory	1	*
DRA 113	Stagecraft Crew	1	*
DRA 115	Makeup	1	
DRA 140	History of Theater I	3	
DRA 141	History of Theater II	3	
DRA 149	Introduction to Acting I	3	
DRA 151	Introduction to Acting II	3	DRA 103*

DRA 220	Stage Lighting	2	*
DRA 221	Stage Lighting Laboratory	1	*
DRA 222	Stage Lighting Crew	1	*
DRA 245	Principles of Dramatic Structure	3	*
DRA ELEC	Complete one of the following options after consulting a drama department faculty advisor:	6	
<b>Option 1:</b>			
DRA 118	Basic Theater Graphics	2	
DRA 223	Scene Design	2	DRA 118*
DRA 224	Scene Design Laboratory	1	DRA 118*
DRA 225	Scene Design Crew	1	DRA 118*
<b>Option 2:</b>			
DRA 250	Intermediate Acting I	3	DRA 103*
DRA 251	Intermediate Acting II	3	DRA 104*

**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition	6
Humanities and Fine Arts	9
Biological and Physical Sciences	8
Mathematics (MAT 142 or above)	3
Social and Behavioral Sciences	9
Other Requirement options	5-6

### Suggested Course Sequence

See a drama department faculty advisor.

\*For additional prerequisite information, check course section.



# Early Childhood Education

Two programs are offered in early childhood education for direct employment: teacher aide/assistant and teacher-director. Certificates are awarded to those successfully completing the teacher aide/assistant program. The teacher-director program leads to an associate of applied science degree.

Programs 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, using this catalog information. (See Education section.)

## Teacher Aide/Assistant—Advanced Certificate For Direct Employment

Program Identification Code: 245-10-06

### Required Courses (33 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
ECE 106 or 117	The Growing Years Child Growth and Development	3	REA 112*
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 118	Introduction to Education	3	REA 112*
ECE 124	Math/Science for Children	3	MAT 082
ECE 126	Teaching Techniques	3	REA 112*
ECE 128	Preschool Education	3	
ECE 199	Co-op Related Class in ECE	1	*
ECE 199	Co-op Work in ECE	2	*
<b>Support Course</b>			
WRT 100	Writing Fundamentals	3	WRT 070*
<b>General Education Courses</b> (See Graduation section of this catalog for advanced certificate course list.)			
	Communication	3	
	Science and/or Mathematics	3	

## Suggested Course Sequence

See an early childhood education faculty advisor.

\*For additional prerequisite information, check course section.

## Teacher/Director—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 245-20-03

### Required Courses (63 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		
<b>Core Courses</b> - A grade of C or better is required for graduation.			
ECE 106 or 117	The Growing Years Child Growth and Development	3	REA 112*
ECE 107	Human Development and Relations	3	REA 112*
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	REA 112*
ECE 112	Music/Art for Children	3	
ECE 114	Effective Parenthood	3	
ECE 118	Introduction to Education	3	REA 112*
ECE 120	Supervision and Administration of Early Childhood Programs	3	MAT 082*
ECE 124	Math/Science for Children	3	MAT 082
ECE 126	Teaching Techniques	3	REA 112*
ECE 128	Preschool Education	3	
ECE 130	Day Care Programs	3	
ECE 199	Co-op Related Class in ECE	1	*
ECE 199	Co-op Work in ECE	2	*
ECE 299	Co-op Related Class in ECE	1	ECE 199*
ECE 299	Co-op Work in ECE	2	ECE 199*

**Support Course**

FSN 124 Nutrition for the Young Child 3

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication 6

Complete WRT 101.  
Choose one additional course  
from the following:  
ASC 151, 251  
SPE 120  
WRT 100, 102, 150, 154

Humanities and Fine Arts 3

Science and/or Mathematics 6

Social and Behavioral Sciences 3  
(Core courses satisfy this requirement.)

**Suggested Course Sequence**

See an early childhood education faculty advisor.

\*For additional prerequisite information, check course section.

## East Asian Studies

**Program Identification Code: 345-13-01**

A student planning on obtaining a degree with an option in East Asian Studies should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

## Ecology and Evolutionary Biology

**Program Identification Code: 345-14-01**

A student planning on obtaining a degree with an option in Ecology and Evolutionary Biology should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

## Economics (Arts and Sciences)

**Program Identification Code: 345-15-01**

A student planning on obtaining a degree with an option in Economics (Arts and Sciences) should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

# Education

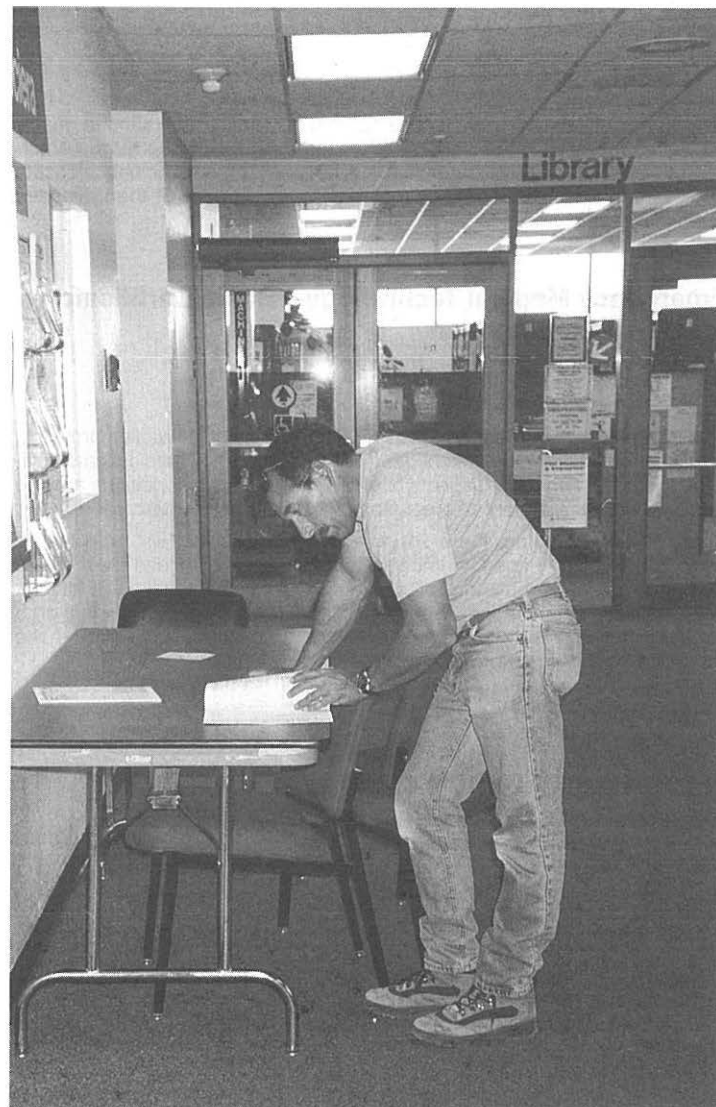
## Program Identification Codes:

- Elementary Education: 345-16-01
- Secondary Education: 345-49-01
- Special Education and Rehabilitation: 345-53-01

Students interested in pursuing teaching as a career, either at the elementary or secondary level, should follow the Liberal Arts and Sciences, Associate of Arts Degree for Transfer, in this catalog and select either the University of Arizona option or the Arizona State University/Northern Arizona University option.

Students should be aware that education is an upper-level major in Arizona's three state universities and admission may be dependent on a number of factors, including mandated pre-professional tests, grade point average, and pre-professional experience. It is therefore recommended that students contemplating a teaching career study the catalog and contact an advisor at the college/university you plan to transfer to for information regarding admission requirements.

Pima Community College provides courses in the Early Childhood Education department that are designed to introduce prospective elementary and secondary teachers to the education field and provide them with field experiences. Consult an ECE faculty advisor for a list of these courses. Students interested in secondary teaching should consult Pima Community College faculty advisors in their prospective major and minor teaching content areas.



# Emergency Medical Technology

This curriculum provides the theoretical and practical preparation to qualify graduates for three levels of service: (1) the basic certificate for the emergency medical technician, ambulance (EMT-A); (2) the technical certificate for the intermediate emergency technician (IEMT) and (3) the advanced certificate for the paramedic.

## Emergency Medical Technology—Basic Certificate for Direct Employment

Program Identification Code: 260-00-08

### Basic (EMT-A) Certificate

This seven-credit course consists of 130 clock hours of instruction providing a solid introduction to the field of pre-hospital emergency medical care. Emphasis is placed on basic aspects of emergency disease conditions and the recognition and treatment of emergency medical and traumatic conditions.

Students who complete the program with a "C" or better will be issued a basic certificate by Pima Community College. Current Arizona Department of Health Services regulations allow program graduates to take the Arizona EMT Registry Examination. Program graduates with enough work experience may be eligible to take the national certifying examination through the National Registry of Emergency Medical Technicians.

### Acceptance Into the Program:

- Completion of college admission requirements.

### Required Course (7 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
EMT 151	Basic Emergency Medical Technology	7	

## Emergency Medical Technology—Technical Certificate for Direct Employment

Program Identification Code: 260-00-05

### Intermediate (IEMT) Certificate

The intermediate level of education consists of additional EMT courses, which increase the knowledge and skills of the EMT 151 graduate (Basic Certificate) to include I.V. therapy and drug therapy. Acceptance is dependent upon direct employment needs and prior completion of EMT 151. Students must be currently certified as EMT-A.

### Required Courses (24-26 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
EMT 101	Intermediate Emergency Medical Technology I	6	EMT 151
EMT 102	Intermediate Emergency Medical Technology II	4	EMT 101
EMT 103	Intermediate Emergency Medical Technology III	4	EMT 102
EMT 104	Intermediate Emergency Medical Technology IV	4	EMT 103
<b>Support Courses</b>			
WRT 100	Writing Fundamentals	3	WRT 070*
SCI/MAT	Choose one of the following: BIO 100, 105, 156, 160 CHM 121, 130 CSC 105 MAT 092 MAT 100-level or higher**	3-5	

### General Education Courses

Communication (Support courses satisfy this requirement.)	3
Science and/or Mathematics (Support courses satisfy this requirement.)	3

**Suggested Course Sequence** (Read down.)

EMT 101	EMT 103
EMT 102	EMT 104
WRT 101	Science/Mathematics elective

\*For additional prerequisite information, check course section.

\*\*Students must see an EMT advisor before selecting a MAT course at the 100-level or higher.

## Emergency Medical Technology—Advanced Paramedic Certificate for Direct Employment

Program Identification Code: 260-10-06

The paramedic level of education consists of 15 additional EMT courses plus the IEMT courses, which increases the knowledge and skill of the IEMT graduate in advanced life support, including endotracheal intubation, cardiac arrhythmia recognition, drug therapy, and needle thoracostomy. Acceptance is dependent upon direct employment needs and completion of the basic EMT course. Students must be currently certified as EMT-A.

To complete college requirements for the advanced certificate, in addition to the satisfactory completion of all EMT courses, students must complete three credit hours in writing and three credit hours in mathematics, computer science, or science.

**Required Courses (41-43 Credit Hours)**

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

All of the core courses require acceptance into the Advanced Paramedic Program.

EMT 201	Introduction to Paramedicine	4	*
EMT 202	Paramedicine: Pharmacology	2	*
EMT 203	Pathophysiology and Management of Respiratory Emergencies	2	*
EMT 204	Advanced Life Support: Cardiology	4	*
EMT 205	Pathophysiology and Management of Neurological Problems	2	*
EMT 206	Pathophysiology and Management of Soft Tissue Injuries	2	*
EMT 207	Pathophysiology and Management of Musculoskeletal Injuries	2	*

EMT 208	Pathophysiology and Management of Medical Problems	2	*
EMT 209	Pathophysiology and Management of Gynecologic Emergencies	2	*
EMT 210	Pathophysiology and Management of Pediatric and Neonatal Patient	2	*
EMT 211	Emotional Aspects of Illness and Injury	1	*
EMT 212	Extrication/Rescue Techniques	1	*
EMT 213	Telemetry and EMS Communications	1	*
EMT 214	Paramedic Procedures: Hospital	3	*
EMT 215	Paramedic Procedures: Ambulance	5	*

**Support Courses**

WRT 101	Writing I	3	WRT 100*
SCI/MAT	Complete one of the following: BIO 100, 105, 156, 160 CHM 121, 130 CSC 105 MAT 092 MAT 100-level or higher**	3-5	

**General Education Courses**

Communication	3
(Support courses satisfy this requirement.)	
Science and/or Mathematics	3
(Support courses satisfy this requirement.)	

**Suggested Course Sequence** (Read down.)

WRT 101	EMT 204	EMT 210
Science/Mathematics elective	EMT 205	EMT 211
EMT 201	EMT 206	EMT 212
EMT 202	EMT 207	EMT 213
EMT 203	EMT 208	EMT 214
	EMT 209	EMT 215

\*For additional prerequisite information, check course section.

\*\*Students must see an EMT advisor if they wish to choose a MAT 100-level or higher course.

# Engineering

## Engineering—Associate of Science Degree for Transfer

Program Identification Code: 265-00-02

Verification of transfer courses must be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section. The Engineering program, courses, and advisors are available on the West Campus.

This program is designed to prepare the student to transfer to a four-year institution to complete a four-year engineering program. Although it is not intended for direct employment, the associate of science degree is recognized by some employers when considering employees for advancement or applicants for entry-level technical positions. The associate of science degree provides 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, toward a specific engineering discipline (i.e., electrical, computer, aerospace, mechanical, civil, etc.) through the selection of technical electives.

The engineering program presumes an aptitude for mathematical analysis and a strong high school background in pre-calculus mathematics and physics. Students with deficiencies in these areas should take appropriate prerequisite courses prior to beginning the engineering program. Since most of the courses in the program must be taken sequentially, it is important for the student to maintain contact with an advisor to assure a logical progression and to keep abreast of frequent program modifications resulting from technological developments.

### Required Courses (70 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

CHM 151	General Chemistry I	5	MAT 122*
CHM 152	General Chemistry II	5	CHM 151

ENG 102	Problem-Solving and Engineering Design	3	MAT 220*
ENG 170	Problem-Solving Using Computers	3	ENG 102
MAT 220	Calculus I	5	MAT 182*
MAT 231	Calculus II	4	MAT 220
MAT 241	Calculus III	4	MAT 231
MAT 262	Differential Equations	3	MAT 241
PHY 210	Introductory Mechanics	5	MAT 220*
PHY 216	Introductory Electricity and Magnetism	5	PHY 210*

### Support Courses

TECH/ELEC	Technical Electives:	10
	(The 10 credit hours of technical electives are selected in consultation with an engineering advisor, to form a coherent program of study appropriate to the student's specific engineering discipline.)	

**For transfer to Arizona State University, select from the list below:**

CHM 235	General Organic Chemistry I
CHM 236	General Organic Chemistry II
CSC 230	Advanced Pascal and Data Structures
ENG 120	Engineering Graphics
ENG 130	Elementary Surveying
ENG 210	Engineering Mechanics: Statics
ENG 280	Introduction to Circuits and Electronics I
ENG 281	Introduction to Circuits and Electronics II
GLG 101	Introductory Geology I
GLG 102	Introductory Geology II
GLG 209	Mineralogy and Introduction to Petrology
MAT 167	Introductory Statistics
MAT 252	Introduction to Linear Algebra
MAT 227	Discrete Mathematics in Computer Science
PHY 221	Introduction to Waves and Heat
PHY 230	Introduction to Modern Physics



**For transfer to the University of Arizona or Northern Arizona University, select from the list above and/or the list below.**

ENG 220	Engineering Mechanics: Dynamics
ENG 230	Mechanics of Materials
ENG 250	Numerical Analysis for Engineers
ENG 260	Elements of Electrical Engineering
ENG 261	Elements of Electronics
ENG 274	Digital Logic
ENG 275	Computer Programming for Engineering Applications

**General Education Requirements** (See Graduation section of this catalog for associate of science degree course list.)

English Composition	6
Humanities and Fine Arts (See an engineering faculty advisor before enrolling for courses in Humanities and Fine Arts.)	6
Biological and Physical Sciences (Core courses satisfy this requirement.)	8-10
Mathematics (MAT 142 or above) (Core courses satisfy this requirement.)	6
Social and Behavioral Sciences (See an engineering faculty advisor before enrolling for courses in Social and Behavioral Sciences.)	6
Other Requirement Options (Core courses satisfy this requirement.)	8-10

#### **Suggested Course Sequence**

See an engineering faculty advisor.

\*For additional prerequisite information, check course section.

## **English**

**Program Identification Code: 345-17-01**

A student planning on obtaining a degree with an option in English should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

## **Environmental Technology**

Environmental technology is a rapidly expanding occupational area 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 area of employment. 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 for credit. 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.

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 Laboratory Analysis—Advanced Certificate for Direct Employment

Program Identification Code: 270-05-06

### Required Courses (36 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ENV 100	Introduction to Environmental Technology	4	*
BIO 105	Environmental Biology	4	
CHM 140	Fundamentals of Organic and Biochemistry	5	CHM 130*
ENV 202	Environmental Sampling and Monitoring	3	*
ENV 208	Environmental Laboratory Analysis	3	
ENV 258	Advanced Laboratory Analysis	3	ENV 208

### Support Courses

CHM 130	Fundamentals of Chemistry	5	
MAN 110	Human Relations in Business and Industry	3	

### General Education

Communication			
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I	3	WRT 100*
Science and/or Mathematics			
MAT 122	Intermediate Algebra	3	MAT 092*

### Suggested Course Sequence (Read down.)

ENV 100	MAN 110	ENV 208
CHM 130	BIO 105	ENV 258
MAT 122	ENV 202	
WRT 100 or 101	CHM 140	

\*For additional prerequisite information, check course section.

## Environmental Technology—Hazardous Materials Management—Advanced Certificate for Direct Employment

Program Identification Code: 270-10-06

### Required Courses (37-39 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ENV 100	Introduction to Environmental Technology	4	*
ENV 150	Introduction to Hazardous Materials	3	ENV 100*
ENV 153	Chemistry of Hazardous Materials	3	ENV 150*
ENV 155	Site Investigation I	3	ENV 150*
ENV 157	DOT-Transportation of Hazardous Materials	3	ENV 150*
ENV 159	OSHA: Hazard Communication	3	ENV 150*
ENV 195	Pollution Management Proficiency	3	ENV 153*
ENV 251	OSHA: Hazardous Materials-Health and Safety	3	ENV 100*

### Support Courses

BIO 105	Environmental Biology		
or			
CHM 080	Preparation for General Chemistry		MAT 092*
or 121	Introductory Chemistry	3-5	
MAN 110	Human Relations in Business and Industry	3	

### General Education

Communication			
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I	3	WRT 100*
Science and/or Mathematics			
MAT 092	Elementary Algebra		MAT 082*
or 110	Technical Mathematics I	3	MAT 082*

**Suggested Course Sequence** (Read down.)

ENV 100	MAN 110	ENV 159
BIO 105 or	ENV 150	ENV 195
CHM 080 or 121	ENV 153	ENV 251
MAT 092 or 110	ENV 155	
WRT 100 or 101	ENV 157	

\*For additional prerequisite information, check course section.

## Environmental Technology—Water and Wastewater Systems Technology—Advanced Certificate for Direct Employment

Program Identification Code: 270-30-06

**Required Courses (38-40 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ENV 100	Introduction to Environmental Technology	4	*
ENV 102	Hydraulics	3	ENV 100*
ENV 106	Chemistry of Water/Wastewater Treatment	3	ENV 100*
ENV 120	Introduction to Wastewater Treatment	3	ENV 100*
ENV 132	Water and Wastewater Conveyance Systems	4	ENV 100*
ENV 140	Introduction to Water Treatment	3	ENV 100*
ENV 192	Water and Wastewater Operator Proficiency	3	ENV 102*
ENV 200	Industrial/Workplace Safety	3	ENV 120*

**Support Courses**

BIO 105 or	Environmental Biology		
CHM 080 or 121	Preparation for General Chemistry		MAT 092*
MAN 110	Introductory Chemistry	3-5	
	Human Relations in Business and Industry	3	

**General Education**

Communication			
WRT 100 or 101	Writing Fundamentals		WRT 070*
	Writing I	3	WRT 100*
Science and/or Mathematics			
MAT 092 or 110	Elementary Algebra		MAT 082*
	Technical Mathematics I	3	MAT 082*

**Suggested course Sequence** (Read down.)

ENV 100	MAN 110	ENV 140
BIO 105 or	ENV 102	ENV 192
CHM 080 or 121	ENV 106	ENV 200
MAT 092 or 110	ENV 120	
WRT 100 or 101	ENV 132	

\*For additional prerequisite information, check course section.

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

Program Identification Code: 270-00-03

**Required Courses (71-72 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
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Advanced Certificate requirements 32-40 Credit Hours

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

Select 24-27 credits from the following. Students must consult with an ENV advisor to customize second year course work. A minimum of 9 upper division (200 level) credits are required.

ENV 102	Hydraulics	3	ENV 100*
ENV 106	Chemistry of Water/Wastewater Treatment	3	ENV 100*

ENV 120	Introduction to Wastewater Treatment	3	ENV 100*
ENV 132	Water and Wastewater Conveyance Systems	4	ENV 100*
ENV 140	Introduction to Water Treatment	3	ENV 100*
ENV 150	Introduction to Hazardous Materials	3	ENV 100*
ENV 153	Chemistry of Hazardous Materials	3	ENV 150*
ENV 155	Site Investigation I	3	ENV 150*
ENV 157	DOT-Transportation of Hazardous Materials	3	ENV 150*
ENV 159	OSHA: Hazard Communication	3	ENV 150*
ENV 192	Water and Wastewater Operator Proficiency	3	ENV 102*
ENV 195	Pollution Management Proficiency	3	ENV 153*
ENV 200	Industrial/Workplace Safety	3	ENV 120*
ENV 202	Environmental Sampling and Monitoring	3	*
ENV 205	Environmental Law for Non-Lawyers	3	*
ENV 206	Air Monitoring and Sampling	3	ENV 100*
ENV 208	Environmental Laboratory Analysis	3	*
ENV 210	Environmental Technology Special Topics:	1-3	*
ENV 220	Advanced Wastewater Treatment	3	ENV 106*
ENV 240	Advanced Water Treatment	3	ENV 106*
ENV 242	Cross-Connection Control	3	ENV 102*
ENV 244	Electrical and Mechanical Maintenance	3	ENV 100*
ENV 250	Toxicology and Industrial Hygiene	3	ENV 100
ENV 251	OSHA: Hazardous Materials-Health and Safety	3	ENV 100*
ENV 299	Co-op Related Class in ENV	1	*
ENV 299	Co-op Work in ENV	1-5	*

**Optional utilization of the following course work, up to a limit of 12 credits, as core course-electives for graduation requires consultation with an ENV advisor.**

BIO 105	Environmental Biology	4	
CHM 125	Applied Industrial Chemistry I	5	
CHM 151	General Chemistry I	5	MAT 122*
CHM 152	General Chemistry II	5	CHM 151
CON 130	Plumbing	3	
CSC 100	Introduction to Computers and Information Systems	3	MAT 092*
CSC 105	Survey of Microcomputer Uses	3	
CSC 108	Microcomputer Operating Systems	3	
DFT 101	Blueprint Reading and Sketching	4	

EMT 151	Basic Emergency Medical Technology	7	
FSC 167	Rescue Practices and First Aid	3	
HED 140B	Cardiopulmonary Resuscitation (CPR)	1	
MAC 110	Machine Shop for Technicians I	4	
PHY 101	Technical Physics I	3	MAT 082*
PHY 102	Technical Physics II	3	MAT 092*
PHY 121	Introductory Physics I	5	MAT 092*
PHY 122	Introductory Physics II	5	PHY 121
QCT 101	Quality Control I	3	MAT 092*
QCT 102	Quality Control II	3	QCT 101

### Support Courses

MAN 122	Supervision	
or 124	Small Business Management	3

### General Education

Communication		6
	Advanced Certificate requirements satisfy 3 credit hours of this requirement. Select an additional 3 credit hours from the following: WRT 101 or 154.	
Humanities and Fine Arts		3
(See graduation section of this catalog for associate of applied science degree course list.)		
Science and/or Mathematics		6
	ENV 100 partially satisfies this requirement. Complete MAT 122.	
Social and Behavioral Sciences		3
(Satisfied by Certificate requirements.)		

### Suggested Course Sequence

See an environmental technology faculty advisor.

\*For additional prerequisite information, check course section.

# Finance

Pima Community College works jointly with many financial institutions in the Tucson area to offer two-year associate of applied science degrees. These programs allow for many specialty options within the finance industry, including banking, credit unions and savings banks. Basic and advanced certificate programs are also offered in the credit union and savings bank areas.

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

Program Identification Code: 275-10-03

### Required Courses (60-62 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ACC 101	Financial Accounting	3	
ECN 202	Macroeconomic Principles	3	MAT 092
FIN 102	Principles of Bank Operations	3	
FIN 208	Installment Credit		
or			
MAN 280	Business Organization and Management	3	BUS 100*

### Support Courses

BUS 200	Business Law I	3	
MAN 122	Supervision	3	
ECN 201	Microeconomic Principles	3	MAT 092
BANK ELEC	Banking Electives	12	
	Complete 12 credit hours at the 100 level or higher from FIN courses and/or other courses relating to the banking industry.		

ELEC	Other Electives	9
	Complete 9 credit hours at the 100 level or higher from anthropology, history, humanities, philosophy, psychology or sociology.	

### General Education Courses

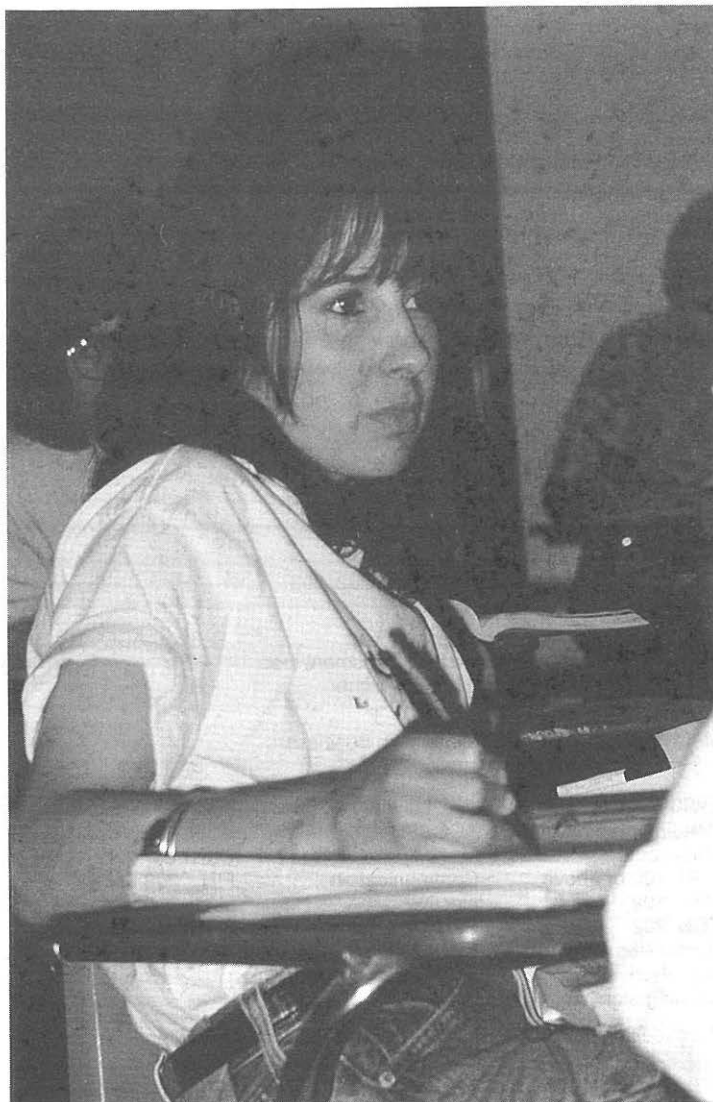
Communication		
WRT 100	Writing Fundamentals	3
	Complete one of the following:	3-4
	ASC 151, 251	
	SPE 120	
	WRT 100, 101, 102, 150, 154	
HUM/ART	Humanities and Fine Arts	
	Complete one of the following:	3-4
	ART 130, 131, 132, 135	
	DRA 140, 141	
	HUM 110, 111	
	Foreign Language at the 100 level or higher.	
	LIT 260, 265	
	MUS 151, 201, 202	
	PHI 101, 120	
	SLG 101, 102, 201, 202, 203	

Science and/or Mathematics		
ACC 102	Managerial Accounting	3
MAT	Determined by assessment test at the 100 level or higher	3
Social and Behavioral Sciences		
MAN 110	Human Relations in Business and Industry	3

### Suggested Course Sequence (Read down.)

Reading requirement	ACC 101	BUS 200
Math course	MAN 110	Other elective
WRT 100 or above	Communication	FIN 208 or
FIN 102	elective	MAN 280
ECN 202	Banking elective	Other electives
Humanities and Fine Arts elective	ECN 201	Banking elective
Banking elective	ACC 102	
	MAN 122	

\*For additional prerequisite information, check course section.



## Credit Union—Basic Certificate for Direct Employment

Program Identification Code: 275-20-08

### Required Courses (12 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
FIN 131	Principles of Credit Unions	3	
FIN 139	Credit Union Accounting	3	
FIN 208	Installment Credit	3	
ELEC	Other Elective	3	
	Complete any course (other than one of those listed above) from Credit Union AAS Degree.		

### Suggested Course Sequence (Read down.)

FIN 131  
 FIN 139  
 FIN 208  
 Other elective

## Credit Union—Advanced Certificate for Direct Employment

Program Identification Code: 275-20-06

### Required Courses (30 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
FIN 131	Principles of Credit Unions	3	
FIN 139	Credit Union Accounting	3	
FIN 208	Installment Credit	3	
FIN 239	Credit Union Financial Management	3	FIN 139*
<b>Support Courses</b>			
ECN 200	Basic Economic Principles	3	MAT 092
MAN 110	Human Relations in Business and Industry	3	



ELEC	Other Electives	6
	Complete two courses at the 100 level or higher (other than those listed above) from Credit Union AAS Degree program.	

### General Education Courses

Communication		
WRT 100	Writing Fundamentals	WRT 070*
or 101	Writing I	WRT 100*
Science and/or Mathematics		
ACC 101	Financial Accounting	3

### Suggested Course Sequence (Read down.)

FIN 131	ACC 101
FIN 139	WRT 100 or 101
FIN 208	MAN 110
ECN 200	Other elective
FIN 239	Other elective

\*For additional prerequisite information, check course section.

## Credit Union—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 275-20-03

### Required Courses (60 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

FIN 131	Principles of Credit Unions	3	
FIN 136	Investments and Family Financial Management	3	
FIN 139	Credit Union Accounting	3	
FIN 208	Installment Credit	3	
FIN 231	Credit Union Operations	3	FIN 131
FIN 239	Credit Union Financial Management	3	FIN 139*

### Support Courses

ACC 102	Managerial Accounting	ACC 101*
or FIN	FIN course at the 100 level or higher	3
BUS 200	Business Law I	
or 220	Legal Environment of Business	3
MAN 110	Human Relations in Business and Industry	3
MAN 122	Supervision	3
MKT 111	Marketing	3
ELEC	Other Elective	9
	Complete three courses at the 100 level or higher from finance, history, philosophy, political science, psychology or sociology.	

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication		
WRT 100	Writing Fundamentals	WRT 070*
or 101	Writing I	WRT 100*
	Complete one additional course from the communications course list.	3
Humanities and Fine Arts		3
Science and/or Mathematics		
ACC 101	Financial Accounting	3
MAT	Determined by assessment test at the 100 level or higher.	3
Social and Behavioral Sciences		
ECN 200	Basic Economic Principles	3 MAT 092

### Suggested Course Sequence (Read down.)

Reading requirement	ECN 200	Communication elective
Math course	Humanities and Fine Arts elective	FIN 136
WRT 100 or 101	FIN 239	FIN 231
FIN 131	ACC 101	ACC 102 or
FIN 139	BUS 200 or 220	FIN course
FIN 208	MKT 111	Other elective
MAN 110	Other elective	Other elective
MAN 122		

\*For additional prerequisite information, check course section.

## Savings Bank—Basic Certificate for Direct Employment

Program Identification Code: 275-40-08

### Required Courses (12 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
FIN 106	Teller Operations	2	
FIN 108	Principles of Savings Institutions	2	
FIN 109	The Human Side of Savings Institutions	2	
FIN 113	Deposit Accounts and Services	2	
ELEC	Electives Select 4 credit hours with the aid of a finance advisor.	4	

### Suggested Course Sequence (Read down.)

FIN 106  
FIN 108  
FIN 109  
FIN 113  
Elective(s)

## Savings Bank—Advanced Certificate for Direct Employment

Program Identification Code: 275-40-06

### Required Courses (30 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
FIN 108	Principles of Savings Institutions	2	
FIN 109	The Human Side of Savings Institutions	2	
FIN 111	Personal Investment Portfolio	2	
FIN 112	Economic Topics for Savings Institutions	2	
FIN 113	Deposit Accounts and Services	2	

FIN 114	Individual Retirement Accounts/Keogh Plans	2	
FIN 141	Savings Bank Supervisor I	2	
FIN 143	Savings Institutions Operations	2	
FIN 226	Savings Bank Supervisor II	2	FIN 141
FIN 230	Managing Deposit Accounts and Services	2	FIN 108
COMM/ELEC	Communication Elective Complete one of the following: ASC 151, 251 SPE 120 WRT 100, 101, 102, 150, 154	3	
SCI/MAT	Science and Mathematics Elective Complete one of the following: ACC 100, 101, 102 AST 101, 102, 111, 112 BUS 151 BIO 160, 184, 201, 202, 204, 205 CHM 121, 130, 140, 141, 151, 152 GEO 101, 102 GLG 101, 102 MAT 065, 082, 092, 094, 110, 111, 115, 116, 122, 152, 167, 172, 182, 187, 212, 220, 231, 241, 262 PHY 101, 102, 105, 121, 122, 210, 216, 221, 230	3	
ELEC	Other Electives Select 4 credit hours with the aid of a finance advisor.	4	

### Suggested Course Sequence

See a finance faculty advisor.

## Savings Bank—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 275-40-03

### Required Courses (60 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		
<b>Core Courses</b> - A grade of C or better is required for graduation.			
FIN 108	Principles of Savings Institutions	2	
FIN 109	The Human Side of Savings Institutions	2	
FIN 111	Personal Investment Portfolio	2	
FIN 112	Economic Topics for Savings Institutions	2	
FIN 113	Deposit Accounts and Services	2	
FIN 114	Individual Retirement Accounts/Keogh Plans	2	
FIN 141	Savings Bank Supervisor I	2	
FIN 143	Savings Institutions Operations	2	
FIN 226	Savings Bank Supervisor II	2	FIN 141
FIN 228	Residential Mortgage Lending	2	FIN 108
FIN 229	Statement Analysis for the Lender	2	ACC 100*
FIN 230	Managing Deposit Accounts and Services	2	FIN 108

### Support Courses

ELEC	Other Electives: Select 18 credit hours with a finance faculty advisor.	18	
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### General Education Courses

Communication	Select two courses from the following list: ASC 151, 251 SPE 120 WRT 100, 101, 102, 150, 154	6
Humanities and Fine Arts	Select one course from the following list: ART 130, 131, 132, 135 DRA 140, 141 HUM 110, 111 Foreign Language at the 100 level or higher. LIT 260, 265 MUS 151, 201, 202 PHI 101, 102, 120 SLG 101, 102, 201, 202, 203	3
Science and/or Mathematics	Select two courses from the following list: ACC 100, 101, 102 AST 101, 102, 111, 112 BIO 101, 102, 160, 184, 201, 202, 204, 205 BUS 151 CHM 121, 130, 140, 141, 151, 152 GEO 101, 102 GLG 101, 102 MAT 110, 111, 115, 116, 122, 152, 167, 172, 182, 187, 212, 220, 231, 241, 262 PHY 101, 102, 105, 121, 122, 210, 216, 221, 230	6

## Social and Behavioral Sciences

Select one course from the following list:

ANT 101, 102, 200, 210, 215, 225  
ECE 107, 108, 117  
ECN 201, 202  
GEO 103  
HIS 101, 102, 141, 142, 147  
MAN 110  
POS 100, 110, 112, 120, 130  
PSY 100A, 100B, 265  
SOC 101, 120

3

## Suggested Course Sequence

See a finance faculty advisor.

\*For additional prerequisite information, check course section.

# Fire Science

This program emphasizes professional firefighting skills related to the everyday demands of the profession, management of situations, and coping with change and challenge in the field. The program is designed for both professionals already serving as firefighters and as a preparatory program for those who seek firefighting as a career. It also prepares the student to move toward managerial and command positions.

**Program Prerequisites:** Before entering this degree program, the student must fulfill one of the two following requirements:

1. Successful completion of a recognized firefighting academy.
2. Completion of 12 credit hours of coursework with a grade of "C" or better in each of the following courses:

FSC 149	Fire Operations I	3 credits
FSC 150	Fire Operations II	3 credits
FSC 152	Fundamentals of Fire Prevention	3 credits
FSC 167	Rescue Practices and First Aid	3 credits

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

**Program Identification Code: 280-00-03**

### Required Courses (69 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

Completion of a firefighting academy program or program prerequisites (see narrative above).

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

EMT 151	Basic Emergency Medical Technology	7
FSC 151	Introduction to Fire Science	3
FSC 153	Hazardous Materials I	3

FSC 154	Advanced Fire Prevention	3	FSC 152*
FSC 160	Wildland Firefighting	2	
FSC 162	Hydraulics and Fire Suppression	3	MAT 092*
FSC 163	Fire Apparatus and Equipment	3	*
FSC 164	Fire Protection Systems	3	FSC 162
FSC 165	Building Construction for Fire Protection	3	
FSC 166	Fire Suppression, Strategy and Tactics	3	FSC 149
FSC 175	Introduction to Fire Investigation: Origin and Recognition of Arson	3	
FSC 190	Issues in Firefighting	1	

### Support Courses

HDE 170	Dynamics of Leadership	2	
MAT	Determined by assessment at the 100 level or higher	3	
PHY 101	Technical Physics I	3	MAT 082*
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
(Support courses satisfy this requirement.)	
Social and Behavioral Sciences	3

### Suggested Course Sequence

See a fire science faculty advisor.

\*For additional prerequisite information, check course section.

## Fitness and Sport Sciences

The Fitness and Sport Sciences Department is based on the philosophy of physical fitness and leisure education for life through physical and cognitive skill development. The department offers courses in two areas of study: the Associate of Arts degree in Fitness and Sport Sciences, and the Associate of Science degree in Fitness/Wellness Technician.

In addition, the department offers a general activity program for all students.

The Associate of Arts degree in Fitness and Sport Sciences is intended primarily for students planning to pursue a four-year degree with a teaching major or minor in Fitness and Sport Sciences.

The Associate of Science degree in Fitness/Wellness Technician is intended primarily for students who wish to pursue a B.S. degree at Northern Arizona University in the Fitness/Wellness Management emphasis through the Physical Education Department. Direct employment may be possible upon passing the American Council on Exercise Personal Trainer Certification test.

Students should check the requirements of the college or university to which they intend to transfer.

The activity program offers all students a wide variety of courses which include individual and dual sports, team sports, combative activities, fitness, dance, and aerobic exercise.

Program options available:

Fitness and Sport Sciences—Associate of Arts Degree for Transfer

Fitness/Wellness Technician—Associate of Science Degree for Transfer

### Fitness and Sport Sciences—Associate of Arts Degree for Transfer

**Program Identification Code: 285-00-01**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

This program is designed to transfer to the University of Arizona or Northern Arizona University. Students wishing to attend Arizona State University or another institution should consult a Fitness and Sport Sciences faculty advisor.

# Required Courses (67-71 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		
<b>Core Courses</b> - A grade of C or better is required for graduation.			
FSS 279	Motor Development	2	WRT 100*
FSS 288	History and Philosophy of Sport and Physical Education	3	WRT 100*
FSS 208 - 232	Professional Activities (choose 7):	8-10	
FSS 208	Professional Activities: Aerobics	1	WRT 100*
FSS 213	Professional Activities: Basketball	2	WRT 100*
FSS 218	Professional Activities: Weight Training	1	WRT 100*
FSS 223	Professional Activities: Racquetball	1	WRT 100*
FSS 224	Professional Activities: Self Defense	1	WRT 100*
FSS 225	Professional Activities: Soccer	2	WRT 100*
FSS 227	Professional Activities: Softball	1	WRT 100*
FSS 230	Professional Activities: Tennis	3	WRT 100*
FSS 231	Professional Activities: Track and Field	2	WRT 100*
FSS 232	Professional Activities: Volleyball	2	WRT 100*
<b>Support Courses</b>			
BIO 201	Human Anatomy and Physiology I	4	BIO 156
BIO 202	Human Anatomy and Physiology II	4	BIO 201
CHM 151	General Chemistry I	5	MAT 122*
CHM 152	General Chemistry II	5	CHM 151
POS 112	National and State Constitutions	3	

PSY 101	Introduction to Psychology	4
ARTS	Art and Music	3
	Select one course from the following: ART 100, 110, 115, 120, 130, 131 MUS 102, 150, 108, 109, 116, 117, 120, 121, 125 & 127, 130, 131, 151	
LANG	Foreign Language	8-10
	Completion of two semesters of a language course at the 100 level or higher.	
NON-WEST CIV	Non-Western Civilization	3
	Select one course from the following list: ANT 112, 205, 206 ARC 205 HIS 113, 114, 122, 124, 148, 170 REL 234	
<b>General Education Requirements</b> (See Graduation section of this catalog for associate of arts degree course list.)		
	English Composition	6
	Humanities and Fine Arts	9
	Support course satisfies six credits of this requirement. Complete one course from the following: ART 130, 131 HIS 101, 120, 141, 142, 160, 161 HUM 110, 111, 251, 252, 253	
	Biological and Physical Sciences (Support courses satisfy this requirement.)	8
	Mathematics (MAT 142 or above)	3
	Social and Behavioral Sciences	9
	Support courses fulfill 7 credits of this requirement. Select one course from: ANT 101 or ARC 101; ANT 102, 202, 203 ECN 200 GEO 103 HIS 105, 127, 150, 180 MEC 102 PHI 101, 130, 140 POS 100, 110, 120, 130, 140, 160	



PSY 218, 250  
REL 140  
SOC 101, 103, 201, 204

Other Requirement Options 5-6  
(Foreign language support courses fulfill this requirement.)

**FSS Electives: If you complete all of the above requirements in less than 72 credits, select additional credits from below. Only 72 credits may transfer to the University of Arizona or Northern Arizona University.**

FSS 236	Motivation and Human Relations in Motor Performance	3
FSS 238	Introduction to Sports Injury Management	2
FSS 239	Introduction to Leisure Education	3
FSS 240	Adaptive and Corrective Programs	3
FSS 241	Nutrition and Body Composition	3
FSS 242	Elementary School Physical Education	3
FSS 276	Individualized Exercise for Wellness	2
FSS 277	Personal Trainer	3
FSS 286	Sports Officiating	2
FSS 290	Independent Studies in Fitness and Sport Science	3
HED 140A	First Aid	1
HED 140B	Cardiopulmonary Resuscitation	1

### Suggested Course Sequence

See a fitness and sport sciences faculty advisor.

\*For additional prerequisite information, check course section.

## Fitness/Wellness Technician-Associate of Science Degree for Transfer

**Program Identification Code: 285-30-02**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

This program is designed for transfer to Northern Arizona University. Students wishing to transfer to ASU, UA or another institution should consult a Fitness and Sport Sciences faculty advisor.

### Required Courses (63 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

FSN 114	Nutrition	3	
FSS 208	Professional Activities: Aerobics	1	WRT 100*
FSS 218	Professional Activities: Weight Training	1	WRT 100*
FSS 230	Professional Activities: Tennis	2	WRT 100*
FSS 236	Motivation and Human Relations in Motor Performance	3	WRT 100*
FSS 276	Individualized Exercise for Wellness	2	WRT 100*
FSS 277	Personal Trainer	3	FSS 276*
HED 136	Introduction to Health Science	3	
HED 140	First Aid and Cardiopulmonary Resuscitation	2	

### Support Courses

BIO 156	Human Biology for Allied Health	4		
BIO 201	Human Anatomy and Physiology I	4	BIO 156	
BIO 202	Human Anatomy and Physiology II	4	BIO 201	
CHM 151	General Chemistry I	5	MAT 122*	
MAT 152	College Algebra	3	MAT 122*	
MAT 182	Trigonometry	3	MAT 152*	
PSY 101	Introduction to Psychology	4		
WRT 101	Writing I	3	WRT 100*	
WRT 102	Writing II	3	WRT 101	

**General Education Requirements** (See Graduation section of this catalog for associate of science degree course list.)

English Composition 6  
(Support courses satisfy this requirement.)

Humanities and Fine Arts 6  
HIS 101, 102, 113, 114, 141, 142, 148, 160, 161  
HUM 110, 111  
LIT 260, 261, 265, 266, 267, 268, 286  
PHI 101, 130, 140  
REL 120, 121, 140

Biological and Physical Sciences 8-10  
(Support courses satisfy this requirement.)

Mathematics 6  
(Support courses satisfy this requirement.)

Social and Behavioral Sciences 6  
(PSY 101 partially satisfies this requirement.)

Select one course from the following:

ANT 102, 112, 202, 203, 205  
ARC 205  
ECN 200, 201, 202  
HIS 150  
POS 110, 120, 130, 140, 160  
PSY 250  
SOC 101, 120

Other Requirement options 8-10  
(Support courses satisfy this requirement.)

### Suggested Course Sequence

See a fitness and sport sciences faculty advisor.

\*For additional prerequisite information, check course section.

## French

**Program Identification Code: 345-18-01**

A student planning on obtaining a degree with an option in French should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

## General Studies

### General Studies—Associate of General Studies Degree

**Program Identification Code: 950-00-10**

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. 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 General Education Requirements under the Graduation Section.) Please see an advisor.

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.

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.



## Geography

**Program Identification Code: 345-19-01**

A student planning on obtaining a degree with an option in Geography should follow the Liberal Arts and Sciences Associate Degree for Transfer. See an advisor and complete a program of study form using the Transfer Guide.

## Geology

### Geology—Liberal Arts and Sciences—Associate of Arts Degree for Transfer

**Program Identification Code: 345-20-01**

A student planning on obtaining a geology degree should follow the Liberal Arts and Sciences - Associate of Arts Degree for Transfer. Consult the appropriate university transfer option (UA or ASU/NAU).

A student seeking a degree must take the math, writing, and reading assessment exams. The student should then meet with a geology 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 from their chosen school for verification of transfer courses.

## German

**Program Identification Code: 345-21-01**

A student planning on obtaining a degree with an option in German should follow the Liberal Arts and Sciences Associate Degree for Transfer. See an advisor and complete a program of study form using the Transfer Guide.

## Graphic Technology (Offset Printing)

This program area provides training for entry-level positions in the printing industry and for upgrading the skills of those already employed in the field. Instruction is offered in paste up, process camera operation, stripping, platemaking, offset press operation, binding and advertising art as it relates to printing. Four program options are available: graphic technology basic and advanced certificates for direct employment, graphic technology associate of applied science degree for direct employment and pre-press artist option associate of applied science degree for direct employment. Program courses and faculty advising are located on the Downtown Campus.

### Graphic Technology (Offset Printing)—Basic Certificate for Direct Employment

**Program Identification Code: 300-00-08**

This program provides training for entry-level positions in paste up, process camera operation, stripping and plate making, binding and finishing and small offset press operation. Job placement for students completing this program has been good.

#### Required Courses (18 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
GRA 101	Graphic Technology I	3	
GRA 102	Graphic Technology II	3	GRA 101
GRA 103	Binding, Finishing and Estimating	3	
GRA 104	Offset Photography: Stripping and Platemaking	3	GRA 101*
GRA 202	Offset Presswork	3	GRA 102

#### Support Course

MAT	Determined by assessment test at the 100 level or higher	3	
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#### Suggested Course Sequence (Read down.)

Math course	GRA 104
GRA 101	GRA 103
GRA 102	GRA 202

\*For additional information, check course section.

## Graphic Technology (Offset Printing)—Advanced Certificate for Direct Employment

Program Identification Code: 300-00-06

### Required Courses (31 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
GRA 101	Graphic Technology I	3	
GRA 102	Graphic Technology II	3	GRA 101
GRA 103	Binding, Finishing and Estimating	3	
GRA 104	Offset Photography: Stripping and Platemaking	3	GRA 101*
GRA 105	Typesetting I	3	GRA 101*
GRA 202	Offset Presswork	3	GRA 102
GRA 222	Advanced Offset Presswork	3	GRA 202

### General Education and Support Courses

CGR 121	Desktop Publishing for Communication Graphics: Pagemaker	4	
MAT	Determined by assessment test at the 100 level or higher	3	
WRT 100 or 101	Writing Fundamentals Writing I	3	WRT 070* WRT 100*

### Suggested Course Sequence (Read down.)

Math course	GRA 105
GRA 101	WRT 100 or 101
GRA 102	GRA 202
GRA 103	GRA 222
GRA 104	CGR 121

\*For additional prerequisite information, check course section.

## Graphic Technology (Offset Printing)—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 300-00-03

This program provides a continuation of the training offered in the basic certificate program (paste up, process camera operation, stripping and platemaking, binding and finishing and small offset press operation). In addition, students learn offset press maintenance, color theory, estimating and advanced stripping and platemaking for color. The program also provides a basic general education background through management, mathematics, reading, writing and speech courses. Employment opportunities throughout the state are very good for students completing this program.

### Required Courses (68 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		
<b>Core Courses</b> - A grade of C or better is required for graduation.			
GRA 101	Graphic Technology I	3	
GRA 102	Graphic Technology II	3	GRA 101
GRA 103	Binding, Finishing and Estimating	3	
GRA 104	Offset Photography: Stripping and Platemaking	3	GRA 101*
GRA 105	Typesetting I	3	GRA 101*
GRA 201	Color Theory and Practice	3	GRA 104
GRA 202	Offset Presswork	3	GRA 102
GRA 221	Advanced Stripping and Platemaking for Color	3	GRA 201
GRA 222	Advanced Offset Presswork	3	GRA 202
GRA 225	Offset Production	3	GRA 103*
GRA 232	Offset Operations and Maintenance	3	GRA 202*

### Support Courses

CGR 121	Desktop Publishing for Communication Graphics: Pagemaker	4	
CGR 130	Production Techniques and Processes I	3	MAT 082*
CGR 230	Production Techniques and Processes II	4	CGR 121*
GRA 199	Co-op Related Class in GRA	1	*
GRA 199	Co-op Work in GRA	2	*
GRA 299	Co-op Related Class in GRA	1	GRA 199*
GRA 299	Co-op Work in GRA	2	GRA 199*

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

#### Communication

WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I	3	WRT 100*
WRT 101	Writing I		WRT 100*
or 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*

#### Humanities and Fine Arts

	Elective	3	
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#### Social and Behavioral Science

MAN 110	Human Relations in Business and Industry	3	
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#### Science and/or Mathematics

MAT	Determined by assessment test at the 100 level or higher	3	
MAT	Second in sequence at the 100 level or higher	3	

### Suggested Course Sequence (Read down.)

Reading requirement	Math course	CGR 121
Math course	WRT 101 or 102 or 154	GRA 199
WRT 100 or 101	GRA 102	GRA 222
GRA 101	CGR 230	GRA 221
CGR 130	GRA 104	GRA 225
GRA 103	GRA 105	MAN 110
Humanities and Fine Arts elective	GRA 201	GRA 232
	GRA 202	GRA 299

\*For additional prerequisite information, check course section.

## Graphic Technology—Pre-Press Artist Option—Associate of Applied Science Degree for Direct Employment

**Program Identification Code: 300-10-03**

This option prepares students to work in print shops and in-house graphic departments where both art and printing skills are required. They are then qualified for employment as layout graphics and fine arts or production artist trainees. Entry requirements for the Pre-Press Artist option are CGR 001, 010, 020.

### Required Courses (66 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

CGR 100	Color Rendering	4	CGR 001
CGR 110	Typography	3	CGR 010
CGR 111	Graphic Design I	4	CGR 010*
CGR 121	Desktop Publishing for Communication Graphics: Pagemaker	4	CGR 020*
CGR 122	Desktop Graphics: Adobe Illustrator	4	CGR 020*
CGR 130	Production Techniques and Processes I	3	MAT 082*
CGR 210	Graphic Design II	3	CGR 111
CGR 220	Desktop Publishing for Communication Graphics: QuarkXpress	4	CGR 020*
CGR 230	Production Techniques and Processes II	4	CGR 130*
GRA 101	Graphic Technology I	3	
GRA 102	Graphic Technology II	3	GRA 101
GRA 104	Offset Photography: Stripping and Platemaking	3	GRA 101*
GRA 201	Color Theory and Practice	3	GRA 104
GRA 202	Offset Presswork	3	GRA 102
GRA 221	Advanced Stripping and Platemaking for Color	3	GRA 201



## General Education Courses

Communication		
SPE 120	Business and Professional Communication	3
WRT 150	Practical Communications	3
Humanities and Fine Arts (Satisfied by core courses.)		3
Science and/or Mathematics		
MAT	Determined by assessment test at the 110 level or higher	3
MAT	Second course in sequence at the 100 level or higher	3
Social and Behavioral Science		
MAN 110	Human Relations in Business and Industry	3

## Suggested Course Sequence (Read down.)

Reading requirement	CGR 111	CGR 230
Math course	CGR 220	GRA 201
WRT 150	Math course	CGR 121
GRA 101	SPE 120	GRA 104
CGR 100	GRA 102	GRA 202
CGR 110	CGR 130	GRA 221
CGR 122	CGR 210	MAN 110

\*For additional prerequisite information, check course section.

## Greek

### Program Identification Code: 345-12-01

A student planning on obtaining a degree with an option in Greek should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

## History

### Program Identification Code: 345-22-01

A student planning on obtaining a degree with an option in History should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

## Hospitality/Tourism

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 those already employed in the industry. Program options include six major specialties: hospitality restaurant management, culinary arts; travel industry operations; executive housekeeping; hospitality sales and marketing; and meetings and convention management. Certificates are offered in hotel operations, hotel food and beverage management, executive housekeeping, restaurant management, culinary arts, airline reservation systems, hospitality industry operations, hospitality sales and marketing application, and meetings and convention management.

Course work in all options emphasizes communications, human relations, and other successful job skills. Many of the major courses in the program

area are taught by professionals in the field. Other types of support provided by local industry includes classroom locations, training jobs, etc. Cooperative education opportunities are available. Faculty advisors in the program area are located on the Downtown Campus.

Northern Arizona University Hotel/Restaurant School accepts certain courses toward the bachelor's degree in hotel and restaurant management. Additional course work in general education and other support courses may also be taken at Pima Community College. Students planning to transfer to NAU should see an advisor in the hospitality department.

## Hospitality—Associate of Science Degree for Transfer

**Program Identification Code: 310-00-02**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### Required Courses (67-71 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

HOS 100	Introduction to Hospitality Industry	3	
HOS 101	Front Office Procedures	3	
HOS 102	Hospitality Financial Accounting I	3	MAT 082*
HOS 111	Hospitality Management Law	3	HOS 100
HOS 150	Executive Housekeeping I	3	
HOS 202	Hospitality Financial Accounting II	3	HOS 102
RCF 101	Principles of Restaurant Operations	3	
RCF 102	Foodservice Specialties I/ Culinary Preparation	3	

### Support Courses

BUS 205	Statistical Methods in Economics and Business I	3	MAT 172*
ECN 201	Microeconomic Principles	3	MAT 092
ECN 202	Macroeconomic Principles	3	MAT 092
LANG	Foreign Language: Completion of two semesters of a language course numbered 110, 111, 210 or 211.	8-10	

**General Education Requirements** (See Graduation section of this catalog for associate of science degree course list.)

English Composition 6

Humanities and Fine Arts 6

Complete 6 credits from the following:

ART 130, 131  
HUM 251, 252, 253  
MUS 151, 201, 202  
REL 120, 121

Biological and Physical Sciences 8-10

Mathematics 6  
(Complete MAT 152 and 172)

Social and Behavioral Sciences 6  
(This requirement is satisfied by the support courses.)

Other Requirement Options 8-10  
(This requirement is satisfied by the language courses.)

### Suggested Course Sequence

See a hospitality faculty advisor.

\*For additional prerequisite information, check course section.

## Hotel/Motel Management Options:

These options train students in the basics for employment in various hotel/motel and restaurant positions and in the travel agency and meeting/convention management areas.

## Hotel Operations—Basic Certificate for Direct Employment

**Program Identification Code: 310-11-08**

This option is designed to provide a broad introduction to the operation of hotels and motels. Attention is focused on the basics of front office operations, accounting and housekeeping systems.

All course work in the Basic Certificate applies to the Associate of Applied Science Degree in Hotel/Motel Management.

### Required Courses (16 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
HOS 100	Introduction to Hospitality Industry	3	
HOS 101	Front Office Procedures	3	
HOS 102	Hospitality Financial Accounting I	3	MAT 082*
HOS 150	Executive Housekeeping I	3	

### Support Courses

HOS 199	Co-op Related Class in HOS	1	*
HOS 199	Co-op Work in HOS	3	*

### Suggested Course Sequence (Read down.)

HOS 100	HOS 150
HOS 101	HOS 199
HOS 102	

\*For additional prerequisite information, check course section.

## Hotel Food and Beverage Management—Basic Certificate for Direct Employment

**Program Identification Code: 310-12-08**

This option is designed to prepare students for entry-level positions in food and beverage management. Instruction includes the basic principles of hiring, financial management, food and beverage purchasing and preparation and serving.

All course work in the Basic Certificate applies to the Associate of Applied Science Degree in Hotel/Motel Management.

### Required Courses (17 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
HOS 100	Introduction to Hospitality Industry	3	
HOS 102	Hospitality Financial Accounting I	3	MAT 082*
HOS 104	Hotel Food and Beverage Management	3	
HOS 112	Hospitality-Alcohol Intervention Procedures	1	
RCF 102	Foodservice Specialties I/ Culinary Preparation	3	

### Support Courses

HOS 199	Co-op Related Class in HOS	1	*
HOS 199	Co-op Work in HOS	3	*

### Suggested Course Sequence (Read down)

HOS 100	HOS 199
HOS 104	HOS 102
RCF 102	HOS 112

\*For additional prerequisite information, check course section.

## Hospitality Restaurant Management—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 310-10-03

This degree prepares students for entry into the lodging industry. Principles of hotel/motel management, front office, housekeeping, accounting, law, food and beverage management, financial management and hospitality marketing are included.

### Required Courses (66 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

HOS 100	Introduction to Hospitality Industry	3	
HOS 101	Front Office Procedures	3	
HOS 102	Hospitality Financial Accounting I	3	MAT 082*
HOS 104	Hotel Food and Beverage Management	3	
HOS 111	Hospitality Management Law	3	HOS 100
HOS 112	Hospitality - Alcohol Intervention Procedures	1	
HOS 150	Executive Housekeeping I	3	
HOS 202	Hospitality Financial Accounting II	3	HOS 102
HOS 206	Hospitality Human Resource Management	3	HOS 100
HOS 211	Hospitality Sales and Marketing Application I	3	
RCF 102	Foodservice Specialties I/ Culinary Preparation	3	

### Support Courses

HOS 110	Restaurant/Banquet Service	3	
HOS 199	Co-op Related Class in HOS	1	*
HOS 199	Co-op Work in HOS	3	*
HOS 299	Co-op Related Class in HOS	1	*

HOS 299	Co-op Work in HOS	3	*
ELEC	Electives	6	
	Complete 6 credit hours from the following list:		
HOS 120	Meetings and Convention Management I		
HOS 130	Meetings and Convention Management II		HOS 120
HOS 201	Catering and Banquet Sales and Management		RCF 101*
HOS 212	Hospitality Sales and Marketing Applications II		HOS 211*
MAN 278	Labor, Management Relations		BUS 100
RCF 107	Restaurant Sanitation		
RCF 120	Nutrition in Foodservice		

**General Education Courses** (see Graduation section of this catalog for associate of applied science degree course list.)

Communication			
SPE 120	Business and Professional Communication	3	
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I		WRT 100*
or 150	Practical Communications	3	
Humanities and Fine Arts			
		3	
Science and/or Mathematics			
BUS 151	Mathematics of Business	3	MAT 082*
CSC 105	Survey of Microcomputer Uses	3	
Social and Behavioral Science			
MAN 110	Human Relations in Business and Industry	3	

### Suggested Course Sequence (Read down.)

Reading requirement	HOS 104	RCF 102
BUS 151	MAN 110	Humanities and Fine
WRT 100 or 101 or 150	HOS 111	Arts elective
HOS 100	HOS 202	HOS 299
HOS 101	HOS 211	SPE 120
HOS 199	HOS 206	Elective
HOS 102	HOS 110	
HOS 150	HOS 112	
CSC 105	Elective	

\*For additional prerequisite information, check course section.

## Housekeeping Departments/Hospitality Industry Options:

Students in this program area receive training for positions as executive housekeepers, i.e., persons who supervise the maintenance staffs of hotels, restaurants, hospitals, business offices, or residences. Successful executive housekeepers are able to perform their duties with minimal direction and have good organizational and supervisory skills.

### Housekeeping, Executive—Basic Certificate for Direct Employment

Program Identification Code: 310-20-08

This option is designed to prepare students for beginning-level management positions in the executive housekeeping field. Training includes: safety techniques; skills and procedures for mixing and applying chemical solutions for cleaning, sanitizing and maintaining rooms; equipment maintenance; cost controls; hiring and firing practices; communications and leadership skills; and time management.

#### Required Courses (13 Credit Hours)

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

HOS 150	Executive Housekeeping I	3	
HOS 151	Executive Housekeeping II	3	HOS 150

#### Support Courses

HOS 199	Co-op Related Class in HOS	1	*
HOS 199	Co-op Work in HOS	3	*
WRT 150	Practical Communications	3	

#### Suggested Course Sequence (Read down.)

WRT 150  
HOS 150  
HOS 151  
HOS 199

\*For additional prerequisite information, check course section.

## Housekeeping, Executive—Advanced Certificate for Direct Employment

Program Identification Code: 310-20-06

The advanced certificate option prepares students for positions as executive housekeepers. It includes all the course work of the basic certificate plus more advanced principles and techniques for achieving high productivity through effective budgeting, scheduling, insurance liability and supervisor/ employee communications.

#### Required Courses (32 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
	Basic Certificate requirements	13	

#### Support Courses

HOS 299	Co-op Related Class in HOS	1	*
HOS 299	Co-op Work in HOS	3	*
MAN 122	Supervision	3	
ECN 201	Microeconomic Principles	3	MAT 092
MAN 110	Human Relations in Business and Industry	3	
MAT	Determined by assessment test	3	
ELEC	Elective		
	Complete one of the following:	3	
	MAN 280		
	PSY 100		

#### Suggested Course Sequence (Read down.)

	Basic Certificate requirements
MAN 110	Elective
MAN 122	Math Course
HOS 299	ECN 201

\*For additional prerequisite information, check course section.



## Restaurant, Culinary and Foodservice Management Options:

Programs in this area are designed to prepare students for foodservice employment in hotels or restaurants. Management, budgeting and hands-on experience in the preparation of food are emphasized.

### Restaurant Management—Basic Certificate for Direct Employment

**Program Identification Code: 310-31-08**

Students who complete this certificate program are trained for entry-level positions in the field of restaurant management. Legal aspects of restaurant management, supervision, principles of quantity food preparation, safety and sanitation techniques and methods of purchasing, receiving and storing products are emphasized.

#### Required Courses (19 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
HOS 112	Hospitality - Alcohol Intervention Procedures	1	
RCF 101	Principles of Restaurant Operations	3	
RCF 107	Restaurant Sanitation	3	
RCF 120	Nutrition in Foodservice	2	

#### Support Courses

BUS 151	Mathematics of Business	3	MAT 082*
HOS 199	Co-op Related Class in HOS	1	*
HOS 199	Co-op Work in HOS	3	*
MAN 110	Human Relations in Business and Industry	3	

#### Suggested Course Sequence (Read down.)

RCF 101	MAN 110
BUS 151	HOS 112
RCF 107	HOS 199
RCF 120	

\*For additional prerequisite information, check course section.



## Culinary Arts—Basic Certificate for Direct Employment

Program Identification Code: 310-32-08

This certificate program prepares students for entry-level positions in culinary and food management. Instruction covers fundamentals of organized quantity food preparation, safety and sanitation and methods of purchasing, receiving and storing products. Emphasis is placed on cost effectiveness, hygienic work habits and food preparation.

### Required Courses (18 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
RCF 101	Principles of Restaurant Operations	3	
RCF 102	Foodservice Specialties I/ Culinary Preparation	3	
RCF 103	Foodservice Specialties II/ Baking	3	
RCF 120	Nutrition in Foodservice	2	

### Support Courses

HOS 199	Co-op Related Class in HOS	1	*
HOS 199	Co-op Work in HOS	3	*
MAN 122	Supervision	3	

### Suggested Course Sequence (Read down.)

RCF 101	HOS 199
RCF 102	MAN 122
RCF 103	
RCF 120	

\*For additional prerequisite information, check course section.

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

Program Identification Code: 310-30-03

The two-year degree program focuses on the technical and supervisory aspects of foodservice operations, both in food preparation and kitchen/dining-room management. It is designed to prepare students for beginning managerial and technical positions. The program includes all the course work covered in the two basic certificates plus more advanced study in the principles of profitability, techniques for controlling sanitation, quality and inventory management, and food preparation.

### Required Courses (63 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

HOS 102	Hospitality Financial Accounting	3	MAT 082*
HOS 111	Hospitality Management Law	3	HOS 100
HOS 112	Hospitality - Alcohol Intervention Procedures	1	
RCF 101	Principles of Restaurant Operations	3	
RCF 102	Foodservice Specialties I/ Culinary Preparation	3	
RCF 103	Foodservice Specialties II/Baking	3	
RCF 104	Foodservice Specialties III/ Garde-Manger	3	RCF 102
RCF 107	Restaurant Sanitation	3	
RCF 109	Food and Beverage Control	3	BUS 151*
RCF 120	Nutrition in Foodservice	2	

### Support Courses

CSC 105	Survey of Microcomputer Uses	3	
HOS 199	Co-op Related Class in HOS	1	*
HOS 199	Co-op Work in HOS	3	*
HOS 299	Co-op Related Class in HOS	1	*
HOS 299	Co-op Work in HOS	3	*
MAN 122	Supervision	3	

ELEC	Other Elective	3	
	Complete one of the following:		
	MAN 278		
	RCF 105, 110, 201		
<b>General Education Courses</b>			
Communication			
SPE 120	Business and Professional Communication	3	
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I		WRT 100*
or 150	Practical Communications	3	
Humanities and Fine Arts		3	
	Complete one of the following:		
	ART 130, 131, 132, 135		
	DRA 140, 141		
	Foreign Language at the 100 level or higher.		
	HUM 251, 252, 253		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
Science and/or Mathematics			
BIO 105	Environmental Biology	4	
BUS 151	Mathematics of Business	3	MAT 082*
Social and Behavioral Sciences			
MAN 110	Human Relations in Business and Industry	3	
<b>Suggested Course Sequence</b> (Read down.)			
Reading requirement	CSC 105	RCF 103	
WRT 100 or 101 or 150	HOS 199	RCF 104	
BUS 151	HOS 102	HOS 299	
SPE 120	HOS 111	Humanities and Fine Arts	
RCF 107	HOS 112	Arts elective	
RCF 109	MAN 110	BIO 105	
RCF 101	MAN 122	Other elective	
RCF 102			
RCF 120			

\*For additional prerequisite information, check course section.

## Travel Industry Operations Options:

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 applications including ticketing and booking procedures, leadership and communication skills, and destination/cultural geography.

## Travel Industry Operations—Advanced Certificate for Direct Employment

**Program Identification Code: 310-42-06**

This advanced certificate program option 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, computer applications, tour development and sales and communications skills.

### Required Courses (32 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - 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	ASC 111A
TVL 103	Geography for Travel Professionals I	3	
TVL 104	Geography for Travel Professionals II	3	
TVL 109	Survey of Leisure Products	3	
TVL 203	Computerized Reservation Systems II: Fares and Ticketing	3	TVL 102
TVL 210	Leadership and Professional Skills in Tourism	3	TVL 102*

### General Education

Communication			
WRT 100	Writing Fundamentals		WRT 070*
or 154	Technical Communications	3	WRT 100*
Science and/or Mathematics		3	
(Take any math course at the 110 level or higher or BUS 151.)			

### Support Courses

TVL 199	Co-op Related Class in TVL	1	*
TVL 199	Co-op Work in TVL	3	*
ASC 111A	Computer Keyboarding and Document Production: Keyboard	1	

### Suggested Course Sequence (Read down.)

ASC 111A	TVL 103	TVL 104
TVL 101	TVL 109	TVL 203
TVL 102	MAT elective	TVL 210
WRT 100 or 154	or BUS 151	TVL 199

\*For additional prerequisite information, check course section.

## Travel Industry Operations Options—Tourism and Destination Development—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 310-43-03

### Required Courses (61 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

### 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	ASC 111A
TVL 103	Geography for Travel Professionals I	3	
TVL 104	Geography for Travel Professionals II	3	
TVL 109	Survey of Leisure Products	3	
TVL 121	Travel Sales	3	TVL 109
TVL 203	Computerized Reservation Systems II: Fares and Ticketing	3	TVL 102
TVL 205	Tourism Marketing	3	TVL 101
TVL 210	Leadership and Professional Skills in Tourism	3	TVL 102*

TVL 211	Tour Group Development, Sales and Management	3	TVL 101*
TVL 214	Destination Development	3	TVL 101*

### Support Courses

TVL 199	Coop Related Class in TVL	1	*
TVL 199	Coop Work in TVL	3	*
TVL 299	Coop Related Class in TVL	1	*
TVL 299	Coop Work in TVL	3	*
ASC 111A	Computer Keyboarding and Document Production: Keyboard	1	

### General Education Courses (See Graduation section of this catalog for associate of applied science degree course list.)

#### Communications

WRT 100	Writing Fundamentals		WRT 070*
or 154	Technical Communications	3	WRT 100*
	Communication elective	3	*

(Select one additional course from the list.)

Humanities and Fine Arts	4
(Any foreign language at the 100 level or higher. Spanish recommended)	

Science and/or Mathematics	6
(Select one mathematics course at the 110 level or higher and select one course from the catalog course list from SCI/MAT section of associate of applied science degree in the areas of ACC, BUS, or CSC.)	

#### Social and Behavioral Science

ECN 200	Basic Economic Principles	3	MAT 092
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### Suggested Course Sequence (Read down.)

ASC 111A	TVL 121	TVL 199
TVL 101	TVL 205	TVL 211
TVL 102	MAT elective	TVL 214
WRT 100 or 154	SOC/BEH SCI	COM elective
TVL 103	elective	SPA 100
TVL 109	TVL 203	SCI/MTH elective
TVL 104	TVL 210	TVL 299
		TVL 299

\*For additional prerequisite information, check course section.

## Hospitality Sales and Marketing Application Options:

These certificate program options are designed to prepare students for beginning-level management positions in sales and marketing in the lodging industry. The programs offer current practitioners and those who wish to upgrade their skills professional training in sales and marketing, both in group room and food/beverage sales. Training includes product marketing and customer needs analyses; sales call techniques; advertising, media, public relations and other promotional activities; career advancement; catering menu development/costing; tour development and sales; research skills; and skills for communicating with a wide spectrum of consumers. Students entering these certificate programs should have at least one year of work experience in the hospitality/tourism industry.

## Hospitality Sales and Marketing Application—Basic Certificate for Direct Employment

Program Identification Code: 310-50-08

### Required Courses (16 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
HOS 211	Hospitality Sales and Marketing Applications I	3	*
RCF 201	Catering and Banquet Sales and Management	3	RCF 101*
<b>Support Courses</b>			
HOS 199	Co-op Related Class in HOS	1	*
HOS 199	Co-op Work in HOS	3	*
SPE 120	Business and Professional Communication	3	
WRT 100 or 101 or 150	Writing Fundamentals Writing I Practical Communications	3	WRT 070* WRT 100*

### Suggested Course Sequence (Read down.)

HOS 211                      HOS 199  
SPE 120                      RCF 201  
WRT 100 or 101 or 150

\*For additional prerequisite information, check course section.

## Hospitality Sales and Marketing Application—Advanced Certificate for Direct Employment

Program Identification Code: 310-50-06

### Required Courses (32 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate requirements		16	
<b>Core Courses</b> - A grade of C or better is required for graduation.			
HOS 120	Meetings and Convention Management I	3	
HOS 212	Hospitality Sales and Marketing Applications II	3	HOS 211*
TVL 211	Tour Group Development, Sales and Management	3	TVL 101*

### General Education and Support Courses

BUS 151	Mathematics of Business	3	MAT 082*
HOS 199	Co-op Related Class in HOS	1	*
HOS 199	Co-op Work in HOS	3	*

### Suggested Course Sequence (Read down.)

HOS 212                      HOS 199  
BUS 151                      TVL 211  
HOS 120

\*For additional prerequisite information, check course section.

## Meetings and Convention Management Options:

These certificate programs prepare students to manage conventions, trade shows, destination services and meetings. Students are trained to plan, control and coordinate such activities.

### Meetings and Convention Management—Basic Certificate for Direct Employment

Program Identification Code: 310-60-08

#### Required Courses (16 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
HOS 120	Meetings and Convention Management I	3	
HOS 130	Meetings and Convention Management II	3	HOS 120
<b>Support Courses</b>			
HOS 199	Co-op Related in Class in HOS	1	*
HOS 199	Co-op Work in HOS	3	*
WRT 100 or 101	Writing Fundamentals Writing I		WRT 070* WRT 100*
or 150	Practical Communications	3	
SPE 120	Business and Professional Communication	3	

#### Suggested Course Sequence (Read down.)

HOS 120	SPE 120
HOS 130	WRT 100 or 101 or 150
HOS 199	

\*For additional prerequisite information, check course section.

### Meetings and Convention Management—Advanced Certificate for Direct Employment

Program Identification Code: 310-60-06

#### Required Courses (32 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate Requirements		16	
<b>Core Courses</b> - A grade of C or better is required for graduation.			
HOS 131	Meetings and Convention Management III	3	HOS 130
RCF 201	Catering and Banquet Sales and Management	3	RCF 101*
TVL 211	Tour Group Development, Sales and Management	3	TVL 101*

#### General Education and Support Courses

HOS 199	Co-op Related Class in HOS	1	*
HOS 199	Co-op Work in HOS	3	*
BUS 151	Mathematics of Business	3	MAT 082*

#### Suggested Course Sequence (Read down.)

Basic Certificate requirements			
HOS 131		TVL 211	
RCF 201		HOS 199	
BUS 151			

\*For additional prerequisite information, check course section.

## Interdisciplinary Sciences

### Interdisciplinary Sciences—Associate of Science Degree for Transfer

Program Identification Code: 320-10-02

(See Pre-Optical, Interdisciplinary Sciences Degree.)

# International Business Studies

Pima College offers an associate of applied science degree (AAS).

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.

The 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: 325-00-03

### Required Courses (60-64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ACC 101	Financial Accounting	3	
BUS 210	International Business	3	
FOR/LANG	Foreign Language Electives	8-10	
	Complete one of the following pairs:		
	FRE 110 and 111		
	GER 110 and 111		
	ITA 110 and 111		
	JPN 110 and 111		
	POR 110 and 111		
	RUS 110 and 111		
	SPA 110 and 111		
IBS 120	Cultural Similarities and Differences Between the United States and the Foreign Country	3	
IBS 135	The International Career	1	
IBS 140	Basic Techniques of International Trade	3	
IBS 160	Hosting Foreign Business Personnel	1	
IBS 170	Doing Business with Mexico	1	
MAN 280	Business Organization & Management	3	BUS 100*
MKT 111	Marketing	3	
SPE 120	Business and Professional Communication	3	
WRT 101 or 150 or	Writing I Practical Communications		WRT 100*
ASC 151	Business English	3	*
<b>Support Courses</b>			
ACC 102	Managerial Accounting	3	ACC 101*
BUS 100	Introduction to Business	3	
BUS 105	Survey of Microcomputer Uses	3	
BUS 200	Business Law I	3	
BUS 151 or MAT 122	Mathematics of Business Intermediate Algebra (or higher)	3	MAT 082* MAT 092*
MAN 110	Human Relations in Business & Industry	3	
WRT 102 or 154 or	Writing II Technical Communications I		WRT 101 WRT 100*
ASC 251	Business Communications	3	ASC 151
Electives	Complete two of the following:	4-6	
	ANT 102		
	ECN 201, 202, 230		
	MAN 122		
	MKT 113, 125, 150		
	POS 120		



**General Education Courses** (See Graduation Section of this catalog for associate of applied science degree course list.)

Communication (Support courses satisfy this requirement.)	6
Humanities and Fine Arts (Core courses satisfy this requirement.)	3
Science and/or Mathematics (Support courses satisfy this requirement.)	6
Social and Behavioral Sciences (Support courses satisfy this requirement.)	3

**Suggested Course Sequence** (Read down.)

WRT 101 or 150	ACC 101	MAN 280
or ASC 151	ACC 102	MKT 111
IBS 120	BUS 151 or	SPE 120
IBS 135	MAT 122 or higher	WRT 102 or 154
IBS 140	BUS 105	or ASC 251
IBS 160	BUS 100	BUS 200
BUS 210	MAN 110	

\*For additional prerequisite information, check course section.

## Interpreter Training Program

### Sign Language—Basic Certificate

**Program Identification Code: 330-10-08**

The sign language basic certificate is designed to offer a pragmatic introduction to American Sign Language and deafness. Students completing this certificate will gain an overview of a communication mode utilized by many deaf individuals. The course work also provides information relating to the history, education, and community aspects of deafness and American Sign Language.

This program is primarily for individuals preparing for, or already employed in industry, business and public service who have daily contact with the general public. While this course work will not qualify an individual as an interpreter, it will enhance his/her ability to provide services to many deaf individuals through basic communication skills.

### Required Courses (19 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

SLG 105	Expressive/Receptive Fingerspelling and Numbers	2	SLG 101
SLG 110	Introduction to Disabilities and Audiology	3	SLG 101*
SLG 120	History of Deafness	3	SLG 101
SLG 201	American Sign Language III	4	SLG 102
SLG 202	American Sign Language IV	4	SLG 201

### Support Course

ANT 102	Introduction to Cultural Anthropology and Linguistics		
or 215	The Nature of Language	3	

### Suggested Course Sequence (Read down.)

SLG 105	SLG 120
SLG 110	SLG 202
SLG 201	Reading requirement
ANT 102 or 215	

\*For additional prerequisite information, check course section.

### Interpreter Training Program—Associate of Applied Arts Degree for Direct Employment

**Program Identification Code: 330-00-09**

The curriculum provides both theoretical and practical preparation for graduates to provide quality interpreting services for deaf consumers and hiring agencies. The total program consists of four semesters of classes totaling a minimum of 64 credit hours to complete the associate of applied arts degree in interpreting. The program includes laboratory study, classroom lecture, and supervised field experience in the community. Students graduating from this program will be eligible to meet the Interpreter Quality Assurance System in Arizona.

### Acceptance Into the Program:

In addition to meeting general requirements for admission to Pima Community College, the applicant must:

- Complete an Interpreter Training Program application packet
- Demonstrate the following minimum reading competencies:
  - Program entry - 10th grade level
  - Program exit - REA 112 level or above
- Successfully complete or show an equivalency for
  - SLG 101 - American Sign Language I
  - SLG 102 - American Sign Language II
  - REA 075 - Spelling
- Receive approval by the Interpreter Training Program selection committee.

### General Requirements:

- Minimum of 64 credit hours.
- Work in residence: 32 hours in major course work.

### Required Courses (64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ITP 105	Expressive/Receptive Fingerspelling and Numbers	2	SLG 101
ITP 110	Introduction to Disabilities and Audiology	3	SLG 101*
ITP 120	History of Deafness	3	SLG 101
ITP 180	Psychosocial Aspects of Deafness	3	SLG 101
ITP 201	American Sign Language III	4	SLG 102
ITP 202	American Sign Language IV	4	ITP 201
ITP 203	American Sign Language V	3	ITP 202*
ITP 220	Interpreting I	4	ITP 202
ITP 250	Interpreting II	4	ITP 220
ITP 270	Sign to Voice	4	ITP 202
ITP 290	Interpreter Training Field Experience	2	ITP 220*

### Support Courses

ANT 102	Introduction to Cultural Anthropology and Linguistics		
or 215	The Nature of Language	3	
PSY 101	Introduction to Psychology	4	
SPE 102	Introduction to Oral Communication	3	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

**General Education Courses** (See Graduation section of this catalog for associate of applied arts degree course list.)

Communication	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	6
(SLG 101 and 102 may satisfy this requirement.)	
Science and/or Mathematics	3
Social and Behavioral Sciences	3
(Support courses satisfy this requirement.)	

### Suggested Course Sequence (Read down.)

Reading requirement	ITP 202	ITP 290
ITP 105	Humanities and Fine Arts elective	Science/Mathematics elective
PSY 101	Arts elective	
ITP 110	ITP 203	Humanities and Fine Arts elective
WRT 101	ITP 220	
ITP 120	SPE 102	
ITP 201	ITP 180	
ANT 102 or 215	ITP 250	
WRT 102	ITP 270	

\*For additional prerequisite information, check course section.

# Italian

**Program Identification Code: 345-24-01**

A student planning on obtaining a degree with an option in Italian should follow the Liberal Arts and Sciences Associate Degree for Transfer.

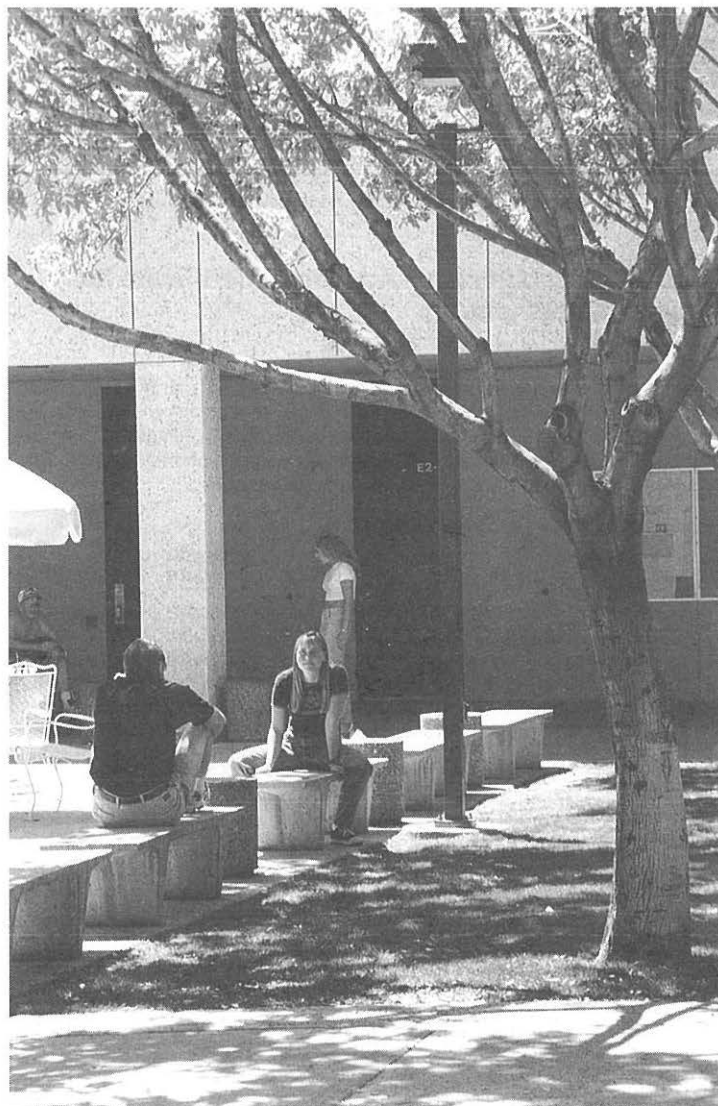
See an advisor and complete a program of study form using the Transfer Guide.

# Judaic Studies

**Program Identification Code: 345-26-01**

A student planning on obtaining a degree with an option in Judaic Studies should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.



# Landscape Technician

The landscape technician program options are designed to prepare students for employment in the landscape industry either as landscape maintenance and plant care technicians or as designers and/or managers of landscape systems. The former training is provided by the advanced certificate program and the latter by the associate of applied science degree program. Program advisors are located on the West Campus.

## Landscape Technician—Advanced Certificate for Direct Employment

**Program Identification Code: 335-00-06**

This program provides education and skills for students planning to be landscape maintenance and plant care technicians. Instruction covers definition of career goals, diagnosis, treatment and control of horticultural diseases and pests, familiarity with suitable plants for exterior and interior use, and analysis and improvement of soils for horticultural use.

### Required Courses (32 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

BIO 184	Plant Biology	4	
LTP 100	Landscape Today and Tomorrow	3	
LTP 120	Plant Pathology, Pests and Controls	4	BIO 184
LTP 130	Soils Management	4	
LTP 160	Plant Usage and Identification	3	

### Support Courses

CHM 130	Fundamental Chemistry	5	
MAT 110	Technical Mathematics I	3	MAT 082*
MAT 111	Technical Mathematics II	3	MAT 110
WRT 150	Practical Communications	3	

**General Education Courses** (See Graduation section of this catalog for advanced certificate course list.)

Communication 3  
(Support courses satisfy this requirement.)

Science and/or Mathematics 3  
(Support courses satisfy this requirement.)

### Suggested Course Sequence (Read down.)

Reading requirement	LTP 100
WRT 150	LTP 130
MAT 110	MAT 111
CHM 130	LTP 160
BIO 184	LTP 120

\*For additional prerequisite information, check course section.

## Landscape Technician—Associate of Applied Science Degree for Direct Employment

**Program Identification Code: 335-00-03**

This program provides education and skills to students for employment as landscape system designers and/or managers. Instruction includes designing, estimating and implementing landscape plans; designing, installing and maintaining pressure-type irrigation systems; estimating and implementing maintenance on equipment. The associate of applied science degree program includes all the requirements of the advanced certificate program.

### Required Courses (62 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

BIO 184	Plant Biology	4	
LTP 100	Landscape Today and Tomorrow	3	
LTP 120	Plant Pathology, Pests and Controls	4	BIO 184
LTP 130	Soils Management	4	

LTP 160	Plant Usage and Identification	3
LTP 200	Landscape Management Systems	3
LTP 205	Irrigation Design I	3
LTP 230	Landscape Maintenance	3
LTP 260	Basic Landscape Design	3
SPE 120	Business and Professional Communication	3

#### Support Courses

CHM 130	Fundamental Chemistry	5	
MAT 110	Technical Mathematics I	3	MAT 082*
MAT 111	Technical Mathematics II	3	MAT 110
WRT 150	Practical Communications	3	
LTP ELEC	Landscape Technician Electives	6	
	Any LTP courses not listed in the core courses section (including CAD) will serve as LTP electives.		
ELEC	Elective	3	
	Select one course from the following:		
	BUS 100		
	MAN 122, 124		

**General Education Requirements** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
(Core and support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
(Support courses satisfy this requirement.)	
Social and Behavioral Sciences	3

#### Suggested Course Sequence (Read down.)

Reading requirement	MAT 111	Humanities and Fine Arts elective
WRT 150	LTP 120	LTP 200
MAT 110	LTP 160	SPE 120
CHM 130	LTP 230	LTP elective
BIO 184	LTP 260	Elective
LTP 100	Social and Behavioral Sciences elective	LTP elective
LTP 130	LTP 205	

\*For additional prerequisite information, check course section.

## Latin

#### Program Identification Code: 345-28-01

A student planning on obtaining a degree with an option in Latin Studies should follow the Liberal Arts and Sciences Associate Degree for Transfer. See an advisor and complete a program of study form using the Transfer Guide.

## Latin-American Studies

#### Program Identification Code: 345-29-01

A student planning on obtaining a degree with an option in Latin-American Studies should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

## Legal Assistant

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 is a person who works directly under the supervision of a lawyer. Legal assistants are qualified through education, training or work experience. They perform specifically delegated substantive legal work which requires a knowledge of legal concepts and procedures.

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.

LAS faculty advisors are available on the Downtown Campus only.

### 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.

### Admissions Requirement

Students must have a high school diploma or have passed an equivalency examination in order to register for LAS 103, 106, 202, 211.

## Legal Assistant—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 340-00-03

### Required Courses (66-67 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

**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	REA 112*
LAS 103	Legal Research	3	LAS 101*
LAS 104	Legal Assistant Ethics	3	LAS 103*
LAS 106	Civil and Criminal Evidence	3	LAS 103*
LAS 202	Civil Litigation Procedures II	3	LAS 102
LAS 211	Legal Writing	3	LAS 103*
LAS ELEC	LAS Specialty Area Electives Complete five courses from the following LAS specialty electives course list: (Specialty courses are not offered every semester. Consult with an LAS faculty advisor to determine class offerings.)	15-16	
LAS 201	Consumer Law Procedures		BUS 220*
LAS 203	Tort Law Procedures		LAS 101*
LAS 204	Wills, Trusts, and Estates		LAS 101*
LAS 206	Criminal Trial Procedures I		LAS 101*
LAS 207	Criminal Trial Procedures II		LAS 101*
LAS 208	Domestic Relations and Family Law	*	
LAS 209	Bankruptcy Procedures		LAS 101*
LAS 210	Administrative Law and Procedures		LAS 101*
LAS 212	Law Office Computerization		LAS 101*
LAS 213	Computer Assisted Legal Research		LAS 103*
LAS 215	Corporate Law Procedures		LAS 101*
LAS 217	Real Estate Legal Procedures		LAS 101*
LAS 250	Legal Assistant Internship (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.)		LAS 202*

### Support Courses

ACC 100	Practical Accounting Procedures	
or 101	Financial Accounting	3
BUS 220	Legal Environment of Business	3
CSC 105	Survey of Microcomputer Uses	3
POS 110	American National Government and Politics	
or 112	National and State Constitution	3

SPE 120	Business and Professional Communication	
or 110	Public Speaking	3
<b>General Education Courses</b>		
Communication		
WRT 101	Writing I	3 WRT 100*
WRT 102	Writing II	3 WRT 101
Humanities and Fine Arts		
	Complete one course from the following list:	3
	ART 130, 131, 133	
	DRA 140, 141, 245	
	Any foreign language course 100 and above	
	HIS 101, 102	
	HUM 251, 252, 253, 260	
	LIT any course 100 and above	
	MUS 102, 201, 202	
	PHI 101, 102, 120, 130, 140	
	REL 119, 120, 121, 130, 140	
Science and/or Mathematics		
	(ACC 100 in the support courses will satisfy 3 credit hours of this requirement.)	6
	Complete one additional course from the following list:	
	AST 101, 102, 111, 112	
	BIO any course 100 and above, excluding 198, 297, 298	
	BUS 205, 206	
	CHM any course 100 and above, excluding 196, 198, 297	
	GEO 101, 102	
	GLG any course 100 and above, excluding 244, 280	
	MAT any course 100 and above, excluding 110, 111, 115, 116, 198, 297	
	PHY any course 100 and above excluding 101, 102, 105, 198, 297	
Social and Behavioral Sciences		
MAN 110	Human Relations in Business and Industry	3

### Suggested Course Sequence (Read down.)

Reading requirement	ACC 100**
WRT 101	LAS 104
POS 110 or 112**	CSC 105**
LAS 101	MAN 110**
LAS 102	LAS Specialty elective
BUS 220	Humanities and Fine Arts elective**
SPE 120 or 110**	LAS Specialty elective
LAS 103	Science and math elective**
LAS 106	LAS 211
LAS Specialty elective	LAS Specialty elective
WRT 102	LAS Specialty elective
LAS 202	

\*For additional prerequisite information, check course section.

\*\* Sequence of courses may be changed to allow for flexibility in scheduling semester course load.



# Liberal Arts and Sciences

This program is intended to be the university transfer core curriculum for liberal arts and sciences and offers two options: the University of Arizona (UA) Option and the Arizona State University/Northern Arizona University (ASU/NAU) Option.

## ASU/NAU Option - General 346-00-01

For **students planning to attend ASU or NAU**, this degree offers the best choices for fulfilling general education courses and preparing for a degree in the College of Arts and Sciences at ASU or NAU. See an advisor and follow the ASU/NAU Option.

## UA Option - General 345-00-01

For **students planning to attend the UA**, this degree may fulfill two purposes. For **undecided students**, this degree provides the best choices for fulfilling general education courses for a degree in the UA's College of Arts and Sciences. See an advisor and follow the UA Option.

For those students seeking a **major at the UA for which Pima Community College does not have an associate degree**, this transfer degree will match the university transfer guide requirements for the following UA degrees:

Art History	345-02-01
Astronomy	345-03-01
Atmospheric Sciences	345-04-01
Biochemistry	345-05-01
Biology	345-06-01
General	
Pre-Agriculture	
Pre-Dental	
Pre-Medical	
Pre-Pharmacy	
Pre-Veterinary	
Chemistry	345-07-01
Classics	345-08-01
Creative Writing	345-11-01
East Asian Studies	345-13-01
Ecology and Evolutionary Biology	345-14-01
Economics (Arts and Sciences)	345-15-01
Elementary Education	345-16-01
English	345-17-01
English (Extended)	
French	345-18-01
Geography	345-19-01

Geosciences (Geology)	345-20-01
German	345-21-01
Greek	345-12-01
History	345-22-01
Interdisciplinary Studies	345-23-01
Italian	345-24-01
Journalism	
(Media Communications—Print Media Sequence)	345-25-01
Judaic Studies	345-26-01
Latin	345-28-01
Latin-American Studies	345-29-01
Linguistics	345-30-01
Mathematics	345-31-01
Media Arts (Media Communications—	
Telecommunications Sequence)	345-32-01
Mexican-American Studies	345-33-01
Microbiology	345-34-01
Molecular/Cellular Biology	345-35-01
Near Eastern Studies	345-37-01
Philosophy	345-38-01
Physics	345-39-01
Portuguese	345-41-01
Pre-Law	345-00-01
Psychology	345-43-01
Regional Development	345-44-01
Religious Studies	345-46-01
Russian	345-47-01
Russian & Soviet Studies	345-48-01
Secondary Education	345-49-01
Spanish	345-52-01
Special Education and Rehabilitation	345-53-01
Speech & Hearing Sciences	345-54-01
Theater Arts	345-55-01
Women's Studies	345-56-01

## Liberal Arts and Sciences—Associate of Arts Degree for Transfer

Program Identification Code: 345-00-01

### UNIVERSITY OF ARIZONA (UA) OPTION

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### Required Courses (60-72 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

Note: All courses in this degree program are considered core courses and must be transferable.

### ARTS REQUIREMENT 3

Select one course from the following:  
ART 100, 110, 115, 120, 130, 131  
MUS 102, 105, 108, 109, 116, 117,  
120, 121, 125 & 127, 130, 131, 151

### FOREIGN LANGUAGE REQUIREMENT 4-16

Completion of a language course numbered 211, fourth-semester level, or completion of SPA 202 or SLG 202. (Bilingual or international students should consult an advisor 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.**

### LITERATURE REQUIREMENT 3

Select Option 1 if you complete your foreign language requirement with 8 or more credits. Select Option 2 if you complete your foreign language requirement with only 4 credits.

Option 1:

LIT 231, 260, 261, 262, 265,  
266, 267  
REL 120, 121

Option 2:

LIT 260, 266, 267

### NON-WEST CIVILIZATION REQUIREMENT 3

Select one course from the following list:  
ANT 112, 205, 206  
ARC 205  
HIS 113, 114, 122, 124, 148, 170  
REL 234

### ELECTIVES 3-15

Select 3-15 credits of transferable credits from the University of Arizona Transfer Guide. See an advisor.

**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition 6

Humanities and Fine Arts 9

Core course satisfies three credits of this requirement. Complete two courses from one of the following options:

Option 1: ART 130, 131

Option 2: HIS 101 or 102 **and** select one course from 101, 102, 141, 142, 160, 161

Option 3: HUM 251, 252, 253

Option 4: HUM 110, 111, 253

Biological and Physical Sciences 8

Select two courses from:

AST 101/111, 102/112

BIO 100, 105, 109, 115, 156, 181, 182,  
184, 201, 202, 205

CHM 121 or 130 or 151; 140 or 141 or 152;  
235, 236  
GEO 101, 102  
GLG 101, 102  
PHY 121/122 or 210, 216, 221

Mathematics 3  
Complete MAT 142 or above.

Social and Behavioral Sciences 9  
Select one course from Category 1 and two courses from Category 2. The course selected from Category 1 must be of a different prefix than the courses selected from Category 2.

Category 1:  
ANT 202, 203  
HIS 105, 127, 150, 180  
HUM 260  
PSY 216  
SOC 103, 201, 204

Category 2:  
ANT 101 or ARC 101; ANT 102  
ECN 200  
GEO 103  
MEC 102  
PHI 101, 130, 140  
POS 100, 110, 120, 130, 140, 160  
PSY 101, 218, 250  
REL 140  
SOC 101

Other Requirement Options 5-6  
Core courses satisfy this requirement.

### Suggested Course Sequence

See an advisor.

## ARIZONA STATE UNIVERSITY/NORTHERN ARIZONA UNIVERSITY (ASU/NAU) OPTION

Program Identification Code: 346-00-01

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### Required Courses (60-64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

Note: All courses in this degree program are considered core courses and must be transferable. **If a student completes all requirements displayed below in fewer than 60 credits, additional credit hours of transferable electives must be completed to meet the minimum associate degree requirement of 60 credit hours. See an advisor for selection of elective credits.**

### Support Courses

FOREIGN LANGUAGE REQUIREMENT		4-16	
Completion of a language course numbered 211, fourth-semester level, or completion of SPA 202 or SLG 202. (Bilingual or international students should consult an advisor concerning exceptions to this requirement.)			
WRT 207	<b>Intensive Writing</b>	3	WRT 102*
	Sophomore Composition		
	<b>Historical Awareness</b>	3	
Select one course from the following:			
ART 130			
DRA 140, 141,			
HIS 101, 102, 113, 114, 141,			
142, 148, 150			
HUM 110, 111, 251, 252, 253			
POS 130			
REL 120, 234			
SOC 101			

**Ethnic/Race/Gender Awareness 3**

Select one course from the following:

ANT 148

HUM 260

HIS 105, 127, 148, 150, 180

SOC 103, 201, 204

**Options 3-4**

Complete 3-4 credits from either the Communication or Numeracy options.

**Option 1—Communication**

ASC 251

SPE 110, 124, 136

**Option 2—Numeracy**

BUS 205

MAT 167

PSY 230

CSC 100, 101, 105, 140, 175,

238, 256, 270, 274

ENG 102, 241

MAP 207

**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition 6

Complete WRT 101 and 102

Humanities and Fine Arts 9

Select one course from the following list:

ART 130, 131

DRA 140, 141

Select two courses from the following list:

HUM 110, 111, 251, 252, 253, 260

PHI 101, 130

REL 120, 121, 234

LIT 231, 261, 266 & 267

(LIT 266 & 267 must be completed together.)

Biological and Physical Sciences 8

Select two laboratory science courses from:

AST 101/111, 102/112

BIO 100, 184

CHM 130, 151, 152

GEO 101, 102

GLG 101, 102

PHY 121, 122, 210, 216, 221, 230

Mathematics (Complete MAT 142 or above) 3

Social and Behavioral Sciences 9

Complete 9 credits by:

1) Selecting one course from:

ANT 102

HIS 113, 114

POS 120, 140

REL 234

2) Selecting two courses from:

ANT 101, 102, 206

ARC 101

ECN 201, 202

GEO 103

HIS 101, 102, 113, 114, 141, 142, 148, 150

POS 110, 120, 130, 140, 160

PSY 101, 218, 230, 250

REL 234

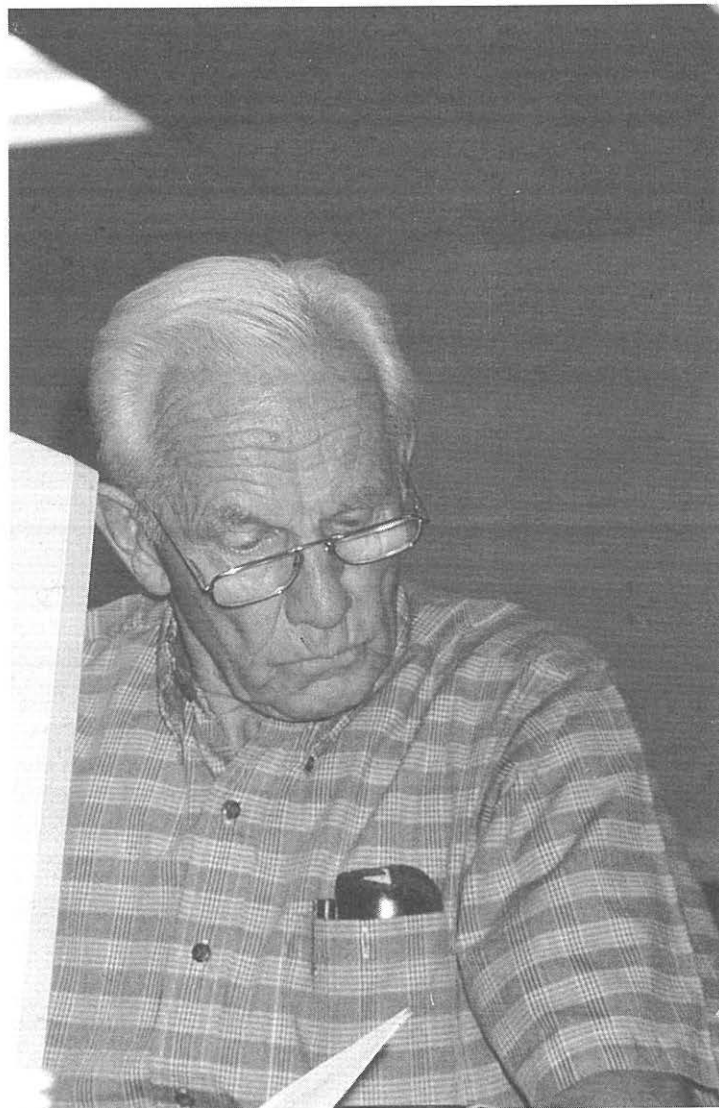
SOC 101, 201, 204

Other Requirement Options 5-6  
(Support courses satisfy this requirement.)

**Suggested Course Sequence**

See an advisor.

\*For additional prerequisite information, check course section.



## Linguistics

**Program Identification Code: 345-30-01**

A student planning on obtaining a degree with an option in Linguistics should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

## Machine Tool Technology

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, machinist apprentices, maintenance machinists, model makers, QC inspectors or CNC operators.

Four program options are available: basic certificate, technical certificate, and an associate of applied science degree option in machine tool technology and a technical certificate, and an associate of applied science degree option in computer numerical control machinist. In addition to these options, a 43-credit-hour block program of in-depth training and skill development is available in a concentrated two-semester sequence. Students interested in the block program must apply to the program advisor during the spring or summer prior to starting the two-semester sequence in the fall. Cooperative education courses offer actual work experience while attending classes.

Machine tool training includes a broad range of techniques used in metals manufacturing in addition to support courses in manufacturing processes, quality control, metallurgy, drafting, numerical control and welding. Such 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 machine tool advisors before registering.

## Machine Shop Fundamentals—Basic Certificate for Direct Employment

Program Identification Code: 350-10-08

This program is designed to prepare students for entry level employment as machine operators, machinist apprentices, maintenance machinists, model makers, QC inspectors and CNC operators. Good mechanical aptitude and good basic skills in reading, writing and mathematics are important for success in this program.

### Required Courses (21 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
MAC 103	Machine Shop Mathematics I	3	MAT 082*
MAC 104	Machine Shop Mathematics II	3	MAC 103
MAC 110	Machine Shop for Technicians I	4	
MAC 120	Machine Shop for Technicians II	4	MAC 103*
MAC 130	Fundamentals of Metallurgy	3	

### Support Course

DFT 150	Technical Drafting I	4	
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### Suggested Course Sequence (Read down.)

MAC 103	MAC 104
DFT 150	MAC 120
MAC 110	MAC 130

\*For additional prerequisite information, check course section.

## Machinist's Standard Certificate—Technical Certificate for Direct Employment

Program Identification Code: 350-20-05

### Required Courses (34 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
MAC 103	Machine Shop Mathematics I	3	MAT 082*
MAC 104	Machine Shop Mathematics II	3	MAC 103
MAC 110	Machine Shop for Technicians I	4	
MAC 120	Machine Shop for Technicians II	4	MAC 103*
MAC 130	Fundamentals of Metallurgy	3	

### Support Courses

DFT 150	Technical Drafting I	4	
MAN 110	Human Relations in Business and Industry	3	
ELEC	Other Elective:	4	
	Complete 4 credit hours from the following list with the approval of the program advisor.		
	CSC 100, 105		
	DFT 150, 180		
	MAC 210, 225, 250, 255, 270, 280		
	SML 101		
	WLD 150, 160, 262		

### General Education Courses

Communication			
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I	3	WRT 100*
Science and/or Mathematics			
PHY 101	Technical Physics I	3	MAT 082*

### Suggested Course Sequence (Read down.)

WRT 100 or 101	MAC 120
MAC 103	MAC 130
MAC 110	Other electives
MAC 104	MAN 110
DFT 150	PHY 101

\*For additional prerequisite information, check course section.

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

Program Identification Code: 350-00-03

### Required Courses (62 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

MAC 103	Machine Shop Mathematics I	3	MAT 082*
MAC 104	Machine Shop Mathematics II	3	MAC 103*
MAC 110	Machine Shop for Technicians I	4	
MAC 120	Machine Shop for Technicians II	4	MAC 103*
MAC 130	Fundamentals of Metallurgy	3	
MAC 210	Jig and Fixture Designing I	4	MAC 120*
MAC 250	Introduction to Numerical Control I	4	MAC 104*
MAC 280	Machine Shop for Technicians III	4	MAC 120
MAC 285	Physical Metallurgy	3	MAC 130

### Support Courses

DFT 150	Technical Drafting I	4	
ELEC	Other Electives: Complete 8 credit hours from the following list with the approval of the program advisor. CSC 100, 105 DFT 151, 180 MAC 225, 255, 257, 258, 260, 265, 270, 280 SML 101 WLD 150, 160, 262	8	

### General Education Courses

Communication			
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I	3	WRT 100*
WRT 101	Writing I		WRT 100*
or 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
Humanities and Fine Arts		3	

(See Graduation section of this catalog for associate of applied science degree course list.)

Science and/or Mathematics			
PHY 101	Technical Physics I	3	MAT 082*
PHY 102	Technical Physics II	3	MAT 092*

### Social Behavioral Science

MAN 110	Human Relations in Business and Industry	3	
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### Suggested Course Sequence (Read down.)

Reading requirement	Other elective	Humanities and Fine Arts elective
MAC 103	PHY 101	MAC 280
WRT 100 or 101	MAN 110	MAC 250
MAC 110	DFT 150	MAC 285
MAC 130	PHY 102	MAC 210
MAC 104	WRT 101 or 102	Other electives
MAC 120	or 154	

\*For additional prerequisite information, check course section.



## Machine Tool Technology—Computer Numerical Control Machinist Option—Technical Certificate for Direct Employment

Program Identification Code: 350-30-05

### Required Courses (36 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
MAC 103	Machine Shop Mathematics I	3	MAT 082*
MAC 104	Machine Shop Mathematics II	3	MAC 103
MAC 110	Machine Shop for Technicians I	4	
MAC 120	Machine Shop for Technicians II	4	MAC 103*
MAC 130	Fundamentals of Metallurgy	3	
MAC 210	Jig and Fixture Designing I	4	MAC 120*
MAC 250	Computer Numerical Control I	4	MAC 104*
MAC 255	Computer Numerical Control II	4	MAC 250

### Support Course

DFT 150	Technical Drafting I	4	
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**General Education Courses** (See Graduation section of this catalog for advanced/technical certificate course list.)

Communication	3	
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Science and/or Mathematics (Satisfied by core courses.)	3	
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### Suggested Course Sequence (Read down.)

MAC 103	DFT 150
MAC 104	MAC 210
MAC 110	MAC 250
MAC 120	MAC 255
MAC 130	Communications elective

\*For additional prerequisite information, check course section.

## Machine Tool Technology—Computer Numerical Control Machinist Option—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 350-30-03

### Required Courses (65 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

MAC 103	Machine Shop Mathematics I	3	MAT 082*
MAC 104	Machine Shop Mathematics II	3	MAC 103
MAC 110	Machine Shop for Technicians I	4	
MAC 120	Machine Shop for Technicians II	4	MAC 103*
MAC 130	Fundamentals of Metallurgy	3	
MAC 210	Jig and Fixture Designing I	4	MAC 120*
MAC 250	Computer Numerical Control I	4	MAC 104*
MAC 255	Computer Numerical Control II	4	MAC 250
MAC 257	Computer Aided Machining I	4	DFT 180*
MAC 258	Computer Aided Machining II	4	MAC 257
MAC 260	Computer Numerical Control III: Lathe	4	MAC 255
MAC 280	Machine Shop for Technicians III	4	MAC 120

### Support Courses

DFT 150	Technical Drafting I	4	
DFT 180	Computer Aided Drafting I	4	DFT 150*

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6	
Humanities and Fine Arts	3	
Science and/or Mathematics (Satisfied by core courses.)	6	
Social and Behavioral Sciences	3	

### Suggested Course Sequence (Read down.)

MAC 103	Communications elective
MAC 104	MAC 280
MAC 110	DFT 180
MAC 120	MAC 257
MAC 130	MAC 258
DFT 150	MAC 260
MAC 210	Humanities/Art elective
MAC 250	Social/Behavioral Science
MAC 255	elective

\*For additional prerequisite information, check course section.

## Manufacturing Technology—Associate of Science Degree for Transfer

### Program Identification Code: 350-40-02

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

This program is designed to meet the requirements for the first two years of a baccalaureate degree in manufacturing technology at Arizona State University. It may meet some or all of the requirements at other universities offering a similar baccalaureate degree in manufacturing technology. Students in this program should check specific transferability requirements with the institution to which they plan to transfer. A program transfer guide for Arizona State University is available through a program advisor located on the Downtown Campus. To transfer Pima Community College courses to a university, the student must have received a grade of "C" or better.

### Required Courses (65 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

DFT 240	Manufacturing Processes I	3	
MAC 110	Machine Shop for Technicians I	4	
MAC 120	Machine Shop for Technicians II	4	MAC 103*
MAC 280	Machine Shop for Technicians III	4	MAC 120

### Support Courses

ECN 202	Macroeconomic Principles	3	MAT 092
ENG 102	Problem-Solving and Engineering Design	3	MAT 220*
ENG 170	Problem-Solving Using Computers	3	ENG 102
MAT 182	Trigonometry	3	MAT 152*
MAT 220	Calculus I	5	MAT 182*
MAT 231	Calculus II	4	MAT 220
MAT 241	Calculus III	4	MAT 231
PHY 121	Introductory Physics I	5	MAT 092*
PHY 122	Introductory Physics II	5	PHY 121

**General Education Requirements** (See Graduation section of this catalog for associate of science degree course list.)

English Composition	6
Humanities and Fine Arts	6
Select 6 credits from:	
ART 130	
DRA 140, 141	
HUM 251, 252, 253	
PHI 130	

Biological and Physical Sciences (Support courses satisfy this requirement.) 8-10

Mathematics (MAT 142 or above) (Support courses satisfy this requirement.) 6

Social and Behavioral Sciences (Support courses satisfy 3 credits of this requirement.) Select 3 additional credits from: 6

ANT 102  
HIS 113, 114  
POS 120, 140

Other Requirement Options (Support courses satisfies this requirement.) 8-10

### Suggested Course Sequence

See an advisor.

\*For additional prerequisite information, check course section.

# Mathematics

**Program Identification Code: 345-31-01**

## Associate of Arts Degree for Transfer

A student planning on obtaining a mathematics degree should follow the Liberal Arts and Sciences—Associate of Arts Degree for Transfer. Consult the appropriate university transfer option (UA or ASU/NAU).

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 of 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.

# Media Communications

Persons trained in media communications can work in a variety of jobs in the production of television programs, films and publications. The field includes such jobs as writer, editor, director, camera operator and graphic designer.

Students can choose a major in print media or telecommunications. In both programs, a student can obtain an associate degree and become employed or continue at a four-year college or university. An advanced certificate is also offered in telecommunications. Both degrees emphasize extensive study preparing the student for employment in print, electronic media, or in film making.

Students interested in a university transfer program should follow the Liberal Arts and Sciences, Associate of Arts Degree for Transfer program (UA option or ASU/NAU option) as detailed in this catalog and consult a media faculty advisor. A student planning on obtaining a degree with an option in the Print Media Sequence (Journalism - 345-25-01) or an option in

the Telecommunications Sequence (Media Arts - 345-32-01) should follow the Liberal Arts and Sciences Degree for Transfer.

Instruction includes television camera operation, video editing, studio production, audio production, desktop publishing, paste-up, art and graphic design, computer applications in media, electronic field production, electronic news gathering, film production, film editing, lighting, script writing, news writing, reporting and copy editing. The associate degree programs also involve students as interns at work sites in the community through cooperative education courses. Student activities also include the Aztec Press, an award-winning student newspaper published weekly, and student-produced films and videos are aired locally on cable television and shown in local media arts centers.

Program advisors are located on the West Campus.

## Print Media Sequence—Associate of Applied Science Degree for Direct Employment

**Program Identification Code: 360-10-03**

This program is designed to prepare students for employment as desktop publishers, graphic designers and artists, newspaper paste-up and layout persons, reporters, freelance writers, small publication editors and advisors, copy editors, photojournalists and print design specialists. Cooperative education opportunities are available on small publications, daily and weekly newspapers, magazines and specialty publications. Students must complete at least six credit hours of media communications courses before being placed at work sites. Students may also work on the Aztec Press, the student-produced newspaper, in the areas mentioned above. They may also express their creativity through editorials, cartoons, feature stories and photography courses. Helpful qualifications for success in this field are good writing skills and an interest in art, design, layout, computers, reporting, editing and photojournalism.

### Required Courses (60 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

CSC 100	Introduction to Computers and Information Systems	3	MAT 092*
MEC 101	Introduction to Reporting and Media Writing	3	
MEC 102	Survey of Media Communications	3	
MEC 170	Journalism Workshop	3	MEC 101
MEC 188	DeskTop Publishing for Journalism and Media Communication	3	
MEC 199	Co-op Related Class in MEC	1	*
MEC 199	Co-op Work in MEC	2	*
MEC 240	Editing, Layout, and Design	3	MEC 101
MEC 280	Photojournalism	3	MEC 101
MEC 299	Co-op Related Class in MEC	1	MEC 199*
MEC 299	Co-op Work in MEC	2	MEC 199*

**Support Courses**

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
Electives	Complete 15 credit hours from the following: ART 140, 141 BUS 100, 105 CGR 111, 130, 210 GRA 101, 102, 202 MEC 190, 196, 270, 290, 296 MKT 125	15	

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
Social and Behavioral Sciences	3

**Suggested Course Sequence** (Read down.)

WRT 101	Humanities and Fine Arts elective
CSC 100	Social and Behavioral Sciences elective
MEC 101	MEC 199
MEC 102	MEC 280
Science/Mathematics elective	Elective
WRT 102	MEC 299
MEC 170	Elective
MEC 188	Elective
MEC 240	Elective
Science/Mathematics elective	Elective

\*For additional prerequisite information, check course section.

**Print Media Sequence—Liberal Arts and Sciences—Associate of Arts Degree for Transfer**

**Program Identification Code: 345-25-01**

A student planning on obtaining a print media degree should follow the Liberal Arts and Sciences—Associate of Arts Degree for Transfer. Consult the appropriate university transfer option (UA or ASU/NAU).

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 photography. Those interested in publication production should have a background in art, design, 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 A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

## Telecommunications Sequence—Advanced Certificate for Direct Employment

Program Identification Code: 360-20-06

The advanced telecommunications 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 both the one-half-inch VHS and the three-fourths-inch U-Matic formats, make simple repairs to various media equipment, make recommended 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 media communications 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.

### Required Courses (48 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
MEC 102	Survey of Media Communications	3	
MEC 124	Writing for Film and Television	3	MEC 102*
MEC 125	Beginning Video Production	3	MEC 124
MEC 175	Cinematography	3	MEC 124*
MEC 199	Co-op Related Class in MEC	1	*
MEC 199	Co-op Work in MEC	2	*
MEC 211	Lighting for Film and Video	4	MEC 124*
MEC 215	Advanced Cinematography	4	MEC 175
MEC 225	Advanced Video Production	4	MEC 125
MEC 275	Basic Audio Production	3	MEC 124
MEC 276	Advanced Audio Production	4	MEC 275

### Support Courses

MEC 271	Film/Video Production Financing	3	MEC 124
MEC 285	Documentary Television and Film Production	4	MEC 215*

**General Education Courses** (See Graduation section of this catalog for advanced/technical certificate course list.)

Communication	3
Science and/or Mathematics	3
(Select a MAT course at the 100 level or higher.)	

### Suggested Course Sequence (Read down.)

COMM elective	MEC 225	MEC 276
MEC 102	MEC 299	Math elective
MEC 124	MEC 215	MEC 285
MEC 125	MEC 275	
MEC 175	MEC 271	
MEC 199		

\*For additional prerequisite information, check course section.

## Telecommunications Sequence—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 360-20-03

This degree option is designed to qualify students to be television camera persons, videotape editors, television writers, media center directors, audio specialists, producers and directors of small format productions. Students are trained in all aspects of television production, including shooting in the VHS or three-fourths-inch U-Matic formats, editing both formats, planning and producing media productions. The latter involves script writing, location, lighting, equipment purchasing and repair and budgeting. Cooperative education opportunities in the past have included placement in television stations, production companies, industrial production facilities and out-of-state productions as production assistants. Completion of six credit hours is required for co-op placement. Students may also obtain practical experience in all aspects of television production by working on the College news magazine program, Collage. Strong writing skills are important for success in this field. A creative background in art, music, design, computers and electronics is also helpful but not required.

### Required Courses (65 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

CSC 100	Introduction to Computers and Information Systems	3	MAT 092*
MEC 102	Survey of Media Communications	3	
MEC 124	Writing for Film and Television	3	MEC 102*
MEC 125	Beginning Video Production	3	MEC 124
MEC 175	Cinematography	3	MEC 124*
MEC 199	Co-op Related Class in MEC	1	*
MEC 199	Co-op Work in MEC	2	*
MEC 211	Lighting for Film and Video	4	MEC 124*
MEC 215	Advanced Cinematography	4	MEC 175
MEC 225	Advanced Video Production	4	MEC 125
MEC 275	Basic Audio Production	3	MEC 124
MEC 276	Advanced Audio Production	4	MEC 275
MEC 285	Documentary Television and Film Production	4	MEC 215*
ELEC	Electives	6	
	Select two of the following: MEC 101, 145, 265, 270, 271, 280, 281, 299		

### Support Courses

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

**General Education Courses** (See Graduation section of this catalog for associate of applied science course list.)

Communication	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
Social and Behavioral Sciences	3

### Suggested Course Sequence (Read down.)

CSC 100	MEC 275	MEC 276
MEC 124	Science/Mathematics	WRT 102
MEC 175	elective	MEC 214
Science/Mathematics	MEC elective	MEC 285
elective	MEC 199	MEC elective
WRT 101	MEC 225	Social and Behavioral
MEC 102	MEC 211	Sciences elective
MEC 125	Humanities and Fine Arts elective	

\*For additional prerequisite information, check course section.

## Telecommunications Sequence—Liberal Arts and Sciences—Associate of Arts Degree for Transfer

**Program Identification Code: 345-32-01**

A student planning on obtaining a telecommunications degree should follow the Liberal Arts and Sciences—Associate of Arts Degree for Transfer. Consult the appropriate university transfer option (UA or ASU/NAU).

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 A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

## Mexican-American Studies

### Mexican-American Studies—Liberal Arts and Sciences—Associate of Arts Degree for Transfer

**Program Identification Code: 345-33-01**

The Mexican-American Studies program is designed to introduce the student to the history, culture, society, politics, and personality of the Mexican-American in the United States.

Students completing this course will receive an Associate of Arts Degree in Liberal Arts and Sciences. For transfer and for specific courses in Mexican-American Studies, students must consult with a faculty advisor to develop a study plan.



# Microbiology

**Program Identification Code: 345-34-01**

A student planning on obtaining a degree with an option in Microbiology should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

# Molecular/Cellular Biology

**Program Identification Code: 345-35-01**

A student planning on obtaining a degree with an option in Molecular/Cellular Biology should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

# Music

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 advisors are available on the West Campus.

## Music—Associate of Arts Degree for Transfer

**Program Identification Code: 375-00-01**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### Required Courses (71-72 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

Select two of the following three courses:			
MUS 120	Concert Band I	*	
or 130	Chorale (SATB)	*	
or 131	College Singers (SATB)	6	*
MUS 125	The Structure of Music I	3	*
MUS 126	The Structure of Music II	3	MUS 125
MUS 127	Aural Perception I	1	*
MUS 128	Aural Perception II	1	MUS 127
MUS 141	Piano Class I—Music Majors	1	
MUS 142	Piano Class II—Music Majors	1	MUS 141
MUS 143	Piano Class III—Music Majors	1	MUS 142
MUS 144	Piano Class IV—Music Majors	1	MUS 143
MUS 145	Applied Music—Private Instruction	2	
MUS 146	Applied Music—Private Instruction	2	MUS 145
MUS 201	History and Literature of Music I	3	MUS 102
MUS 202	History and Literature of Music II	3	MUS 102
MUS 225	The Structure of Music III	3	MUS 125
MUS 226	The Structure of Music IV	3	MUS 125
MUS 227	Aural Perception III	1	MUS 127
MUS 228	Aural Perception IV	1	MUS 127
MUS 247	Applied Music—Private Instruction	2	MUS 146
MUS 248	Applied Music—Private Instruction	2	MUS 247





**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition	6
Humanities and Fine Arts (Core courses may be used to satisfy this requirement.)	9
Biological and Physical Sciences	8
Mathematics (MAT 142 or above)	3
Social and Behavioral Sciences	9
Other Requirement Options	5-6

**Suggested Course Sequence**

See a music faculty advisor.

\*For additional prerequisite information, check course section.

## Near Eastern Studies

**Program Identification Code: 345-37-01**

A student planning on obtaining a degree with an option in Near Eastern Studies should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

# Nursing

## OVERVIEW

Pima Community College offers a variety of educational alternatives for students who seek to enter the nursing field. These alternatives include programs which prepare graduates to function in the role of registered nurse, licensed practical nurse, and certified nursing assistant.

Upon successful completion of a program, the graduate is eligible to take the required registry and licensure examination. Graduates are prepared to enter the work force at the registered nurse, licensed practical nurse or nursing assistant level.

- The **Associate Degree Nursing Program** can be completed only at the West Campus.
- 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.
- The **Nursing Assistant Program** can be completed at the West Campus or the Center for Training and Development. The nursing assistant program at the Center for Training and Development does not provide college credit.
- A nursing assistant certificate can be granted to the student who successfully completes the first semester nursing course of the Practical Nurse Program or the West Campus Associate Degree Nursing program.

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

**Program Identification Code: 380-00-03**

The Associate Degree Nursing (ADN) Program prepares students to take the State Board exam to become registered nurses.

This program is approved by the Arizona State Board of Nursing and accredited by the National League for Nursing. 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.

Licensing requirements are the exclusive responsibility of the Arizona State Board of Nursing. Graduates must satisfy licensure requirements independently of degree requirements.

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.

The Practical Nurse graduate from the Pima College West Campus or 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 190) and meet all acceptance requirements for admission into the third semester of the Associate Degree Nursing (ADN) Program.

Interested applicants should contact the Nursing Department for specific information.

Admission to the ADN program requires a separate application procedure. Students are encouraged to meet with an advisor.

Students seeking admission to the Associate Degree Nursing program must have completed the following basic requirements and prerequisites before receiving an application:

- 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 152 or higher, or completion of MAT 122 with a grade of "C" or better
- BIO 201 with grade of "C" or better within the last 6 years
- CHM 140 with grade of "C" or better within the last 6 years or one year of high school chemistry within the last 6 years

## General Program Requirements

- Total required credits: 69 credit hours
- ADN coursework: 41 credit hours
- General Education courses: 28 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.

## Required Courses (69 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
NRS 104	Nursing Process I for ADN	8	*
NRS 105	Nursing Process II for ADN	9	NRS 104*
NRS 106	Pharmacology for Associate Degree Nursing	1	NRS 104*
NRS 201	Nursing Process III for ADN	11	NRS 105*
NRS 202	Nursing Process IV for ADN	11	NRS 201*
NRS 203	Trends and Issues II	1	NRS 201*
<b>Support Courses</b> - A grade of C or better is required for graduation.			
BIO 202	Human Anatomy and Physiology II	4	BIO 201
BIO 205	Microbiology	4	*
PSY 101	Introduction to Psychology	4	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
Electives	Any Pima Community College course(s) at the 100-level or higher.	4	

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.) A grade of C or better is required for graduation.

Communication (Support courses satisfy this requirement.)	6
Humanities and Fine Arts	3
Science and/or Mathematics (Support courses satisfy this requirement.)	6
Social and Behavioral Sciences	3

## Required Four Semester Course Sequence (Read down.)

<b>Semester One:</b>	<b>Semester Three:</b>
WRT 101	Social and Behavioral
BIO 202	Science elective
NRS 104	PSY 101
	NRS 201

<b>Semester Two:</b>	<b>Semester Four:</b>
BIO 205	Humanities and Fine
WRT 102	Arts elective
NRS 105	General elective
NRS 106	NRS 202
	NRS 203

## Suggested Course Sequence for Part-Time Study (Read down.)

WRT 101	General electives -
WRT 102	by advisement
PSY 101	Social and Behavioral
BIO 202	Sciences elective
BIO 205	NRS 104
Humanities and Fine	NRS 105 and 106
Arts elective	NRS 201
	NRS 202 and 203

\*For additional prerequisite information, check course section.

## Practical Nursing—Advanced Certificate for Direct Employment

This curriculum provides the theoretical and practical preparation to qualify graduates to apply for licensure by the Arizona State Board of Nursing as practical nurses (PN).

This program is approved by the Arizona State Board of Nursing. Students having satisfactorily completed the curriculum will graduate with an advanced certificate in nursing and will be eligible to take the National Council Licensure Examination (NCLEX-PN) for licensure as a licensed practical nurse (LPN).

Licensing requirements are the exclusive responsibility of the Arizona State Board of Nursing. Graduates must satisfy licensure requirements independently of certificate requirements.

Admission to the PN program requires a separate application procedure.

Students are encouraged to meet with an advisor.

Students seeking admission to the Practical Nursing program must have

completed the following basic requirements and prerequisites before receiving an application:

- 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 or HCA 102 with a grade of "C" or better
- BIO 160 with a grade of "C" or better within the last 6 years
- BIO 204 with a grade of "C" or better within the last 6 years

#### General Requirements

- Total required credits: 27-28 credit hours
- NRS coursework: 21 credit hours
- Other coursework including general education: 6-7 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 Achievement

- Student must receive a "C" grade or better in all courses to progress to the next semester, or to graduate.

### Practical Nursing—Advanced Certificate for Direct Employment

**Program Identification Code: 380-10-06**

#### Required Credits (27-28 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
HCA 155	Introduction to Pharmacology	3	
NRS 101	Nursing Process I for PN	8	*
NRS 102	Nursing Process II for PN	9	NRS 101
NRS 103	Trends and Issues I	1	NRS 101*

#### Support Courses

PSY 100A	Psychology I	
or 101	Introduction to Psychology	
or		
SOC 101	Introduction to Sociology	3-4

#### General Education Courses

Communication		
WRT 101	Writing I	3 WRT 100*
Science and/or Mathematics		3
(Core courses satisfy this requirement.)		

#### Suggested Course Sequence (Read down.)

HCA 155	NRS 101
WRT 101	NRS 102
PSY 100A or 101	NRS 103
or SOC 101	

\*For additional prerequisite information, check course section.

### Nursing Assistant—Basic Certificate for Direct Employment

**Program Identification Code: 380-30-08**

This program provides the basic health care skills students can utilize as nursing assistants in hospitals, long-term facilities and other health care agencies. Graduates are prepared to give patient care under the direct supervision of licensed health personnel. Students who satisfactorily complete this curriculum will receive a Nursing Assistant Basic Certificate and may apply to take the national certification examination. The program has approval from the Consortium for Nursing Assistant Programs in the State of Arizona and the Arizona Board of Nursing.

Admission into the NA program requires a separate application process.

Students are encouraged to meet with an advisor.

Students seeking admission to the Nursing Assistant Program must have completed the following basic requirements before receiving an application:

- Admission to Pima Community College
- Completion of Math and Reading assessments
- Reading assessment test at the level of REA 091 or completion of REA 081 with a grade of "C" or better
- If taken prior to program admission, required biology course must have been completed within the past six years

## General Requirements

- Total credits: 12 credit hours

Nursing assistant graduates interested in preparing for the practical nurse or associate degree nursing programs should consult with their nursing advisor.

## Restrictions

- Correspondence and extension study from an accredited institution is limited and subject to approval by the program department chairperson.

## Minimal Grade Achievements

- Students must receive a "C" grade or better in all courses to progress to the next semester or to graduate.

## Required Courses (12 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
BIO 160	Introduction to Human Anatomy and Physiology	4	
HCA 154	Introduction to Health Care	3	
NRA 101	Nursing Assistant I	5	*

## Suggested Course Sequence (Read down.)

BIO 160  
HCA 154  
NRA 101

\*For additional prerequisite information, check course section.

# Pharmacy Technology

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 drughouses 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. 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.

Admission to the Pharmacy Technology program requires a separate application procedure.

Students are encouraged to meet with an advisor.

Students seeking admission to the Pharmacy Technology program must have completed the following basic requirements before receiving an application:

- 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: 37-38 credit hours  
PHT coursework: 31 credit hours  
Other coursework including General Education: 6-7 credit hours
- Total required credits for the AAS Degree: 70 credit hours  
PHT coursework: 34 credit hours  
Other coursework including General Education: 36 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—Technical Certificate for Direct Employment

Program Identification Code: 390-00-05

### Required Courses (37-38 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
PHT 170	Introduction to Pharmacy Technology	2	
PHT 171	Pharmaceutical Calculations	3	
PHT 172	Drug Therapy I	4	
PHT 174	Pharmacy Operations	3	PHT 171*
PHT 178	Pharmacy Microcomputers	3	
PHT 180	Sterile Products	4	PHT 174
PHT 181	Interprofessional Relations in Pharmacy	2	PHT 170*
PHT 182	Drug Therapy II	4	
PHT 190	Pharmacy Technician Internship	4	*
PHT 193	Clinical Seminar	2	*

### Support Courses

BIO 100	Biology Concepts		
or 181	General Biology (Majors) I		*
or MAT 122	Intermediate Algebra		MAT 092*
or MAT 152	College Algebra	3-4	MAT 122*
WRT 101	Writing I	3	WRT 100*

### General Education Courses

Communication	3
(Support courses satisfy this requirement.)	
Science and/or Mathematics	3
(Support courses satisfy this requirement.)	

### Suggested Course Sequence

See a pharmacy technology faculty advisor.

\*For additional prerequisite information, check course section.

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

Program Identification Code: 390-00-03

### Required Courses (70 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
PHT 170	Introduction to Pharmacy Technology	2	
PHT 171	Pharmaceutical Calculations	3	
PHT 172	Drug Therapy I	4	
PHT 174	Pharmacy Operations	3	PHT 171*
PHT 178	Pharmacy Microcomputers	3	
PHT 180	Sterile Products	4	PHT 174
PHT 181	Interprofessional Relations in Pharmacy	2	PHT 170*
PHT 182	Drug Therapy II	4	
PHT 190	Pharmacy Technician Internship	4	*
PHT 191	Pharmacy Technician Administration	3	*
PHT 193	Clinical Seminar	2	*

### Support Courses

BIO 100	Biology Concepts		
or 181	General Biology (Majors) I	4	*
BIO 105	Environmental Biology		
or 182	General Biology (Majors) II	4	BIO 181*
CHM 130	Fundamental Chemistry		
or 151	General Chemistry I	5	MAT 122*
CHM 140	Fundamental Organic and Biochemistry		CHM 130*
or 152	General Chemistry II	5	CHM 151
MAT 152	College Algebra	3	MAT 122*
SPE 120	Business and Professional Communication	3	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

**General Education Requirements** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication (Support courses satisfy this requirement.)	6
Humanities and Fine Arts	3
Science and/or Mathematics (Support courses satisfy this requirement.)	6
Social and Behavioral Sciences	3

**Suggested Course Sequence**

See a pharmacy technology faculty advisor.

\*For additional prerequisite information, check course section.

**PRE-BACCALAUREATE PHARMACY DEGREE**

Students should check with a Pima Community College counselor or faculty advisor or with the transfer university or college.

## Philosophy

**Program Identification Code: 345-38-01**

A student planning on obtaining a degree with an option in Philosophy should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

## Physics

**Physics—Liberal Arts and Sciences—Associate of Arts Degree for Transfer**

**Program Identification Code: 345-39-01**

A student planning on obtaining a physics degree should follow the Liberal Arts and Sciences—Associate of Arts Degree for Transfer. Consult the appropriate university transfer option (UA or ASU/NAU).

A student seeking a degree must take the math, writing, and reading assessment exams. The student should then meet with a physics 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 from their chosen school for verification of transfer courses.

## Political Science

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 may be recognized by some employers for entry level positions.

Students planning to transfer to the University of Arizona, Arizona State University, or Northern Arizona University should see an advisor for require-



ments unique to each school. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section. Please note that 72 credits may be transferred to the University of Arizona and only 64 credits may be transferred to Arizona State University, and only 70 credits may be transferred to Northern Arizona University.

## Political Science—Associate of Arts Degree for Transfer

**Program Identification Code: 400-00-01**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### Required Courses (60-66 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

**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

### Support Courses

ARTS	Fine Arts	3
	Select one course from the following:	
	ART 100, 110, 115, 120, 130, 131	
	MUS 102, 105, 108, 109, 116, 117, 120, 121, 125, 127, 130, 131, 151	

## FOREIGN LANGUAGE REQUIREMENT 4-16

Completion of a language course numbered 211, fourth-semester level, or completion of SPA 202 or SLG 202. (Bilingual or international students should consult an advisor 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.**

## SPEECH/LIT 3-6

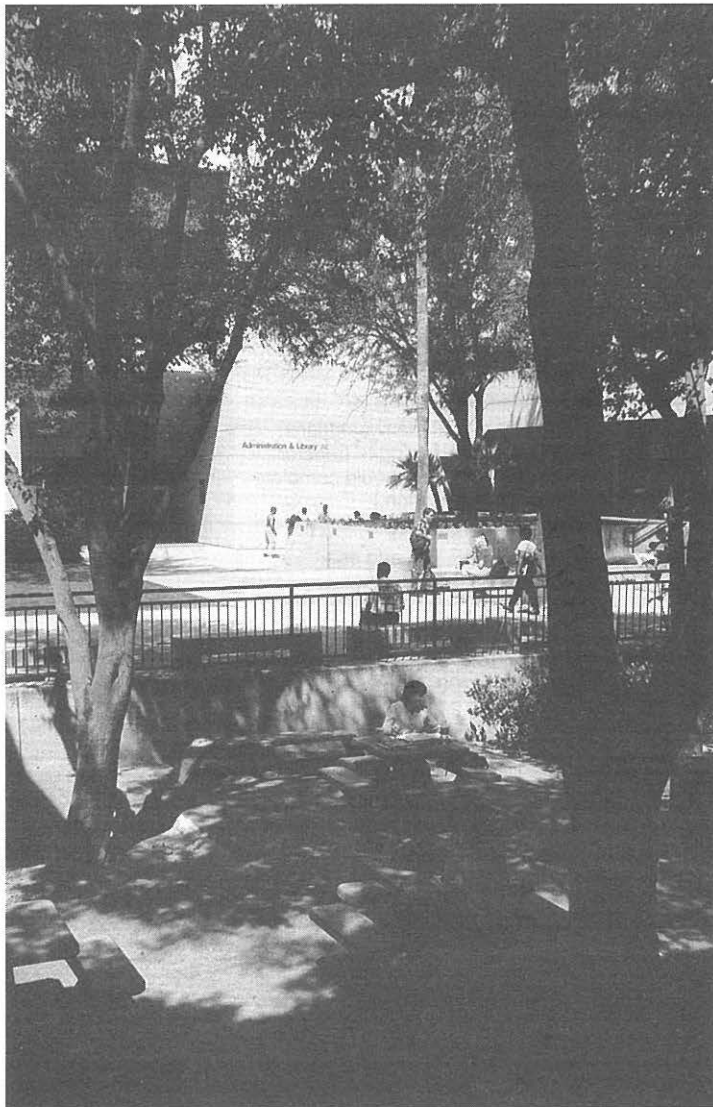
Speech and Literature  
Select one of the two options:  
(Students planning to transfer to ASU or NAU should complete the Speech option.)

Option 1: Speech  
Select SPE 136 and one additional speech course:  
SPE 102, SPE 110, SPE 130

Option 2: Literature  
Select one course from:  
LIT 231, 260, 261, 262, 265, 266, 276, 268, 286  
REL 120, 121

## NON-WEST CIV 3

Non-Western Civilization  
Select one course from the following list:  
ANT 205, 206  
ARC 205  
HIS 113, 114, 122, 124, 148, 170  
HUM 260  
REL 234



**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition 6

Humanities and Fine Arts 9

(Support course satisfies 3 credits of this requirement.) Select one option for 6 credits from:

Option 1: ART 130, 131

Option 2: HIS 101, 102

Option 3: HUM 251, 252, 253

Option 4: HUM 110, 111

Biological and Physical Sciences 8

(See an advisor for proper course selection for transferability.)

Mathematics (Complete MAT 142 or above.) 3

Social and Behavioral Sciences 9

(Core courses satisfy this requirement.

However, if the student plans to transfer to the University of Arizona, one additional course containing unique content in matters of gender, class, race, or ethnicity is recommended. Currently HIS 105, HIS 127, HIS 150, SOC 201 and SOC 204 meet the University of Arizona requirement.)

Other Requirement Options 5-6

(Support courses satisfy this requirement.)

### **Suggested Course Sequence**

See a political science advisor.

# Portuguese

**Program Identification Code: 345-41-01**

A student planning on obtaining a degree with an option in Portuguese should follow the Liberal Arts and Sciences Associate Degree for Transfer. See an advisor and complete a program of study form using the Transfer Guide.

# Pre-Law

**Program Identification Code: 345-00-01**

Students interested in the area of Pre-Law should consult the catalog of the university to which they plan to apply. Students should also see the Pre-Law advisor at the university they plan to attend.

# Pre-Optical Sciences, Interdisciplinary Sciences

This interdisciplinary science program is designed to prepare students for transfer to a four-year institution and to pursue not only a bachelor of science degree in the areas of chemistry, physics, mathematics, applied mathematics, astronomy or planetary sciences, but also to continue toward an advanced degree in optical sciences and other related science fields. This degree transfers well to all three state universities; however, if the student plans to transfer to Arizona State University, the student needs to see an advisor for the selection of the support courses.

The curriculum design, through its emphasis on mathematical preparation and physical science principles, provides a course of study to meet the special needs and interests of individual students. A wide variety of courses that are available for program planning offers the student maximum flexibility in achieving a broad interdisciplinary science background.

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty

advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

## Pre-Optical Sciences, Interdisciplinary Sciences— Associate of Science Degree for Transfer

**Program Identification Code: 320-00-02**

**Required Courses (70-72 Credit Hours)**

Course Number	Course Title	Credit Hour	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

CHM 151	General Chemistry I	5	MAT 122*
CHM 152	General Chemistry II	5	CHM 151
MAT 220	Calculus I	5	MAT 182*
MAT 231	Calculus II	4	MAT 220
MAT 241	Calculus III	4	MAT 231
MAT 262	Differential Equations	3	MAT 241
MAT 252	Introduction to Linear Algebra	3	MAT 241
PHY 210	Introductory Mechanics	5	MAT 220*
PHY 216	Introductory Electricity and Magnetism	5	PHY 210*
PHY 221	Introduction to Waves and Heat	4	PHY 210*
PHY 230	Introduction to Modern Physics	3	PHY 210*

### Support Courses

Complete two courses from the following:  
CSC 140, 230  
ENG 102, 170, 260, 261  
MAT 227

6-8

**General Education Requirements** (See Graduation section of this catalog for associate of science degree course list.)

English Composition	6
Humanities and Fine Arts	6
Biological and Physical Sciences (Satisfied by core courses.)	8-10
Mathematics (Satisfied by core courses.)	6
Social and Behavioral Sciences (Students who wish to enroll in an economics course should select ECN 200.)	6
Other Requirement Options (Satisfied by core courses.)	8-10

#### **Suggested Course Sequence**

See a faculty advisor.

\*For additional prerequisite information, check course section.

## **Psychology**

**Program Identification Code: 345-43-01**

A student planning on obtaining a degree with an option in Psychology should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

## **Public Administration**

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 advisors. 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 A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section. Please note that 72 credits may be transferred to the University of Arizona and only 64 credits may be transferred to Arizona State University and Northern Arizona University. Students should check with program advisors (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 152 or satisfactory score on mathematics assessment.

## Public Administration—Associate of Science Degree for Transfer

### Program Identification Code: 410-00-02

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### Required Courses (71-75 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

ACC 101	Financial Accounting	3	
ACC 173	Introduction to Fund Accounting	3	ACC 101
BUS 205	Statistical Methods in Economics and Business I	3	MAT 172*
CSC 100	Introduction to Computers and Information Systems	3	MAT 092*
ECN 200	Basic Economic Principles	3	MAT 092
MAT 152	College Algebra	3	MAT 122*
MAT 172	Finite Mathematics	3	MAT 152
MAT 212	Topics in Calculus	3	MAT 152
PAD 105	Introduction to Public Administration	3	
PAD 204	Introduction to the Analysis of Data for Decision Making	3	

### Support Courses

Please complete both requirements:

Ethics Requirement—Select one course:	3
PHI 101 Introduction to Philosophy I	
PHI 130 Introductory Studies in Ethics and Social Philosophy	

International and Multicultural Requirement:

Complete both courses:

GEO 103 Cultural Geography	4
POS 120 Introduction to International Relations	3

**General Education Requirements** (See Graduation section of this catalog for associate of science degree course list.)

English Composition	6
Humanities and Fine Arts (Select 6 credits from: HIS 101, 102; HUM 110, 111, 251, 252, 253, 260; PHI 140; REL 140)	6
Biological and Physical Sciences	8-10
Mathematics (Core courses satisfy this requirement.)	6
Social and Behavioral Sciences (Support courses satisfy 3 credits. Select 3 additional credits from: HIS 113, 114, 170; REL 234)	6
Other Requirement Options (Select 8-10 credits from Option (C) Foreign Languages list in the Graduation section of this catalog.)	8-10

### Suggested Course Sequence

See an advisor.

\*For additional prerequisite information, check course section.

# Radiologic Technology

Radiologic technology is a health sciences career which deals with diagnostic medical imaging. The associate of applied science degree program prepares 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. Technologists with additional training can specialize in radiation therapy, nuclear medicine, special procedures, ultrasound, CT scanning or magnetic resonance imaging. 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 an advisor.

Students seeking admission to the Radiologic Technology program must have completed the following basic requirements before receiving an application:

- 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 152 or higher, or completion of MAT 122 with a grade of "C" or better
- BIO 201 with a grade of "C" or better within the last 6 years

## General Requirements

- Total required credits: 82 credit hours
- RAD coursework: 63 credit hours
- Other coursework including General Education courses: 19 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

Program Identification Code: 420-00-03

### Required Courses (82 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

BIO 202	Human Anatomy and Physiology II	4	BIO 201
RAD 171	Medical Imaging Fundamentals	4	*
RAD 172	Medical Imaging Technology I	4	RAD 171*
RAD 173	Radiographic Positioning I	4	RAD 171*
RAD 174	Clinical Education I	4	RAD 171*
RAD 175	Clinical Education II	6	RAD 172*
RAD 181	Medical Imaging Technology II	4	RAD 175
RAD 182	Radiographic Positioning II	4	RAD 175
RAD 183	Clinical Education III	6	RAD 175
RAD 184	Medical Imaging Technology III	4	RAD 181*
RAD 185	Radiographic Positioning III	4	RAD 181*
RAD 186	Clinical Education IV	6	RAD 181*
RAD 188	Clinical Education V	6	RAD 184*
RAD 191	Clinical Education VI	6	RAD 188*
RAD 192	Clinical Seminar	1	RAD 188*

### Support Courses

CSC 105	Survey of Microcomputer Uses	3	
PSY 100A	Psychology I	3	
WRT 101	Writing I	3	WRT 100*
WRT 154	Technical Communications I	3	WRT 100*

### General Education Courses (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
(Support courses satisfy this requirement.)	
Social and Behavioral Sciences	3
(Support courses satisfy this requirement.)	

### Suggested Course Sequence

See a radiologic technology faculty advisor.

\*For additional prerequisite information, check course section.

## Real Estate

The real estate program is designed to fulfill industry needs in the Tucson area. There are three options in real estate sales/brokerage: a basic and an advanced certificate for direct employment 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, real estate law, communications, and small business management. Training in real estate is offered through a one-semester basic and a two-semester advanced certificate program and also through a two-year associate of applied science degree program.

The basic 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 of real estate education which can be met by taking RLS 105 or RLS 101 and RLS 102 or RLS 101 and RLS 201. Persons interested in becoming brokers should take the advanced certificate program. However, three years of experience in real estate are also required to take the state license examination in brokerage.

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.

## Real Estate Sales/Brokerage—Basic Certificate for Direct Employment

Program Identification Code: 425-10-08

### Required Courses (15 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
RLS 101	Introduction to Real Estate Principles		
and 102	Real Estate Practices		RLS 101*
or 105	Principles of Real Estate/ License Preparation	6	

### Support Courses

BUS 200	Business Law I	3	
FIN 205	Real Estate Finance		
or			
RLS 205	Real Estate Finance	3	
WRT 150	Practical Communications	3	

### Suggested Course Sequence (Read down.)

RLS 101 and 102 or 105  
WRT 150  
FIN 205 or RLS 205  
BUS 200

\*For additional prerequisite information, check course section.

## Real Estate Sales/Brokerage—Advanced Certificate for Direct Employment

Program Identification Code: 425-10-06

### Required Courses (30 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate requirements		15	
<b>Core Courses</b> - A grade of C or better is required for graduation.			
RLS 201	Real Estate Law	3	
RLS 202	Real Estate Appraisal	3	



**Support Course**

MKT 113 Professional Sales 3

**General Education Requirements**

## Communication

SPE 120 Business and Professional Communication 3

## Science and/or Mathematics

BUS 151 Mathematics of Business 3 MAT 082

**Suggested Course Sequence** (Read down.)

## Basic Certificate Requirements

BUS 151

RLS 201

SPE 120

MKT 113

RLS 202

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

Program Identification Code: 425-10-03

**Required Courses (60 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

MKT 113	Professional Sales	3	
RLS 101	Introduction to Real Estate Principles		
and 102 or 105	Real Estate Practices Principles of Real Estate/ License Preparation		RLS 101*
RLS 201	Real Estate Law	6	
RLS 202	Real Estate Appraisals	3	
RLS 205	Real Estate Finance	3	

**Support Courses**

ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101*
CSC 105	Survey of Microcomputer Uses	3	
ECN 201	Microeconomic Principles	3	MAT 092
ECN 202	Macroeconomic Principles	3	MAT 092
MAN 110	Human Relations in Business and Industry	3	
MAN 124	Small Business Management	3	
ELEC	Real Estate Electives (complete three courses at the 100 level or higher from the following areas: BUS, ECN, FIN, MAN, MKT)	9	

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree list.)

## Communication

SPE 120 Business and Professional Communication 3

WRT 150 Practical Communications 3

Humanities and Fine Arts 3

Science and/or Mathematics 6

Complete BUS 151, Mathematics of Business for 3 credits.

(The remainder of this requirement is satisfied by support courses.)

Social and Behavioral Sciences 3  
(Support courses satisfy this requirement.)

**Suggested Course Sequence** (Read down.)

## Reading requirement

WRT 150	RLS 202	MKT 113
BUS 151	MAN 110	ECN 202
RLS 105	ECN 201	MAN 124
CSC 105	ACC 102	SPE 120
ACC 101	HUM/ART Elective	Real Estate Electives
RLS 201	RLS 205	

\*For additional prerequisite information, check course section.

# Regional Development

**Program Identification Code: 345-44-01**

A student planning on obtaining a degree with an option in Regional Development should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

# Religious Studies

**Program Identification Code: 345-46-01**

A student planning on obtaining a degree with an option in Religious Studies should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

# Reserve Officers Training Corps (ROTC)

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 con-

tinue 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—Basic Certificate

**Program Identification Code: 370-10-08**

**Required Courses (8 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
MLA 100A	Air Force Today I	2	
MLA 100B	Air Force Today II	2	
MLA 200A	History of Air Power I	2	
MLA 200B	History of Air Power II	2	

**Suggested Course Sequence** (Read down.)

MLA 100A  
MLA 100B  
MLA 200A  
MLA 200B

## Army ROTC—Basic Certificate

**Program Identification Code: 370-20-08**

**Required Courses (12 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - 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	

**Suggested Course Sequence** (Read down.)

MLS 100  
MLS 101  
MLS 200  
MLS 201

## Navy ROTC—Basic Certificate

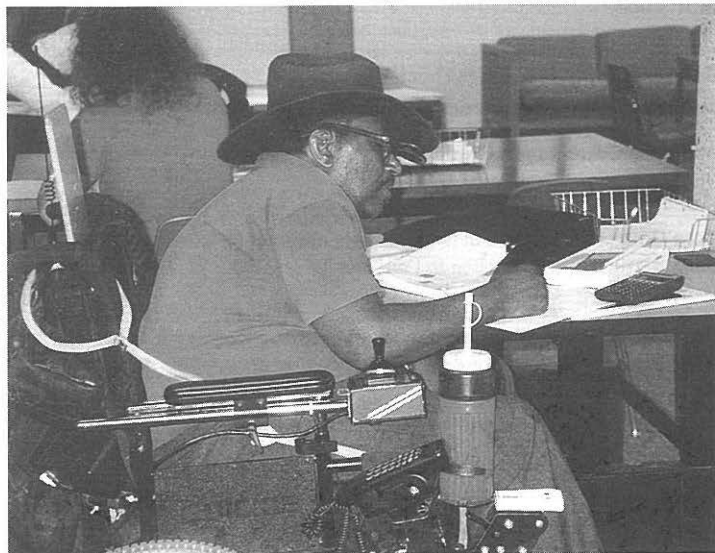
Program Identification Code: 370-30-08

### Required Courses (13 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - 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	

### Suggested Course Sequence (Read down.)

NSP 100	NSP 200
NSP 101	NSP 201
NSP 102	NSP 202



## Respiratory Therapist Program

This 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.

Respiratory care is a health science specialty which deals with the 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 aerosols, inhaled medications, ventilator management, chest physiotherapy, rehabilitation, airway management and cardiopulmonary resuscitation. Students also learn a variety of techniques used in the diagnosis, monitoring and treatment 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, physical therapists and other health technologists.

The associate degree program consists of five semesters of professional (RTH) and support courses. Students, which have completed all the required courses, enter the hospital portion of their program beginning with the third semester. Graduates of the Respiratory Therapist program will receive an associate of applied science degree in respiratory care.

The graduate of the Respiratory Therapist program may seek immediate employment and application to the National Board for Respiratory Care (NBRC) for the entry-level certification examination (CRTT) upon completion of this AMA-approved program. He or she may also apply for entry into an internship or baccalaureate program and for registration as a Registered Respiratory Therapist (RRT) through the NBRC. The RRT usually works in hospitals, clinics or laboratories. 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.

Students seeking admission to the Respiratory Therapist program must have completed the following basic requirements before receiving an application:

- 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 MAT 092 with a grade of "C" or better
- BIO 160 with a grade of "C" or better

## General Requirements

- Total required credits: 70 to 72 credit hours
- RTH coursework: 50 to 52 credit hours
- Other courses including General Education courses: 20 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.

## Respiratory Care—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 430-00-03

### Required Courses (70-72 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

RTH 171	Introduction to Respiratory Care	4	*
RTH 173	Pharmacology for Respiratory Therapists	3	RTH 171*
RTH 182	Respiratory Physiology	4	BIO 160*
RTH 183	Basic Therapeutics in Respiratory Care	5	RTH 171
RTH 184	Critical Care Therapeutics	5	RTH 173*
RTH 185	Diagnostic Studies	3	RTH 182
RTH 186	Cardiorespiratory Disorders I	3	RTH 173*
RTH 187	Advanced and Specialty Therapeutics	5	RTH 184*
RTH 189	Cardiorespiratory Disorders II	3	RTH 186*
RTH 191	Clinical Procedures I	4	RTH 173*
RTH 192	Clinical Procedures II	4	RTH 191*
RTH 193	Clinical Procedures III	6	RTH 192*

## Support Courses

CHM 130	Fundamental Chemistry	5	
MAT	Determined by assessment test at the level of MAT 122 or higher	3	
PSY 100A	Psychology I	3	
RTH 180	Microbiology for Respiratory Therapists		BIO 160*
or 181	Infection Control for Respiratory Care	1-3	BIO 205
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II		WRT 101
or 150	Practical Communications	3	

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
(Support courses satisfy this requirement.)	
Social and Behavioral Sciences	3
(Support courses satisfy this requirement.)	

### Suggested Course Sequence (Read down.)

Reading requirement	RTH 173	RTH 192
WRT 101	RTH 183	RTH 187
Math course	RTH 182	RTH 189
BIO 160	RTH 191	RTH 193
CHM 130	PSY 100A	Humanities and Fine Arts elective
RTH 171	RTH 184	
WRT 102 or 150	RTH 185	
RTH 180 or 181	RTH 186	

\*For additional prerequisite information, check course section.

# Russian

**Program Identification Code: 345-47-01**

A student planning on obtaining a degree with an option in Russian should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

# Russian and Soviet Studies

**Program Identification Code: 345-48-01**

A student planning on obtaining a degree with an option in Russian and Soviet Studies should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

# Social Services

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.

There are two degree programs available: a two-year associate of applied science (AAS) for direct employment and a two-year associate of arts (AA) for transfer to a university. Students are strongly recommended to see a Social Service faculty advisor 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 caregiver 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 gerontology specialty degrees add a skill and knowledge base which emphasizes the special needs the elderly present in social service settings, social issues created by an aging population, special health problems of the elderly and treatment alternatives in the field of gerontology.

In addition to the associate degree programs, four basic 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 basic 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 basic 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 basic 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.

The basic certificate in eating disorders provides core understanding of the symptoms, causes, and treatment modalities of this problem in both youth and adults.

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 basic certificate in Social Services.

Students applying for graduation in an associate degree program must demonstrate competency in reading.

The Social Services Field Experience (SSE 290) is required for those seeking the associate of applied science degree in Social Services or the Social Services Substance Abuse Specialty. SSE 191, Field Placement Gerontology I, and SSE 291, Field Placement Gerontology II, are required for those seeking the Social Services Gerontology Specialty Associate of Applied Science degree. The associate of arts degree in the Social Services Gerontology Specialty requires completing only SSE 191, Field Placement Gerontology I. In these courses, the student performs a minimum of 240 hours of supervised work in a helping setting relevant to his/her career interests. While it is highly recommended for all students in Social Services, it is not required for those seeking a basic certificate or an associate of arts degree.

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 about the best way to schedule classes.

## Social Services—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 435-00-03

### Required Courses (61 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

### 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 112	Casework Methods I	3	
SSE 210	Community Organization and Development	3	SSE 110
SSE 211	Group Technique Applications	3	SSE 111
SSE 212	Casework Methods II	3	SSE 112
SSE 290	Social Services Field Experience	4	SSE 112*

### Support Courses

SSE ELEC	May be fulfilled by taking an SSE course which is not listed as a core course.	3
ELECTIVES	Any courses numbered 100 or higher.	18

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

### Communication

Complete the following:

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

Humanities and Fine Arts 3

Science and/or Mathematics 6

Social and Behavioral Sciences 3

### Suggested Course Sequence

See a social services faculty advisor.

\*For additional prerequisite information, check course section.

## Social Services—Associate of Arts Degree for Transfer

Program Identification Code: 435-00-01

Verification of transfer courses should be established with the transfer university or college, or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### Required Courses (61-62 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		



**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 112	Casework Methods I	3	
SSE 210	Community Organization and Development	3	SSE 110
SSE 211	Group Technique Applications	3	SSE 111
SSE 212	Casework Methods II	3	SSE 112

#### Support Courses

SSE 290	Social Services Field Experience	**	SSE 112*
SSE ELEC	May be fulfilled by taking an SSE course which is not listed as a core course.	3	

**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition

Complete the following:

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

Humanities and Fine Arts 9

Biological and Physical Sciences 8

Mathematics (MAT 142 or above) 3

Social and Behavioral Sciences 9

Other Requirement Options 5-6

#### Suggested Course Sequence

See a social services faculty advisor.

\*For additional prerequisite information, check course section.

\*\*Optional. Recommended but not required. May be used to fulfill SSE elective requirement.

## Social Services Gerontology Specialty—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 435-10-03

#### Required Courses (61 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

SOC 166	Social Gerontology I		
or			
PSY 220	The Psychology of Death and Loss	3	PSY 100A*
SSE 110	Introduction to Social Welfare	3	
SSE 111	Group Work	3	
SSE 112	Casework Methods I	3	
SSE 130	Gerontology: Casework Practice	3	SSE 112*
SSE 132	Aging: Health and Physiology	3	SSE 130*
SSE 191	Field Placement Gerontology I	4	SSE 110*
SSE 210	Community Organization and Development	3	SSE 110
SSE 211	Group Technique Applications	3	SSE 111
SSE 212	Casework Methods II	3	SSE 112
SSE 291	Field Placement Gerontology II	3	SSE 191

#### Support Courses

ELECTIVES Any course numbered 100 or higher. 9

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication

Complete the following:

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
Humanities and Fine Arts		3	
Science and Mathematics		6	
Social and Behavioral Sciences		3	

#### Suggested Course Sequence

See a social services faculty advisor.

\*For additional prerequisite information, check course section.



## Social Services Gerontology Specialty—Associate of Arts Degree for Transfer

Program Identification Code: 435-10-01

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### Required Courses (71-72 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

SOC 166	Social Gerontology I		
or			
PSY 220	The Psychology of Death and Loss	3	PSY 100A*
SSE 110	Introduction to Social Welfare	3	
SSE 111	Group Work	3	
SSE 112	Casework Methods I	3	
SSE 130	Gerontology: Casework Practice	3	SSE 112*
SSE 132	Aging: Health and Physiology	3	SSE 130*
SSE 191	Field Placement Gerontology I	4	SSE 110*
SSE 210	Community Organization and Development	3	SSE 110
SSE 211	Group Technique Applications	3	SSE 111
SSE 212	Casework Methods II	3	SSE 112

**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition

WRT 101 Writing I 3 WRT 100\*

WRT 102 Writing II 3 WRT 101

Humanities and Fine Arts 9

Biological and Physical Sciences 8

Mathematics (MAT 142 or above) 3

Social and Behavioral Sciences 9

Other Requirement Options 5-6

### Suggested Course Sequence

See a social services faculty advisor.

\*For additional prerequisite information, check course section.

## Social Services Substance Abuse Specialty—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 435-20-03

### Required Courses (61 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

**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 112	Casework Methods I	3	
SSE 120	Drugs in American Society	3	
SSE 122	Introduction to Alcohol Abuse	3	
SSE 210	Community Organization and Development	3	SSE 110
SSE 211	Group Technique Applications	3	SSE 111
SSE 212	Casework Methods II	3	SSE 112
SSE 220	Treatment of the Substance Abuser	3	SSE 120*
SSE 222	Political and Legal Aspects of Drug Use	3	SSE 120*
SSE 290	Social Services Field Experience	4	SSE 112*

### Support Courses

ELECTIVES Courses numbered 100 or higher. 9

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication		
WRT 101	Writing I	3 WRT 100*
WRT 102	Writing II	3 WRT 101
Humanities and Fine Arts		3
Science and/or Mathematics		6
Social and Behavioral Sciences		3

### **Suggested Course Sequence**

See a social services faculty advisor.

\*For additional prerequisite information, check course section.

## **Social Services Substance Abuse Specialty—Associate of Arts Degree for Transfer**

**Program Identification Code: 435-20-01**

Verification of transfer courses should be established with the transfer university or college, or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### **Required Courses (70-71 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

### **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 112	Casework Methods I	3	
SSE 120	Drugs in American Society	3	
SSE 122	Introduction to Alcohol Abuse	3	
SSE 210	Community Organization and Development	3	SSE 110
SSE 211	Group Technique Applications	3	SSE 111
SSE 212	Casework Methods II	3	SSE 112

SSE 220	Treatment of the Substance Abuser	3	SSE 120*
SSE 222	Political and Legal Aspects of Drug Use	3	SSE 120*

### **Support Courses**

SSE 290	Social Services Field Experience	**	SSE 112*
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**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition		
WRT 101	Writing I	3 WRT 100*
WRT 102	Writing II	3 WRT 101
Humanities and Fine Arts		9
Biological and Physical Sciences		8
Mathematics (MAT 142 or above)		3
Social and Behavioral Sciences		9
Other Requirement Options		5-6

### **Suggested Course Sequence**

See a social services faculty advisor.

\*For additional prerequisite information, check course section.

\*\* Optional. Recommended but not required.

## **Social Services—Basic Certificate**

**Program Identification Code: 435-00-08**

### **Required Courses (18 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses - A grade of C or better is required for graduation.</b>			
SSE 110	Introduction to Social Welfare	3	
SSE 111	Group Work	3	
SSE 112	Casework Methods I	3	
SSE 210	Community Organization and Development	3	SSE 110
SSE 211	Group Technique Applications	3	SSE 111
SSE 212	Casework Methods II	3	SSE 112

### **Suggested Course Sequence**

See a social services faculty advisor.

## Social Services Substance Abuse—Basic Certificate

Program Identification Code: 435-20-08

### Required Courses (18 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
SSE 110	Introduction to Social Welfare	3	
SSE 112	Casework Methods I	3	
SSE 120	Drugs in American Society	3	
SSE 122	Introduction to Alcohol Abuse	3	
SSE 220	Treatment of the Substance Abuser	3	SSE 120*
SSE 222	Political and Legal Aspects of Drug Use	3	SSE 120*

### Suggested Course Sequence

See a social services faculty advisor.

\*For additional prerequisite information, check course section.

## Social Services Domestic Violence Intervention—Basic Certificate

Program Identification Code: 435-30-08

### Required Courses (18 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
SOC 127	Marriage and the Family (Same as HEC 127)	3	
SSE 110	Introduction to Social Welfare	3	
SSE 112	Casework Methods I	3	
SSE 140	Domestic Violence: Causes and Cures	3	
SSE 146	Child Abuse Intervention and Protection	3	
SSE 242	Crisis Intervention, Theory and Techniques	3	SSE 112

### Suggested Course Sequence

See a social services faculty advisor.

## Social Services Eating Disorders—Basic Certificate

Program Identification Code: 435-40-08

### Required Courses (18 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
SSE 110	Introduction to Social Welfare	3	
SSE 112	Casework Methods I	3	
SSE 150	Introduction to Eating Disorders	3	
SSE 151	Treatment Modalities for Eating Disorders	3	
SSE 152	Medical Aspects of Eating Disorders	3	
SSE 154	Nutrition	3	

### Suggested Course Sequence

See a social services faculty advisor.



# Sociology

## Sociology—Associate of Arts Degree for Transfer

Program Identification Code: 440-00-01

The associate of arts degree in sociology prepares the student to transfer to a four-year college or university and pursue a degree in sociology. After successfully completing this program students should be eligible to take upper division classes at a four-year institution. Students should consult the catalog for the institution to which they plan to transfer in order to establish the graduation and sociology major requirements and determine the transferability of Pima College courses.

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

Students may transfer 72 credits to the University of Arizona but may only transfer 64 credits to Arizona State University, and may only transfer 70 credits to Northern Arizona University.

### Required Courses (60-66 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		
<b>Core Courses</b> - A grade of C or better is required for graduation.			
SOC 101	Introduction to Sociology	3	
SOC 201 or 204	Minority Relations and Urban Society Women in Society	3	
ELEC	Sociology Elective	3	
	Select one course from the following:		
SOC 103	Explorations in Prejudice		SOC 101
SOC 110	Introduction to Cities and Community Planning		SOC 101
SOC 120	Current United States Social Problems		SOC 101
SOC 127	Marriage and the Family		
SOC 166	Social Gerontology I		
SOC 203	Sociology of Utopia		

### Support Courses

#### FOREIGN LANGUAGE REQUIREMENT 4-16

Completion of a language course numbered 211, fourth-semester level, or completion of SPA 202 or SLG 202. (Bilingual or international students should consult an advisor 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.**

#### ART REQUIREMENT 3-6

Select from the following:

ART 100, 110, 115, 120, 130, 131  
MUS 102, 104, 105, 108, 109, 116, 117, 120, 121, 125, 127, 130, 131, 151

#### NON-WESTERN CIVILIZATION REQUIREMENT 3

Select one course from the following list (if transferring to ASU, REL 234 is suggested):  
ANT 205, 206,  
ARC 205  
HIS 113, 114, 122, 124, 148, 170  
HUM 260  
REL 234

#### SPEECH REQUIREMENT 6

The following speech courses meet general education requirements at Arizona State University, Northern Arizona University, and University of Arizona. Complete SPE 136 and select one course from the following list:  
SPE 136 **AND** SPE 102, 110, or 130

**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition 6

Humanities and Fine Arts 9

(Support course satisfies three credits of this requirement.) Select one of the following options listed below for 6 credits.

Option 1: ART 130, 131

Option 2: HIS 101 or 102 and one from:  
HIS 101, 102, 141, 142, 160, 161

Option 3: HUM 251, 252, 253

Option 4: HUM 110, 111

Biological and Physical Sciences 8

Mathematics (Complete MAT 142 or above.) 3

Social and Behavioral Sciences 9

(Core courses satisfy 6 of the 9 credits.) Select 3 additional credits.

Other Requirement Options 5-6  
(Support courses satisfy this requirement.)

### **Suggested Course Sequence**

See a sociology faculty advisor.

## **Spanish**

### **Program Identification Code: 345-52-01**

A student planning on obtaining a degree with an option in Spanish should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

## **Speech and Hearing Sciences**

### **Program Identification Code: 345-54-01**

A student planning on obtaining a degree with an option in Speech and Hearing Sciences should follow the Liberal Arts and Sciences Associate Degree for Transfer.

See an advisor and complete a program of study form using the Transfer Guide.

## **Speech Communication**

The speech communication area offers an associate of arts degree for transfer which helps prepare students for careers requiring extensive interaction with the public: business, law, education, politics, public relations, sales and theology. The program develops and improves skills in public address, interpersonal communication and group communication in social and career settings.

Students in this program may also improve their communication skills by participating in forensic activities such as speaking before community audiences and competing in inter-collegiate speech tournaments. Through such activities, students may develop skills in debating; in persuasive, informative, extemporaneous and impromptu speaking; and in oral interpretation of literature and readers' theater. All students are welcome to participate in these activities regardless of previous speaking experience. Students are encouraged to take forensics during their first semester of study.

Students who plan to transfer to four-year institutions will find the speech communication program includes courses generally required of a major in the first four semesters of study. However, they should check the specific requirements of the institutions to which they plan to transfer.

All electives must be selected with the concurrence of a speech communication program advisor. Students should note that Voice and Diction is offered in the Fall Semester and Oral Interpretation of Literature is offered in the Spring Semester.

## Speech Communication—Associate of Arts Degree for Transfer

Program Identification Code: 445-00-01

Verification of transfer courses should be established with the transfer university or college, or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

### Required Courses (60-69 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

SPE 105	Voice and Diction	2
SPE 110	Public Speaking	3
SPE 120	Business and Professional Communication	3
SPE 124	Argumentation	3
SPE 125	Forensics	1
SPE 130	Small Group Discussion	3
SPE 136	Oral Interpretation of Literature	3

### Support Courses

FOREIGN LANGUAGE REQUIREMENT	4-16
Completion of a Language course numbered 211, fourth-semester level, or completion of SPA 202 or SLG 202. (Bilingual or international students should consult an advisor concerning exceptions to this requirement.)	
<b>If a student satisfies the Language requirement in fewer than 16 credits, additional credit hours of transferable electives must be completed to meet the minimum associate degree requirement of 60 credit hours.</b>	

ANT 102	Introduction to Cultural Anthropology and Linguistics	3	
PSY 250	Introduction to Social Psychology	3	PSY 100A*

**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition	6
Humanities and Fine Arts	9
Biological and Physical Sciences	8
Mathematics (MAT 142 or above)	3
Social and Behavioral Sciences (Support courses satisfy 6 credits. For the three state universities, one course must include unique content in matters of gender, class, race, or ethnicity. Currently HIS 105, 127, 150, 180 and SOC 103, 201, and 204 fulfill this requirement.)	9
Other Requirement Options (Core and support courses satisfy this requirement.)	5-6

### Suggested Course Sequence (Read down.)

Reading requirement	ANT 102	PSY 250
English composition	SPE 105	Foreign language
SPE 110	English composition	Social and Behavioral Sciences elective
SPE 125	Foreign language	SPE 120
Foreign language	Biological and Physical Sciences	SPE 136
Mathematics elective	Humanities and Fine Arts elective	Humanities and Fine Arts elective
Humanities and Fine Arts elective	SPE 124	Foreign Language
Biological and Physical Sciences elective	SPE 130	
	Humanities and Fine Arts elective	

\*For additional prerequisite information, check course section.

# Technology

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 two advanced certificates and five associate of applied science (A.A.S.) degree programs for direct employment. The advanced certificate programs are arranged so that the student wishing to continue for the A.A.S. 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, electromechanics, electronic communications, 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. For this program area, the Pima Community College reading requirement must be completed prior to the beginning of the second year (See "Graduation" in this catalog).

The available program options include:

- Technology (Advanced Certificate)

## Manufacturing Technology

- Semiconductor Manufacturing Technology (A.A.S.)

## Electronics Technology

- Electronics Technology (A.A.S.)
- Electronic Telecommunications Technology (A.A.S.)

## Computer Systems Technology

- Microcomputer Technology (Advanced Certificate)
- Microcomputer Technology (A.A.S.)
- Systems Networking Technology (A.A.S.)

## Technology—Advanced Certificate for Direct Employment

Program Identification Code: 447-00-06

This program provides the common core plus one electronic telecommunications course of the Technology curriculum. Thus, the student wishing to continue for the A.A.S. 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.

### Required Courses (36 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

TEC 121	Basic Electric and Magnetic Properties	4	TEC 101*
TEC 122	Applied Semiconductor Devices	4	TEC 121*
TEC 123	Digital Circuits and Applications	4	TEC 101*
TEC 124	Modern Electronic Communications	4	TEC 121*
TEC 125	AC Networks with Phasors	3	TEC 121*
TEC 151	Information Transfer in Technology	2	
TEC 170	Foundations of Improvement Technology	3	TEC 111*
TEC 171	Statistical Process Control and Experimentation	3	TEC 170*

### Support Courses

ETR 160	Microcomputers and Programming Techniques	3	TEC 111*
MAT 113	Mathematics with Trigonometry and Statistics	3	TEC 112*
SPE 120	Business and Professional Communications	3	



**Suggested Course Sequence (Read down)**

ETR 160	TEC 171
TEC 151	TEC 125
TEC 170	TEC 122
MAT 113	TEC 124
TEC 121	SPE 120
ETR 123	

\*For additional prerequisite information, check course section.

## Semiconductor Manufacturing Technology— Associate of Applied Science Degree for Direct Employment.

Program Identification Code: 447-20-03

This program enables the student to prepare for employment in microchip fabrication industries. It contains the common core of the Technology Curriculum and adds courses on optics, basic chemical safety, vacuum systems, fluidic devices and automated systems, power RF, semiconductor manufacturing processes, and integrated systems in semiconductor manufacturing.

It is recommended that students seeking immediate employment in this field take TEC 290 in addition to the program courses below. This course should be taken in the last semester of enrollment.

**Required Courses (68 Credit Hours)**

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

TEC 103	Light and Optical Systems	1	MAT 113
TEC 121	Basic Electric and Magnetic Properties	4	TEC 101*
TEC 122	Applied Semiconductor Devices	4	TEC 121*
TEC 123	Digital Circuits and Applications	4	TEC 101*
TEC 125	AC Networks with Phasors	3	TEC 121*
TEC 151	Information Transfer in Technology	2	
TEC 170	Foundations of Improvement Technology	3	TEC 111*
TEC 171	Statistical Process Control and Experimentation	3	TEC 170*

TEC 182	Fundamentals of Semiconductor Manufacturing Chemistry and Safety	3	TEC 111*
TEC 221	Linear Devices	3	TEC 122*
TEC 222	Electromechanical Devices and Systems	4	TEC 122*
TEC 223	Power RF	1	TEC 122*
TEC 225	Fluid Devices and Automated Systems	3	TEC 123*
TEC 226	Integrated Systems in Semiconductor Manufacturing	4	TEC 272*
TEC 272	Semiconductor Manufacturing Process I	3	TEC 171*
TEC 273	Semiconductor Manufacturing Process II	3	TEC 272
TEC 274	Vacuum Systems	2	TEC 225*

**Support Courses**

ETR 160	Microcomputers and Programming Techniques	3	TEC 111*
MAT 113	Mathematics with Trigonometry and Statistics	3	TEC 112*
SPE 120	Business and Professional Communications	3	
WRT 154	Technical Communications	3	WRT 100*

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
(Support courses satisfy this requirement.)	
Social and Behavioral Sciences	3

**Suggested Course Sequence (Read down.)**

ETR 160	TEC 103	TEC 272
MAT 113	TEC 125	TEC 273
TEC 121	TEC 171	TEC 274
TEC 151	SPE 120	TEC 226
TEC 170	TEC 221	WRT 154
TEC 182	TEC 222	Social and Behavioral Sciences elective
TEC 122	TEC 223	Humanities and Fine Arts elective
TEC 123	TEC 225	

\*For additional prerequisite information, check course section.

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

Program Identification Code: 447-05-03

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.

### Required Courses (69-70 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

TEC 121	Basic Electric and Magnetic Properties	4	TEC 101*
TEC 122	Applied Semiconductor Devices	4	TEC 121*
ETR 122	Electronics Construction and Assembly	3	TEC 121*
TEC 123	Digital Circuits and Applications	4	TEC 101*
ETR 124	Electronics Measurements	3	TEC 122*
TEC 124	Modern Electronic Communications	4	TEC 121*
TEC 125	AC Networks with Phasors	3	TEC 121*
TEC 151	Information Transfer in Technology	2	
TEC 170	Foundations of Improvement Technology	3	TEC 111*
TEC 171	Statistical Process Control and Experimentation	3	TEC 170*
TEC 221	Linear Devices	3	TEC 122*
TEC 222	Electromechanical Devices and Systems	4	TEC 122*
ETR 250	Digital Devices	4	TEC 122*
ETR 251	Analog Circuits	4	TEC 221*

ELEC Select one course from the list below:  
TEC 103, 130, 182, 225, 227, 290

### Support Courses

ETR 160	Microcomputers and Programming Techniques	3	TEC 111*
MAT 113	Mathematics with Trigonometry and Statistics	3	TEC 112*
SPE 120	Business and Professional Communications	3	
WRT 154	Technical Communications	3	WRT 100*

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communications	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
(Support courses satisfy this requirement.)	
Social and Behavioral Sciences	3

### Suggested Course Sequence (Read down.)

ETR 160	TEC 123	ETR 250
MAT 113	TEC 125	TEC 124
TEC 121	TEC 171	SPE 120
TEC 151	WRT 154	ETR ELECT
TEC 170	ETR 124	SOC/BEH
ETR 122	TEC 221	HUMANITIES
TEC 122	TEC 222	ETR 251

\*For additional prerequisite information, check course section.

## Electronic Telecommunications Technology—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 447-10-03

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 below. This course should be taken in the last semester of enrollment.

#### Required Courses (64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

TEC 121	Basic Electric and Magnetic Properties	4	TEC 101*
TEC 122	Applied Semiconductor Devices	4	TEC 121*
TEC 123	Digital Circuits and Applications	4	TEC 101*
TEC 124	Modern Electronic Communications	4	TEC 121*
TEC 125	AC Networks with Phasors	3	TEC 121*
TEC 151	Information Transfer in Technology	2	
TEC 170	Foundations of Improvement Technology	3	TEC 111*
TEC 171	Statistical Process Control and Experimentation	3	TEC 170*
TEC 221	Linear Devices	3	TEC 122*
TEC 222	Electromechanical Devices and Systems	4	TEC 122*
TEC 227	Communication and Information Transmission Systems	4	TEC 124*
TEC 228	RF and Microwave Devices	4	TEC 227*
TEC 229	Integrated Systems in Telecommunications	4	TEC 227*

#### Support Courses

ETR 160	Microcomputers and Programming Techniques	3	TEC 111*
MAT 113	Mathematics with Trigonometry and Statistics	3	TEC 112*
SPE 120	Business and Professional Communications	3	
WRT 154	Technical Communications	3	WRT 100*

**General Education Courses** (See Graduation section of this catalog for associate of applied science course list.)

Communication (Support courses satisfy this requirement.)	6
Humanities and Fine Arts	3
Science and/or Mathematics (Support Courses satisfy this requirement.)	6
Social and Behavioral Sciences	3

#### Suggested Course Sequence (Read down.)

ETR 160	TEC 123	TEC 222
MAT 113	TEC 125	Social and Behavioral Sciences elective
TEC 121	TEC 171	Humanities and Fine Arts elective
TEC 151	WRT 154	TEC 228
TEC 170	SPE 120	TEC 229
TEC 124	TEC 227	
TEC 122	TEC 221	

\*For additional prerequisite information, check Course Section.

### Microcomputer Technology—Advanced Certificate for Direct Employment

#### Program Identification Code: 447-15-06

This program provides the student with basic core courses that will couple nicely with the Microcomputer Technology AAS program and help prepare the student for limited entry level positions in some microcomputer arenas.

#### Required Courses (31 Credit Hours)

Course Number	Course/Title	Credit Hours	Prerequisites
TEC 121	Basic Electric and Magnetic Properties	4	TEC 101*
TEC 123	Digital Circuits and Applications	4	TEC 101*
TEC 125	AC Networks with Phasors	3	TEC 121*
TEC 130	Microcomputer Assembly and Testing	4	TEC 101*
TEC 132	Microcomputer Systems Servicing	4	TEC 130*
TEC 151	Information Transfer in Technology	2	

TEC 170	Foundations of Improvement Technology	3	TEC 111*
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#### Support Courses

ETR 160	Microcomputers and Programming Techniques	3	TEC 111*
MAT 113	Mathematics with Trigonometry and Statistics	3	TEC 112*
SPE 120	Business and Professional Communications	3	

#### General Education Courses

Communication	3
(Support courses satisfy this requirement.)	
Science and/or Mathematics	3
(Support courses satisfy this requirement.)	

#### Suggested Course Sequence (Read down.)

ETR 160	TEC 170
MAT 113	TEC 123
TEC 151	TEC 125
TEC 121	TEC 132
TEC 130	SPE 120

\*For additional prerequisite information, check course section.

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

Program Identification Code: 447-15-03

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.

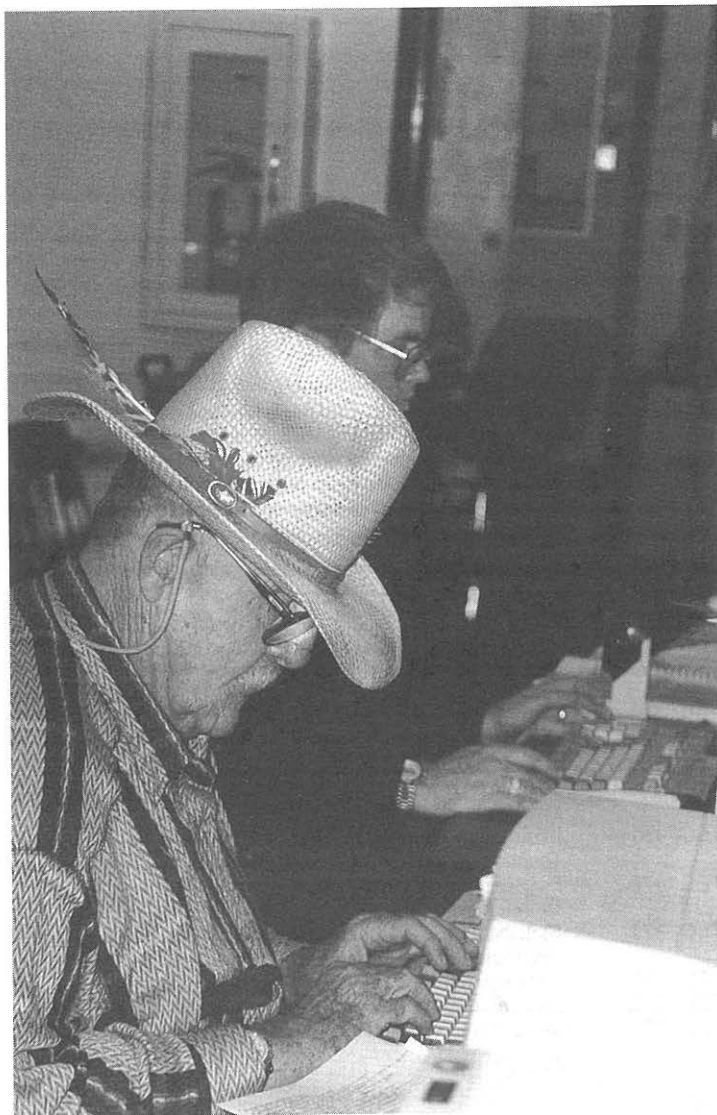
**It is recommended that students seeking immediate employment in this field take TEC 290 in addition to the program courses below. This course should be taken in the last semester of enrollment.**

#### Required Courses (65 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

TEC 121	Basic Electric and Magnetic Properties	4	TEC 101*
TEC 122	Applied Semiconductor Devices	4	TEC 121*
TEC 123	Digital Circuits and Applications	4	TEC 101*
TEC 124	Modern Electronic Communications	4	TEC 121*
TEC 125	AC Networks with Phasors	3	TEC 121*
TEC 130	Microcomputer Assembly and Testing	4	TEC 101*
TEC 132	Microcomputer Systems Servicing	4	TEC 130*
TEC 151	Information Transfer in Technology	2	
TEC 170	Foundations of Improvement Technology	3	TEC 111*
TEC 171	Statistical Process Control and Experimentation	3	TEC 170*
TEC 230	Peer-to-Peer Networking	4	TEC 132*
TEC 232	Dedicated Server Networks	4	TEC 132
TEC 234	Microcomputer Repair	4	TEC 132*



### Support Courses

ETR 160	Microcomputers and Programming Techniques	3	TEC 111*
MAT 113	Mathematics with Trigonometry and Statistics	3	TEC 112*
SPE 120	Business and Professional Communications	3	
WRT 154	Technical Communications	3	WRT 100*

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication (Support courses satisfy this requirement.)	6
Humanities and Fine Arts	3
Science and/or Mathematics (Support courses satisfy this requirement.)	6
Social and Behavioral Sciences	3

### Suggested Course Sequence (Read down.)

ETR 160	TEC 125	TEC 234
MAT 113	TEC 132	Humanities and Fine Arts elective
TEC 151	SPE 120	Social and Behavioral Sciences elective
TEC 121	TEC 122	TEC 232
TEC 130	TEC 124	WRT 154
TEC 170	TEC 171	
TEC 123	TEC 230	

\*For additional prerequisite information, check course section.

## Systems Networking Technology—Associate of Applied Science Degree for Direct Employment

Program Identification Code: 447-25-03

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 below. This course should be taken in the last semester of enrollment.**

### Required Courses (73 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

TEC 121	Basic Electric and Magnetic Properties	4	TEC 101*
TEC 122	Applied Semiconductor Devices	4	TEC 121*
TEC 123	Digital Circuits and Applications	4	TEC 101*
TEC 124	Modern Electronic Communications	4	TEC 121*
TEC 125	AC Networks with Phasors	3	TEC 121*
TEC 130	Microcomputer Assembly and Testing	4	TEC 101*
TEC 132	Microcomputer Systems Servicing	4	TEC 130*
TEC 151	Information Transfer in Technology	2	
TEC 170	Foundations of Improvement Technology	3	TEC 111*
TEC 171	Statistical Process Control and Experimentation	3	TEC 170*
TEC 230	Peer-to-Peer Networking	4	TEC 132*

TEC 232	Dedicated Server Networks	4	TEC 230
TEC 235	Survey of Networks and Operating Systems	3	TEC 132
TEC 236	Underpinnings of the Internet	3	ETR 160
TEC 237	Contemporary Client/Server Computing	3	TEC 235*
TEC 238	Information Acquisition and Professional Advancement	3	TEC 235*

### Support Courses

ETR 160	Microcomputers and Programming Techniques	3	TEC 111*
MAT 113	Mathematics with Trigonometry and Statistics	3	TEC 112*
SPE 120	Business and Professional Communications	3	
WRT 154	Technical Communications	3	WRT 100*

**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

Communication	6
(Support courses satisfy this requirement.)	
Humanities and Fine Arts	3
Science and/or Mathematics	6
(Support courses satisfy this requirement.)	
Social and Behavioral Sciences	3

### Suggested Course Sequence (Read down.)

ETR 160	TEC 124	Humanities elective
MAT 113	TEC 125	SPE 120
TEC 151	TEC 132	TEC 237
TEC 121	TEC 171	TEC 238
TEC 130	TEC 230	Social and Behavioral Sciences elective
TEC 170	TEC 232	WRT 154
TEC 122	TEC 235	
TEC 123	TEC 236	

\*For additional prerequisite information, check course section.

# Teleservices

Services provided to customers through telecommunications which encompass product technical support, product ordering, reservations, and sales/marketing. Personnel must possess attributes such as professionalism, courtesy, excellent customer service, and knowledge of the company and its products or services. Faculty advisors in the program area and courses are located on the Downtown Campus. Entry requirements for the basic certificate will be ASC 111A or 35 words per minute keyboard proficiency.

## Teleservices—Basic Certificate for Direct Employment

Program Identification Code: 449-00-08

There are two options available in the basic certificate to provide entry level skills and foundational training to work either as a Technical Support Specialist or a Customer Teleservices Specialist in the teleservices industry. In a customer-oriented environment, the Technical Support Specialist uses communication skills and problem solving abilities with information technology to meet company specified quality and performance objectives for technical support of the company's products. The Customer Teleservices Specialist responds to customer needs, promotes customer satisfaction, markets products and services, initiates and closes sales, and solves problems over the telephone.

### Required Courses (16 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
TES 101	Introduction to Teleservices	3	ASC 111A*
TES 102	Teleservices Communications	3	TES 101
TES 103	Call Center Environments	4	TES 102
TES 150	Teleservices Internship	2	TES 103*

Choose one of the following options:

#### Technical Support Specialist

TES 120	Call Management-Technical Support	4	TES 103
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#### Customer Teleservices Specialist

TES 130	Teleselling Techniques-Customer Service	4	TES 103
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### Suggested Course Sequence (Read down.)

TES 101  
TES 102  
TES 103  
TES 120 or 130  
TES 150

\*For additional prerequisite information, check course section.

# Theater Arts

Program Identification Code: 345-55-01

A student planning on obtaining a degree with an option in Theater Arts should follow the Liberal Arts and Sciences Associate Degree for Transfer. See an advisor and complete a program of study form using the Transfer Guide.

# Welding

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.

## Welding—Basic Certificate for Direct Employment

Program Identification Code: 460-00-08

### Required Courses (20-21 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
WLD 115	Blueprint Reading	3	
WLD 150	Oxyacetylene Welding	4	
WLD 160	Arc Welding	4	



### Support Courses

MAC 130	Fundamentals of Metallurgy	3
MAT	Determined by assessment test	3
TECH ELEC	Technical Electives Complete 3 or 4 credit hours from the following:	3-4
	CSC 105	
	DFT 150, 180	
	MAC 110, 120, 270	
	PHY 101	
	WLD 162, 163, 164, 199, 299	

### Suggested Course Sequence (Read down.)

WLD 115  
WLD 150  
WLD 160  
Mathematics elective  
MAC 130  
Technical elective

## Welding—Technical Certificate for Direct Employment

Program Identification Code: 460-00-05

### Required Courses (33-34 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
WLD 115	Blueprint Reading	3	
WLD 150	Oxyacetylene Welding	4	
WLD 160	Arc Welding	4	
WLD 250	Pipe Welding	4	WLD 119*

### Support Courses

MAC 130	Fundamentals of Metallurgy	3	
MAC 285	Physical Metallurgy	3	MAC 130
MAN 110	Human Relations in Business and Industry	3	
TECH ELEC	Technical Elective Complete 3 or 4 credit hours from the following:	3-4	
	CSC 105		
	DFT 150, 180		
	MAC 110, 120, 270		
	PHY 101		
	WLD 118, 162, 163, 164, 199, 299		

**General Education Courses** (See Graduation section of this catalog for the associate of applied science degree course list.)

Communication			
WRT 100	Writing Fundamentals	3	WRT 070*
Science and/or Mathematics			
MAT 110	Technical Mathematics I	3	MAT 082*

### Suggested Course Sequence (Read down.)

WRT 100	WLD 250
WLD 115	MAC 130
MAT 110	MAC 285
WLD 150	MAN 110
WLD 160	Technical elective

\*For additional prerequisite information, check course section.

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

Program Identification Code: 460-00-03

### Required Courses (61 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

WLD 115	Blueprint Reading	3	
WLD 118	Welding and Fabrication		
	Estimating	3	WLD 115*
WLD 119	Pattern Layout for Metal Fabrication	3	MAT 082*
WLD 150	Oxyacetylene Welding	4	
WLD 160	Arc Welding	4	
WLD 250	Pipe Welding	4	WLD 119*
WLD 261	Gas Metal Arc Welding	4	WLD 150*
WLD 262	Gas Tungsten Arc Welding	4	WLD 150*

### Support Courses

MAC 130	Fundamentals of Metallurgy	3	
MAC 285	Physical Metallurgy	3	MAC 130
TECH ELEC	Technical Electives	8	
	Complete 8 credit hours from the following:		
	ASC 111A		
	CSC 105		
	DFT 150, 180		
	MAC 110, 120, 270		
	PHY 101		
	WLD 162, 163, 164, 199, 299		

**General Education Requirements** (See Graduation section of this catalog for the associate of applied science degree course list.)

Communication			
WRT 100	Writing Fundamentals	3	WRT 070*
WRT 154	Technical Communications I	3	WRT 100*
Humanities and Fine Arts		3	
Science and/or Mathematics			
MAT 110	Technical Mathematics I	3	MAT 082*
MAT 111	Technical Mathematics II	3	MAT 110
Social and Behavioral Sciences			
MAN 110	Human Relations in Business and Industry	3	

### Suggested Course Sequence (Read down.)

Reading requirement	WRT 100	Humanities and Fine
WLD 115	MAC 285	Arts elective
MAC 130	MAT 110	WLD 261
WLD 150	WLD 118	MAT 111
MAN 110	WLD 250	WLD 262
WLD 160	Technical elective	WRT 154
WLD 119	Technical elective	Technical elective

\*For additional prerequisite information, check course section.

## Women's Studies

**Program Identification Code: 345-56-01**

A student planning on obtaining a degree with an option in Women's Studies should follow the Liberal Arts and Sciences Associate Degree for Transfer. See an advisor and complete a program of study form using the Transfer Guide.

## Youth Care

Programs in this area are designed to prepare students to work directly in the care and treatment of young persons. Students receive instruction in communication, relationship-building, interviewing, understanding youth, youth care methods, general education skills and working with individuals and groups.

The programs offered are an advanced certificate, an associate of applied science degree and an associate of arts degree. These options provide enough flexibility so that students may choose from several different competency areas within which specific skills may be developed. Each program provides a balance between core courses and general education requirements as well as between academic instruction and supervised field experience. Students who enter the youth care program must see one of the instructors in the area for advisement and counseling on the West Campus.

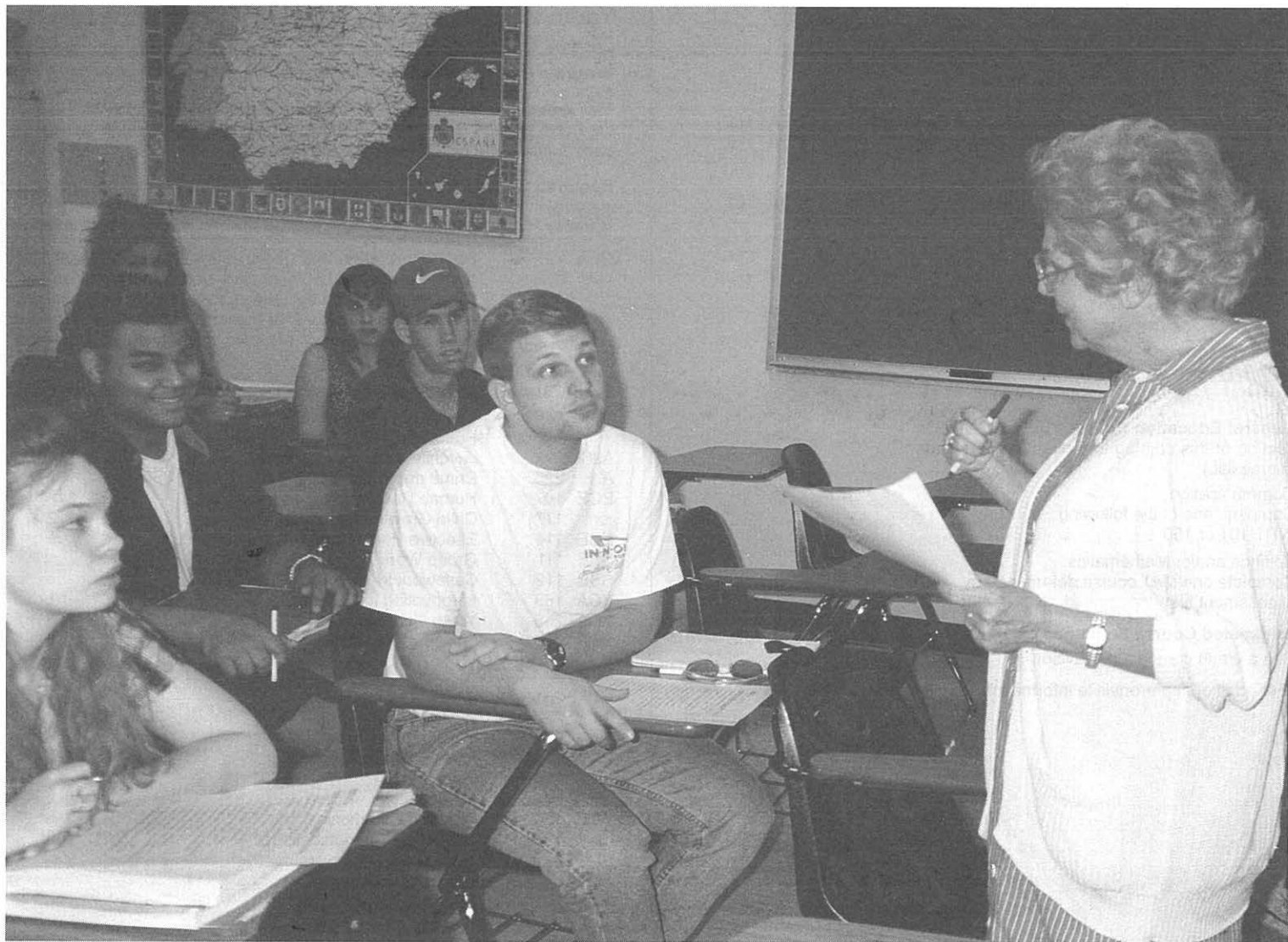
### Youth Care—Advanced Certificate for Direct Employment

**Program Identification Code: 465-00-06**

This program is designed to provide basic skills in youth care. Field experience is required.

### Required Courses (33-34 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		



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

AJS 146	Child Abuse Intervention and Protection	3	
AJS 212 or 225	Juvenile Justice Procedures Crime and Delinquency	3	
ECE 107 or 117	Human Development and Relations Child Growth and Development	3	REA 112*
SSE 111	Group Work	3	REA 112*
YCA 163	Introduction to Youth Care	3	
YCA 263	Youth Care Methods	3	YCA 163
YCA 290	Field Experience	3	*

#### Support Courses

ELEC	Complete one of the following: ANT 101, 102, 200, 210, 215, 225 PSY 100A, 100B, 101, 265 SOC 101, 120	3-4
SPE ELEC	Complete one of the following: SPE 102, 110 or 120	3

**General Education Courses** (See Graduation section of this catalog for advanced certificate course list.)

Communication 3  
Complete one of the following:  
WRT 101 or 150

Science and/or Mathematics 3  
Complete one MAT course determined by assessment test.

#### Suggested Course Sequence

See a youth care faculty advisor.

\*For additional prerequisite information, check course section.

## Youth Care—Associate of Applied Science Degree for Direct Employment

**Program Identification Code: 465-00-03**

This program is designed to broaden the student's range of skills in youth care and provide greater competency in this field. Cooperative education opportunities and field experience are included.

#### Required Courses (61-64 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

AJS 146	Child Abuse Intervention and Protection	3	
AJS 212 AJS 225	Juvenile Justice Procedures Crime and Delinquency	3	
ECE 107 or 117	Human Development and Relations Child Growth and Development	3	REA 112*
ECE 114	Effective Parenthood	3	REA 112*
SSE 111	Group Work	3	
SSE 112	Casework Methods I	3	
YCA 163	Introduction to Youth Care	3	
YCA 263	Youth Care Methods	3	YCA 163
YCA 290	Field Experience	3	*

#### Support Courses

HUM 251 or 252 or 253	Western Humanities I Western Humanities II Western Humanities III	3	
PSY 101 or 100A and 101B	Introduction to Psychology Psychology I Psychology II	4-6	
WRT 150 or 154	Practical Communications Technical Communications I	3	WRT 100*
SPE ELEC	Speech Elective Complete one of the following: SPE 102, 110, 120	3	

ELEC	Recommended electives Select one of the following: ECE 106, 107 FSN 113 PSY 140, 214, 216 SPA (Any Spanish course at the 100 level or higher) SSE 110, 120, 122, 140, 212, 242 (Other courses may be taken as electives with approval of a youth care advisor.)	3-4
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**General Education Courses** (See Graduation section of this catalog for associate of applied science degree course list.)

**Communication**

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

**Humanities and Fine Arts** 3  
(Support courses satisfy this requirement.)

**Science and/or Mathematics** 6  
Select from:  
BIO 100, 105, 160, 204, 210  
CHM 130  
MAT - (Any math course at the 100  
level or higher)

**Social and Behavioral Sciences** 3  
Complete one of the following:  
ANT 101, 102, 200, 210, 215, 225  
PSY 100A, 100B, 101, 265  
SOC 101, 120

**Suggested Course Sequence**

See a youth care faculty advisor.

\*For additional prerequisite information, check course section.

## Youth Care Rehabilitation—Associate of Arts Degree for Transfer

**Program Identification Code: 465-10-01**

Verification of transfer courses should be established with the transfer university or college, or with a Pima Community College counselor or faculty advisor. For additional information on A.A. and A.S. degree transferability to regional universities, please refer to the chart in the front of this section.

This program is designed for students seeking higher-level positions and more sophisticated skills. In this program, students' courses of study are individually planned to fit the first two years of a four-year program at a university of their choice. Field experience is required.

A strong reading background is helpful in this program. Students are required to have achieved a 12th grade reading level as determined by the reading department, in order to graduate. The student is urged to take the reading assessment test at the beginning of the program and to correct any reading deficiency early. The math requirement, in order to be transferable for general education credit at the University of Arizona, must be MAT 152 (College Algebra) or above. The student is urged to take this course if an equivalent course was not taken. MAT 152 will be helpful as a background course for upper division statistical methods courses after transfer to the University of Arizona or another university of choice.

**Students who are transferring to the Rehabilitation program at the University of Arizona must take BIO 201 and 202. Students transferring to other programs may substitute 8 credit hours of another transferable science.** Prior to taking BIO 201 or 202, students should have had either high school chemistry or CHM 130 (Fundamentals of Chemistry) or an equivalent course. The student is urged to correct any deficiency in this area early in the program. (See General Education Requirements under the Graduation section of this catalog.)

### Required Courses (64-68 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
REA	Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion of REA 112 or higher.) Proficiency at the REA 112 level or higher will enhance student achievement in all required courses.		

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

AJS 146	Child Abuse Intervention and Protection	3	
AJS 212	Juvenile Justice Procedures	3	
AJS 225	Crime and Delinquency	3	
ECE 107	Human Development and Relations		REA 112*
or 117	Child Growth and Development	3	REA 112*
SSE 111	Group Work	3	
SSE 112	Casework Methods I	3	
YCA 163	Introduction to Youth Care	3	
YCA 263	Youth Care Methods	3	YCA 163

**Support Courses**

YCA 290**	Field Experience	0-3	*
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**General Education Requirements** (See Graduation section of this catalog for associate of arts degree course list.)

English Composition	6
Humanities and Fine Arts	9
Biological and Physical Sciences	8

**(BIO 201-202 satisfies the general education requirement for rehabilitation majors only at the University of Arizona. For other associate of arts degree majors, see the course list in the Graduation section of this catalog.)**

Mathematics (MAT 142 or above)	3
Social and Behavioral Sciences	9
Other Requirement Options	5-6

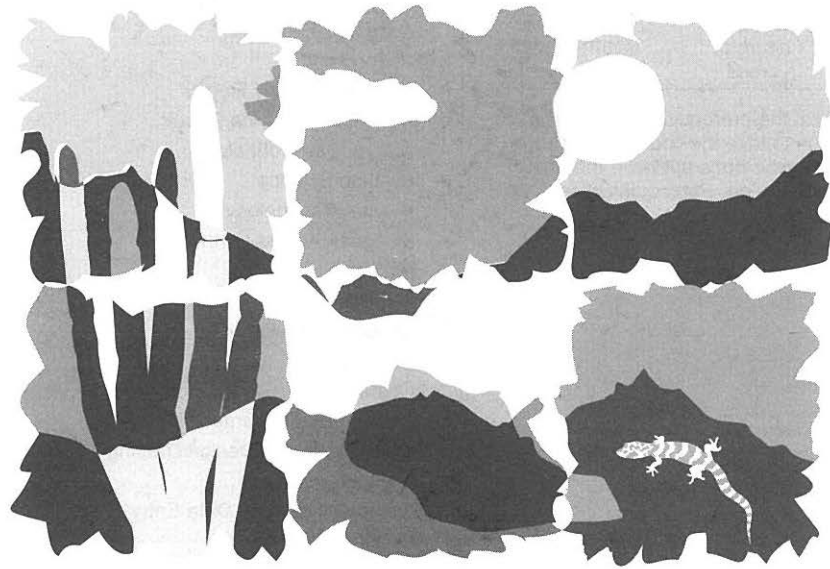
**Suggested Course Sequence**

See a youth care faculty advisor.

\*For additional prerequisite information, check course section.

\*\*YCA 290 is optional for AA transfer students, however, the practical experience value to all YCA students is highly recommended.

# 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
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.

## LISTING OF COURSE PREFIXES

Accounting	ACC
Administration of Justice	AJS
Administrative Support Careers	ASC
Air Conditioning	ACD
American Indian Studies	AIS
Anthropology	ANT
Archaeology	ARC
Art	ART
Art for Personal Development	APD
Assembly Production	ASP
Astronomy	AST
Automotive Body Repair	ABR
Automotive Service Repair	ASR
Automotive Technology	AUT
Aviation Science	AVS
Aviation Technology	AVM
Bilingual Studies for the Deaf	BSD
Biology	BIO
Business	BUS
Ceramic Manufacturing	CMT
Chemistry	CHM
Chinese	CHI
Communication Graphics	CGR
Computer Aided Design/Drafting	CAD
Computer Science	CSC
Computer Science Data Entry	CSD
Construction	CON
Cooperative Education	CED
Correctional Officers Training	COT
Corrections Officer Academy	COA
Court Support Services	CSS
Credit Management	CRM
Dance	DNC
Dental Assisting	DAE
Dental Hygiene	DHE

Dental Laboratory Technology	DLT	Honors	HON
Design	DES	Hospitality	HOS
Drafting	DFT	Human Development Education	HDE
Drama	DRA	Humanities	HUM
Early Childhood Education	ECE	Institutional Foodservice	IFS
Economics	ECN	International Business Studies	IBS
Education	EDU	Interpreter Training	ITP
Electronics	ETR	Italian	ITA
Emergency Medical Technology	EMT	Japanese	JPN
Engineering	ENG	Landscape Technician Program	LTP
English as a Second Language	ESL	Latin	LAT
Environmental Technology	ENV	Law Enforcement Academy	LEA
Equine Science	EQS	Legal Assistant Program	LAS
Exploratory	EXP	Library Skills	LIB
Fabrication	FAB	Literature	LIT
Fashion Design and Clothing	FDC	Machine Tool Technology	MAC
Finance	FIN	Maintenance Technology	MNT
Fire Science	FSC	Management	MAN
Fitness and Recreation	FAR	Marketing	MKT
Fitness and Sport Sciences	FSS	Material Reclamation	MRD
Food Science and Nutrition	FSN	Mathematics	MAT
Foundations for Personal Change	FPC	Media Communication	MEC
French	FRE	Microcomputer Applications	MAP
General Business	GEB	Microelectronics	MRE
General Technology	GTC	Music	MUS
Geography	GEO	Nursing	NRS
Geology	GLG	Nursing Assistant	NRA
German	GER	Nursing Continuing Education	NCE
Government/Industry/Business	GIB	Pharmacy Technology	PHT
Graphic Technology	GRA	Philosophy	PHI
Health Care	HCA	Physics	PHY
Health Continuing Education	HCE	Political Science	POS
Health Education	HED	Portuguese	POR
History	HIS	Postal Service Management	PSM
Home Economics	HEC	Process Technology	PRO



Production Inventory Management	PIM
Professional Fire Science	PFS
Psychology	PSY
Public Administration	PAD
Quality Control Technology	QCT
Radiologic Technology	RAD
Reading	REA
Real Estate	RLS
Record and Information Management	RIM
Recreation	REC
Religion	REL
Reserve Officers Training Corp - ROTC - Air Force	MLA
Reserve Officers Training Corp - ROTC - Army	MLS
Reserve Officers Training Corp - ROTC - Navy	NSP
Respiratory Therapy	RTH
Restaurant, Culinary and Food Management	RCF
Robotics	ROB
Russian	RUS
Safety Education	SED
Sheet Metal	SML
Sign Language	SLG
Social Services	SSE
Sociology	SOC
Solar Energy Technology	SET
Spanish	SPA
Speech Communication	SPE
Technology	TEC
Teleservices	TES
Tohono O'odham	THO
Total Quality Management	TQM
Training for Special Education	TSE
Travel Industry Operations	TVL
Welding	WLD
Writing	WRT
Yaqui	YAQ
Youth Care	YCA

## ACCOUNTING

### ACC 060 Basic Tax Preparation /3 cr. hrs./4 periods (2 lec., 2 lab)

Prerequisite(s): None.

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. Requires supervised tax preparation work at a community site. May be taken four times for a maximum of twelve credit hours.

### ACC 100 Practical Accounting Procedures /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): None.

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.)

Prerequisite(s): None.

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 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 199 Co-op Related Class in ACC /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

### ACC 199 Co-op Work in ACC /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

### ACC 200 Accounting on the Microcomputer I /3 cr. hrs./4 periods (3 lec., 1 lab)

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 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.

### 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 /3 cr. hrs./4 periods (3 lec., 1 lab)**

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 299 Co-op Related Class in ACC /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**ACC 299 Co-op Work in ACC /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

## ADMINISTRATION OF JUSTICE

**AJS 101 Introduction to Administration of Justice Systems /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

History and philosophy of administration of justice in America. Includes recapitulation of the system; 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 106 Traffic Safety Functions - Vehicle Code /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Traffic law enforcement and the police officer's role in overseeing the movement of vehicles and pedestrians. Includes fundamentals of accident investigation and reporting, traffic court procedures and public education for traffic safety against a background of Arizona law.

**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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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 System /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Overview of corrections as a system and as a part of the justice process. Includes history, theories, systems of operations in corrections, analysis of the objectives of correctional administration, relevant law, and public relations.

**AJS 146 Child Abuse Intervention and Protection /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Overview of the principles and methods of dealing with child abuse. Includes the many definitions and forms of child abuse, recognition of its symptoms, family dysfunctions, the interaction with and counseling of the parental abuser, and the utilization of available community resources. (Same as SSE 146.)

**AJS 150 Defensive Tactics for Law Enforcement /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 152 Beginning Marksmanship /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to firearms. Includes moral and legal aspects of firearms, safety and range practice.

**AJS 163 Introduction to Youth Care /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as YCA 163.

**AJS 201 Rules of Evidence /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 208 Police Administration /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): AJS 101 or consent of instructor.

Introduction to the principles of police organization, administration and service. All phases of police administration are discussed, including recruitment, training, promotion, complaints, records and communications.

**AJS 210 Police Community and Human Relations /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Analysis of the philosophy, organization, functions and jurisdiction of juvenile agencies and courts. Includes Arizona juvenile statutes, detention, court procedures, and case disposition. Also includes custody and treatment of the offender and crime prevention methods and reporting procedures applicable to juvenile offenders.

**AJS 214 Firearms /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): Student must be a law enforcement major and have previous firearms training.

Principles and methods of using firearms. Includes moral aspects, legal provisions, safety precautions, restrictions, combat procedures for police, and target analysis and range drill procedures. Taught on the range. Students must furnish their own pistols and ammunition.

**AJS 220 Organized Crime Investigation /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Comprehensive historical and social survey of organized crime. Includes its origin, development, modus operandi and effect upon society.

**AJS 225 Crime and Delinquency /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 240 Detention Supervision Methods /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Second-year major in AJS or corrections, and AJS 101 or concurrent enrollment, or consent of instructor.

Examination of institutional procedures and staff member functions. Includes reception, classification, program assignment, security and release procedures. Emphasis on the role of the correctional officer.

**AJS 245 Treatment of the Offender: Institutional and Field /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.)**

Prerequisite(s): None.

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 277 Advanced Criminalistics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Consent of instructor.

Examination of firearms identification, pathology, toxicology, related matters and courtroom procedures.



**AJS 290 Administration of Justice Field Experience /3 cr. hrs./ 16 periods (1 lec., 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. May be taken two times for a maximum of six credit hours.

**AJS 299 Co-op Related Class in AJS /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**AJS 299 Co-op Work in AJS /1-3 cr. hrs./5-15 periods (5-15 lab)**

See Cooperative Education section for description.

## ADMINISTRATIVE SUPPORT CAREERS

**ASC 050 Fundamentals of Business English /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

English basics in business. Includes parts of speech, sentence patterns, and punctuation. Also includes emphasis on business-related material.

**ASC 101 Shorthand I /3 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): ASC 111, 151.

An abbreviated system of writing. Includes the shorthand alphabet, English skills, shorthand speed, and transcription techniques.

**ASC 102 Shorthand II and Refresher /3 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): ASC 101 or one year high school shorthand or dictation speed of 50 words per minute, and ASC 151 or concurrent enrollment.

Continuation of ASC 101. Includes shorthand theory, English skills, and mailable transcription techniques.

**ASC 104 Career and Self-Management Skills /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Acceptance into the Women in Progress program. Same as HDE 104.

**ASC 106 Advanced Career and Self-Management Skills /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): ASC 104.

Same as HDE 106.

**ASC 111 Computer Keyboarding and Document Production /3 cr. hrs./ 5 periods (3 lec., 2 lab)**

Prerequisite(s): None.

Theory and practice of computer keyboarding. Includes speed and accuracy techniques, language arts skills, correspondence, employment documents, and word processing commands.

**ASC 111A Computer Keyboarding and Document Production: Keyboard /1 cr. hr./1.7 periods (1 lec., .7 lab)**

Prerequisite(s): None.

Techniques and functions for computer keyboarding skills. Includes key-boarding, speed and accuracy, language arts, and word processing commands.

**ASC 111B Computer Keyboarding and Document Production: Formatting Documents /1 cr. hr./1.7 periods (1 lec., .7 lab)**

Prerequisite(s): ASC 111A.

Continuation of ASC 111A. Includes speed and accuracy, language arts, correspondence, and word processing commands.

**ASC 111C Computer Keyboarding and Document Production: Applications /1 cr. hr./1.6 periods (1 lec., .6 lab)**

Prerequisite(s): ASC 111B.

Continuation of ASC 111B. Includes speed and accuracy, correspondence, employment documents, language arts, and word processing commands.

**ASC 112 Advanced Computer Keyboarding: Document Production / 3 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): ASC 111.

Continuation of ASC 111. Includes speed and accuracy techniques, language arts, correspondence, reports, tables, financial statements, specialized reports, legal documents, business reports, and word processing commands.

**ASC 112A Advanced Computer Keyboarding: Skill Development/ Production /1 cr. hr./1.7 periods (1 lec., .7 lab)**

Prerequisite(s): ASC 111 or equivalent proficiency.

Continuation of ASC 111. Includes speed and accuracy techniques, language arts, correspondence, reports, and word processing commands.

**ASC 112B Advanced Computer Keyboarding: Specialized Formatting / 1 cr. hr./1.7 periods (1 lec., .7 lab)**

Prerequisite(s): ASC 112A or equivalent proficiency.

Continuation of ASC 112A. Includes speed and accuracy techniques, language arts, tables, financial statements, specialized reports, legal documents, and word processing commands.



**ASC 112C Advanced Computer Keyboarding: Simulated Office Projects /1 cr. hr./1.6 periods (1 lec., .6 lab)**

Prerequisite(s): ASC 112B or equivalent proficiency.

Continuation of ASC 112B. Includes speed and accuracy techniques, language arts, business forms, in-basket exercises, and word processing commands.

**ASC 113 Calculating Techniques: Numeric Keypad/Electronic Calculator /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Ten-key pad by touch method on either the computer or the electronic calculator. Includes keypad development, speed and accuracy development, and business problem solving applications.

**ASC 114 Computer Keyboarding: Skillbuilding /1 cr. hrs./2 periods (1 lec., 1 lab)**

Prerequisite(s): ASC 111A or equivalent proficiency on computer keyboard by touch.

Review of computer keyboarding. Includes skill assessment, skill building development, and increased keyboarding ability.

**ASC 123 Professional Development for Administrative Support / 2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): ASC 111A or equivalent proficiency on computer keyboard.

Procedures and skills for securing a job. Includes resume writing, interviewing techniques, application forms, application letter, researching requirements, and job standards and attitudes.

**ASC 131 Computer Applications I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ASC 111A or equivalent proficiency on the computer keyboard.

Introduction to current computer software. Includes beginning and intermediate word processing and an introduction to database and data entry applications.

**ASC 131A Computer Applications I: Beginning Word Processing / 1 cr. hr./1.6 periods (.7 lec., .9 lab)**

Prerequisite(s): ASC 111A or equivalent proficiency on the computer keyboard.

Introduction to the use of word processing concepts using current software. Includes basic DOS and Windows functions, history and theory of word processing, manipulating, creating, editing, and printing documents, loading and saving documents, and using formatting and writing tools.

**ASC 131B Computer Applications I: Intermediate Word Processing / 1 cr. hr./1.4 periods (.7 lec., .7 lab)**

Prerequisite(s): ASC 131A.

Continuation of ASC 131A. Includes review of basic word processing formats, tables, columns, graphics, merges, footnotes, sorts, and macros.

**ASC 131C Computer Applications I: Beginning Database /1 cr. hr./ 1.4 periods (.7 lec., .7 lab)**

Prerequisite(s): ASC 111A or equivalent proficiency on the computer keyboard.

Introduction to the use of database concepts using current software. Includes DOS and Windows environment, networks, database concepts and maneuvering within the database, database setup, manipulating data, queries, indexes and sorts, and reports.

**ASC 131D Computer Applications I: Data Entry /1 cr. hr./1.6 periods (.9 lec., .7 lab)**

Prerequisite(s): ASC 111A or equivalent proficiency on the computer keyboard.

Practical applications using data entry software for business. Includes terminology and procedures, operations, creating files, and data manipulation.

**ASC 132 Computer Applications II /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ASC 131.

Continuation of ASC 131. Includes beginning and intermediate spreadsheets, intermediate database, and telecommunications.

**ASC 132A Computer Applications II: Beginning Spreadsheets / 1 cr. hr./1.6 periods (.7 lec., .9 lab)**

Prerequisite(s): ASC 111A or equivalent proficiency on the computer keyboard.

Introduction to the use of spreadsheets using current software. Includes DOS and Windows environment, manipulation, spreadsheet design, loading, editing, saving, retrieving, and printing a spreadsheet, operations, formulas and @function commands, and charts.

**ASC 132B Computer Applications II: Intermediate Spreadsheets / 1 cr. hr./1.4 periods (.7 lec., .7 lab)**

Prerequisite(s): ASC 131A.

Continuation of ASC 132A. Includes chart editing, what-if-tables, back solving, solving, and more advanced formulas and @functions, larger spreadsheets, and worksheet functions.

**ASC 132C Computer Applications II: Intermediate Database /1 cr. hr./1.4 periods (.7 lec., .7 lab)**

Prerequisite(s): ASC 131C.

Continuation of ASC 131C. Includes modification of structure, sorting and indexing, conditional searches, file operations, relational databases, data transfer, and complex reports.

**ASC 132D Computer Applications II: Telecommunications /1 cr. hr./1.6 periods (.9 lec., .7 lab)**

Prerequisite(s): None.

Introduction to telecommunication technology. Includes telephone and equipment services, data and image transmittals, integrated communication systems, network type, and communications, internet system, and integrated communication systems operations.

**ASC 141 Legal Terms /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Language used in a legal setting. Includes pronunciation, spelling, and definitions.

**ASC 142 Legal Secretarial Procedures I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ASC 112.

Basic law office procedures and terminology. Includes client intake to disposition of a case in courts of limited or special jurisdiction, human relations, and code of ethics.

**ASC 143 Legal Secretarial Procedures II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ASC 142 or consent of instructor.

Continuation of ASC 142. Includes domestic relations, probate, corporations, arbitration, real estate, criminal law, the code of ethics, and human relations.

**ASC 151 Business English /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ASC 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.

**ASC 161 Medical Office Procedures /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): ASC 112 or equivalent proficiency or concurrent enrollment, and ASC 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.

**ASC 162 Medical Terms I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Terminology used in the medical field. Includes word parts and forms, anatomy and physiology, diseases, and reference materials.

**ASC 164 Medical Transcription I /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): ASC 162 or experience in the medical field.

Terms and format for transcribing medical reports. Includes ethics and legal responsibility, preparation of medical reports, transcription of medical records, rules, and medical terminology.

**ASC 171 Office Procedures /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ASC 111 or concurrent enrollment.

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.

**ASC 196 Work Based Learning in ASC /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): ASC 111, 131, 151.

Career learning opportunities through job shadowing or work related experience. Includes communication with contact person in the field, on the job tasks, and career exploration.

**ASC 199 Co-op Related Class in ASC /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**ASC 199 Co-op Work in ASC /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**ASC 201 Shorthand III /3 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): ASC 102 or two years of high school shorthand or dictation speed of 70 words per minute.

Continuation of ASC 102. Includes shorthand skill development, English skills, and mailable transcription techniques. Also includes speed development

**ASC 224 Machine Transcription /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): ASC 111 or computer keyboarding speed of 35 wpm and ability to format manuscripts, and tables, and ASC 151.

Skills and techniques of transcribing dictated materials. Includes transcription equipment, transcription techniques, language arts development, mailable documents, and career opportunity awareness.

**ASC 230 Desktop Publishing for Administrative Support Personnel / 3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ASC 131A, 131B, 233A.

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.

**ASC 233 Computer Applications III /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ASC 132.

Continuation of ASC 132. Includes advanced word processing, spreadsheets, database, and desktop publishing software.

**ASC 233A Computer Applications III: Advanced Word Processing / 1 cr. hr./1.6 periods (.7 lec., .9 lab)**

Prerequisite(s): ASC 131B.

Continuation of ASC 131B. Includes outlines, search and replace, advanced tables, complex macros, indexes, tables and lists, math equations, and desktop publishing.

**ASC 233B Computer Applications III: Advanced Spreadsheets / 1 cr. hr./1.4 periods (.7 lec., .7 lab)**

Prerequisite(s): ASC 132B.

Continuation of ASC 132B. Includes advanced concepts of macros, look-up and imbedded formulas, templates, advanced math techniques, and data transfer.

**ASC 233C Computer Applications III: Advanced Database /1 cr. hr./ 1.4 periods (.7 lec., .7 lab)**

Prerequisite(s): ASC 132C.

Continuation of ASC 132C. Includes review of database functions, macro statements, use forms, application generation, database system, and format files.

**ASC 233D Computer Applications III: Desktop Publishing /1 cr. hr./ 1.6 periods (.9 lec., .7 lab)**

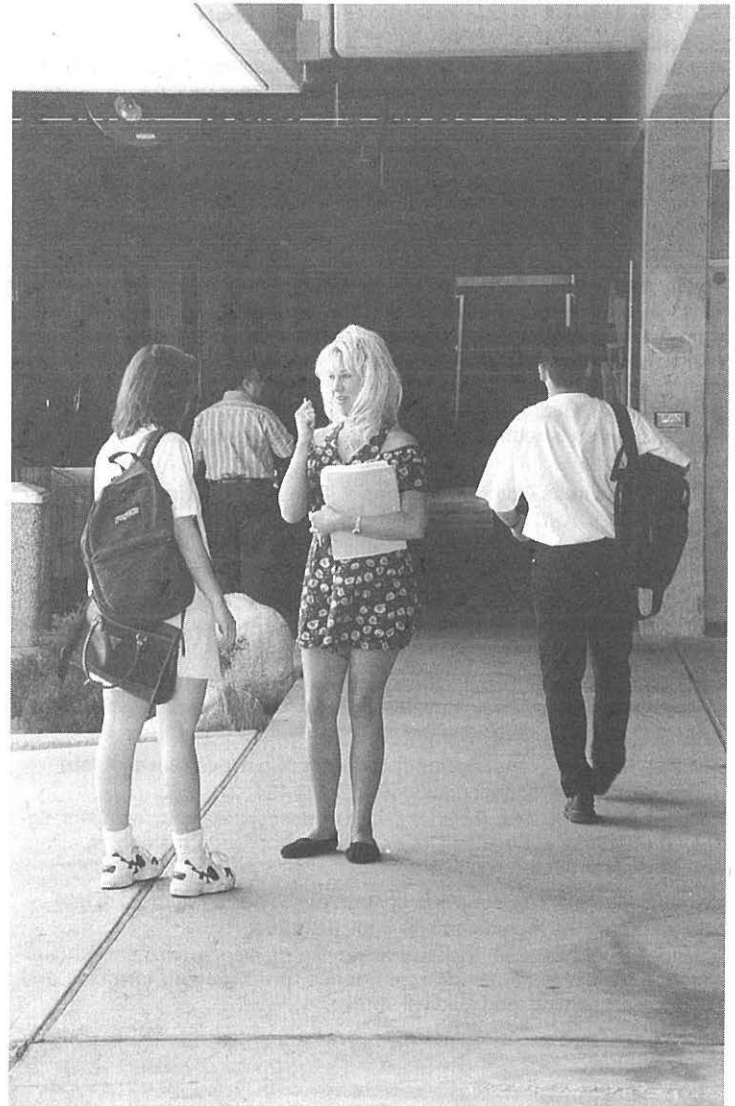
Prerequisite(s): ASC 131B, 233A.

Introduction to the use of desktop publishing concepts using current software. Includes basic formatting, use of fonts and graphics, text art, tables, columns, styles, advance page formatting, design lines and text boxes, and applying desktop concepts.

**ASC 242 Legal Secretarial Procedures III /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ASC 143 or consent of instructor.

Continuation of ASC 143. Includes fundamental principles for both general and specialized areas of legal practice.



**ASC 243 Legal Secretarial Procedures IV /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ASC 242 or consent of instructor.

Continuation of ASC 242. Includes file management, legal writing and research, administrative agencies, and business organizations.

**ASC 251 Business Communications I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ASC 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.

**ASC 252 Bilingual Commercial Correspondence /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): Fluent speaking and advanced writing proficiency in Spanish and English, ASC 112 or equivalent enrollment, ASC 151 or WRT 101, SPA 202 or 211 or concurrent enrollment.

Business correspondence in Spanish and English. Includes business terminology, mechanics of letter formatting and composing, translation of letters, styles and types of letters, business vocabulary, and reading and writing business material.

**ASC 255 Business Communications II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ASC 251.

Development of verbal and written communication skills needed at the supervisory level. Includes supervisory communication skills, verbal and nonverbal communications, written communications, and customer relations.

**ASC 262 Medical Terms II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ASC 162.

Continuation of ASC 162. Includes advanced work with word parts and forms, anatomy and physiology, diseases, and reference materials. Also includes therapeutic drugs and medical reports.

**ASC 264 Medical Transcription II /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): Keyboarding at 50 wpm, ASC 154, 219, 262.

Continuation of ASC 164. Includes punctuation, capitalization, numbers, figures, abbreviations, business letter transcription, proofreading, spelling, word division and reference books.

**ASC 266 Medical Transcription III /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): Keyboarding at 60 wpm, ASC 264.

Continuation of ASC 264. Includes advanced training in punctuation, capitalization, rules, medical correspondence, proofreading, prefixes and suffixes, transcription, and medical terms.

**ASC 281 Administrative Support Operations /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ASC 171.

Principles and procedures for administrative office personnel. Includes business operations, human resources, administrative responsibilities, production, professional image, research and organization of business data, and office administration procedures.

**ASC 297 Administrative Support Seminar: /25-4 cr. hrs./25-16 periods (.25-4 lec., .25-12 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.

**ASC 298 Special Topics in Administrative Support: /5-3 cr. hrs./5-3 periods (.5-3 lec.)**

Prerequisite(s): Consent of instructor.

Selected topics in administrative support which reflect current issues, trends, and technologies.

**ASC 299 Co-op Related Class in ASC /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**ASC 299 Co-op Work in ASC /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**AIR CONDITIONING**

(Building Technology)

**ACD 100 Introduction to Facilities Maintenance/Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Theory and procedures for maintaining mechanical and electrical equipment and building structures in a commercial/industrial facility. Includes as-built blueprints, building safety code, hand and power tools, plumbing maintenance, HVAC mechanical and electrical equipment maintenance, lubricants, paints and protective coatings, and built up roof and brick masonry maintenance.

**ACD 101 Principles and Concepts for HVAC /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 082 or concurrent enrollment or satisfactory score on mathematics assessment test.

Basic refrigeration fundamentals. Includes refrigerants, laws of heat transfer, heat energy and change of state, properties of air, psychrometrics, evaporative cooling, air and human comfort, and recycling and recovery.

**ACD 106 Soldering and Brazing for Building Technology /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): None.

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.

**ACD 115 Electrical Theory and Applications /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ACD 100.

Electrical theory, circuits, and components for systems found in buildings. Includes basic electricity, meters, circuit analysis, direct current, alternating current, voltages, inductors, capacitors, transformers and impedance.

**ACD 120 HVAC Electricity, Circuitry, and Controls /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ACD 101 or concurrent enrollment.

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.

**ACD 123 HVAC Systems Applications /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ACD 101 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.

**ACD 125 HVAC Systems Service and Repair /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ACD 123.

Troubleshooting and repairing air conditioning and heating equipment. Includes refrigerants, system evacuation and charging, water cooled systems, controls, and operating conditions.

**ACD 130 EPA Clean Air Act: Section 608 /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): ACD 101.

Freon certification preparation. Includes basics of refrigerant bearing equipment, ozone depletion and the new legislation, technician categories covered, and the certification examination.

**ACD 135 National Electrical Code Wiring Applications /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ACD 115.

Electrical wiring and installation conforming to National Electrical Code requirements. Includes grounded systems, requirements for overcurrent protection of conductors, ampacity criteria, installing overcurrent protection of conductors, installing services, installing motors and transformers, and remote control and signaling circuits.

**ACD 140 Gas Furnace Heating /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

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.

**ACD 161 Residential and Industrial Plumbing I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): Building Technology Department approval.

Theories and concepts for plumbing, pipe fitting, and the National Plumbing Code. Includes physics for plumbers and pipe fitters, plumbing materials, water supplies, drainage, and sewage disposal.

**ACD 162 Residential and Industrial Plumbing II /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ACD 161.

Continuation of ACD 161. Includes pipe joint connections, pipe fittings, rough-in, valves and faucets, and fixtures.

**ACD 163 Residential and Industrial Plumbing III /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ACD 162.

Continuation of ACD 162. Includes water installation practices, plumbing calculations, sewerage installations, and blueprint reading.

**ACD 164 Residential and Industrial Plumbing IV /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ACD 163.

Continuation of ACD 163. Includes venting installation practices, properties of water, and rigging and hoisting.



**ACD 190 Residential Energy Audit /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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. (Same as CON 190.)

**ACD 199 Co-op Related Class in ACD /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**ACD 199 Co-op Work in ACD /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**ACD 210 Commercial HVAC Systems /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ACD 125 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.

**ACD 212 Pneumatic HVAC Controls /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): ACD 210 or appropriate field experience.

Pneumatic controls for HVAC systems. Includes major components, controlled devices, relays, thermostats and calibration.

**ACD 221 Electrical Distribution and Motor Controls for Buildings / 4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ACD 120.

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.

**ACD 297 Air Conditioning Seminar: /25-4 cr. hrs./25-16 periods (.25-4 lec., .25-12 lab)**

Prerequisite(s): Consent of instructor.

Air conditioning job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

**ACD 299 Co-op Related Class in ACD /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**ACD 299 Co-op Work in ACD /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

## AMERICAN INDIAN STUDIES

**AIS 101 Introduction to American Indian Studies I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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

**ANT 101 Human Origins and Prehistory /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of physical anthropology and archaeology with emphasis on the emergence of the human species from its origins based on our understanding of the archaeological and fossil record. (Same as ARC 101).

**ANT 102 Introduction to Cultural Anthropology and Linguistics / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of human societal structure. Includes historical events, communication and language, marriage and family, environmental adaptation, economics, politics, gender, and religion. Also includes an introduction to the comparative study of cultures.

**ANT 105 Humanity And the Environment /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

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. (Same as ENV 105.)

**ANT 110 Buried Cities and Lost Tribes /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as ARC 110.

**ANT 112 Exploring Non-Western Cultures /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Anthropological overview of non-Western cultures, world views and social organizations. Includes ethnographic case studies and survey of analytic models.

**ANT 122 Tohono O'Odham History and Culture /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as HIS 122.

**ANT 123 The Anthropology of Music and Dance /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Introduction to music and dance in cultural context, with an emphasis on the American Southwest. Involves field studies with data collection and interpretation.

**ANT 126 Peoples in Transition /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Same as HIS 127.

**ANT 128 The Mexican-American in Transition /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

What is it like to be a Mexican-American in today's society? Problems resulting from differences in cultures, values and needs are examined through class discussion and participation in related activities in the community.

**ANT 129 Culture and Personality /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of studies on society and the factors that influence it. Includes historical considerations, psychoanalytic elements, distributional models, religion and myth, the family and community, and methods utilized in the studies.

**ANT 135 Pre-Columbian Art /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as ART 135 and HIS 135. (See ART 135 for course description.)

**ANT 136 Masks /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as ART 136 and HIS 136. (See ART 136 for course description.)

**ANT 146 Culture and Personality of the Mexican-American /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

A review of how the culture and personality of the Mexican-American differs from others and what it means to the individual.

**ANT 148 History of Indians of North America /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as HIS 148.

**ANT 150 Afro-American History and Peoples /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as HIS 150.

**ANT 160 History and Peoples of Latin America I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as HIS 160.

**ANT 170 History and Peoples of Africa /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as HIS 170.



**ANT 198 Special Topics in Anthropology: /1-3 cr. hrs./1-9 periods (0-3 lec., 0-9 lab)**

Prerequisite(s): Consent of instructor.

Selected topics in anthropology which reflect current issues, trends, and technologies.

**ANT 200 Biological Anthropology /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

The interaction of human biology and culture as found among various peoples and their environment.

**ANT 202 Sex, Gender, and Culture /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Anthropological examination of gender identity, roles, and relations. Includes studies of families, domestic groups, and communities. Also includes selected case studies and frameworks for analysis.

**ANT 203 Ethnic Groups and Culture /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Anthropological survey of ethnicity. Includes cultural definition of ethnic groups, social variables, and ethnic boundaries.

**ANT 205 Introduction to Southwestern Prehistory /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as ARC 205.

**ANT 206 Contemporary Native Americans of the Southwest /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Anthropological examination of Native American cultures of the Southwestern United States. Includes linguistic and cultural diversity, Southwestern Native American economies, cultural configuration, and frameworks for analysis.

**ANT 207 Southwestern Prehistory Lab /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): Concurrent enrollment in ANT/ARC 205.

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 anthropological theory and method, a comparison of ethnographies, and analytic paradigms. Also includes selected topics.

**ANT 215 The Nature of Language /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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): None.

Same as ARC 225.

**ANT 250 Archaeology Laboratory /3 cr. hrs./7 periods (1 lec., 6 lab)**

Prerequisite(s): ANT/ARC 101.

Same as ARC 250.

**ANT 275 Archaeological Excavation I /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): None.

Same as ARC 275.

**ANT 276 Archaeological Exploration I /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): ARC 180 or concurrent enrollment.

Same as ARC 276.

**ANT 277 Archaeological Excavation II /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): ANT/ARC 275.

Same as ARC 277.

**ANT 278 Archaeological Exploration II /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): ANT/ARC 276 and consent of instructor.

Same as ARC 278.

**ANT 280 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. (Same as ARC 280.)

**ANT 281 Field Computers /1 cr. hr./2 periods (2 lab)**

Prerequisite(s): BUS 105.

Same as ARC 281.

**ANT 282 Managing Archaeological Data /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): ANT/ARC 275, 276, BUS 105.

Same as ARC 282.

**ANT 283 ArcheoCAD /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): BUS 105.

Same as ARC 283.

**ANT 284 Archaeocartography /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): BUS 105.

Same as ARC 284.

**ANT 285 Field Mapping I /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): ANT/ARC 275.

Same as ARC 285.

**ANT 286 Field Mapping II /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): ANT/ARC 285 and consent of instructor.

Same as ARC 286.

**ANT 289 Field Instruments /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ANT/ARC 286, BUS 105.

Same as ARC 289.

**ANT 296 Individual Studies /1-3 cr. hrs./1-3 periods (1-3 lec)**

Prerequisite(s): Consent of instructor.

Students independently continue their development in anthropology with the help of a faculty member. May be taken three times for a maximum of nine credit hours. (Same as ARC 296.)

**ANT 298 Advanced Topics in Anthropology: /1-3 cr. hrs./1-9 periods (0-3 lec., 0-9 lab)**

Prerequisite(s): Consent of instructor.

Selected topics in anthropology which reflect current issues, trends, and technologies.

**ARCHAEOLOGY****ARC 075 Field Archaeology /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): None.

Participation in archaeological field activities. A nontechnical course with an emphasis on local field work.

**ARC 101 Human Origins and Prehistory /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as ANT 101.

**ARC 105 Survey of Microcomputer Uses /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

Same as CSC 105 and BUS 105. (See CSC 105 for course description.)

**ARC 110 Buried Cities and Lost Tribes /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Exploration of the human past. Includes studying important archaeological finds from various cultures around the world. (Same as ANT 110.)

**ARC 180 Artifact Identification /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): None.

Introduction to the recognition, identification and classification of the various types of artifacts recovered from local archaeological sites.

**ARC 199 Co-op Related Class in ARC /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**ARC 199 Co-op Work in ARC /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**ARC 205 Introduction to Southwestern Prehistory /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Study of the prehistory of the American Southwest from its earliest inhabitants to European contact. (Same as ANT 205.)

**ARC 207 Southwestern Prehistory Lab /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): Concurrent enrollment in ANT/ARC 205.

Laboratory and field activities to provide interpretive context for prehistoric cultures of the American Southwest. (Same as ANT 207.)

**ARC 225 Archaeology /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of the concepts and methods which archaeologists use to reconstruct human prehistory. (Same as ANT 225.)

**ARC 250 Archaeology Laboratory /3 cr. hrs./7 periods (1 lec., 6 lab)**

Prerequisite(s): ANT/ARC 101.

Laboratory experience in the curating, processing and analysis of prehistoric and historic artifacts recovered from archaeological sites. (Same as ANT 250.)

**ARC 275 Archaeological Excavation I /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): None.

Introduction to the techniques of archaeological mapping, excavation and recording. Includes field experience in southern Arizona. (Same as ANT 275.)

**ARC 276 Archaeological Exploration I /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): ARC 180 or concurrent enrollment.

Techniques and methods for recognizing, locating and recording archaeological sites. Includes fieldwork in southern Arizona. (Same as ANT 276.)

**ARC 277 Archaeological Excavation II /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): ANT/ARC 275.

Continuation of ANT/ARC 275. Includes advanced excavation techniques, field crew supervision, and selected field projects. (Same as ANT 277.)

**ARC 278 Archaeological Exploration II /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): ANT/ARC 276 and consent of instructor.

Continuation of ARC 276. Includes archival investigation, advanced field techniques, crew supervision, and selected field projects. (Same as ANT 278.)

**ARC 280 Field Projects /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): Consent of instructor.

Same as ANT 280.

**ARC 281 Field Computers /1 cr. hr./2 periods (2 lab)**

Prerequisite(s): BUS 105.

Implementing hand-held, lap-top, and palm computers in a field setting. Includes systems configuration, data transfer, and instrument interfacing. (Same as ANT 281.)

**ARC 282 Managing Archaeological Data /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): ANT/ARC 275, 276, BUS 105.

Organization and management of data associated with archaeological field work and collections. Includes collection strategies and techniques, application software, and data contexts. (Same as ANT 282.)

**ARC 283 ArchaeoCAD /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): BUS 105.

Computer aided drafting software emphasizing techniques and hardware appropriate for archaeological applications. Includes hardware configuration, approaches to CAD, and data collection techniques. (Same as ANT 283.)

**ARC 284 Archaeocartography /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): BUS 105.

Cartographic techniques and hardware for archaeological applications. Includes software for cartography, geographic information systems, graphic portrayal, and desktop mapping. (Same as ANT 284.)

**ARC 285 Field Mapping I /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): ANT/ARC 275.

Optical surveying instruments and associated software for mapping archaeological sites. Includes mapping concepts, instrument operation, field data techniques, and producing maps. (Same as ANT 285.)

**ARC 286 Field Mapping II /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): ANT/ARC 285 and consent of instructor.

Continuation of ANT/ARC 285. Includes electronic surveying instruments, computerized data collection systems, and associated software for mapping archaeological sites. (Same as ANT 286.)

**ARC 289 Field Instruments /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ANT/ARC 286, BUS 105.

Electronic instrument utilization in the field. Includes geophysical instruments, remote sensing equipment, and global positioning systems. Also includes software applications and data manipulation. (Same as ANT 289.)

**ARC 296 Individual Studies /1-3 cr. hrs./1-3 periods (1-3 lab)**

Prerequisite(s): Consent of instructor.

Same as ANT 296. May be taken three times for a maximum of nine credit hours.

**ARC 299 Co-op Related Class in ARC /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**ARC 299 Co-op Work in ARC /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**ART**

**ART 100 Basic Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Introduction to the elements of visual design, such as line, shape, value, texture, volume and color. Includes skill development in organizing these elements and applying the principles of harmony, variety, balance, and tension.

**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 111 Drawing Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

Prerequisite(s): ART 100 or equivalent experience.

Exploration of the drawing process. Includes practice in traditional and contemporary approaches to basic drawing problems.

**ART 115 Color and Design /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)**

Prerequisite(s): ART 100.

Extension of ART 100 into sculptural concepts and media. Includes study of volume, mass, and space relationships through modeling, casting, carving and construction.

**ART 121 Figure Sculpture Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

Prerequisite(s): ART 100 or equivalent art experience.

Practice in working from the model using clay, plaster and wax. Emphasis on individual development rather than producing a permanent product.

**ART 122 Stone Carving Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

Prerequisite(s): ART 100 or equivalent experience.

Introduction to basic stone carving methods and techniques. Emphasis on the use of hand tools.

**ART 123 Lost Wax Sculpture Casting Workshop /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): ART 100 or equivalent art experience.

Fundamentals of art metal sculpture casting using the ceramic shell mold process. Includes wax design (direct and indirect), pattern making techniques, mold making, casting in bronze and aluminum and metal finishing processes.

**ART 130 Art and Culture I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

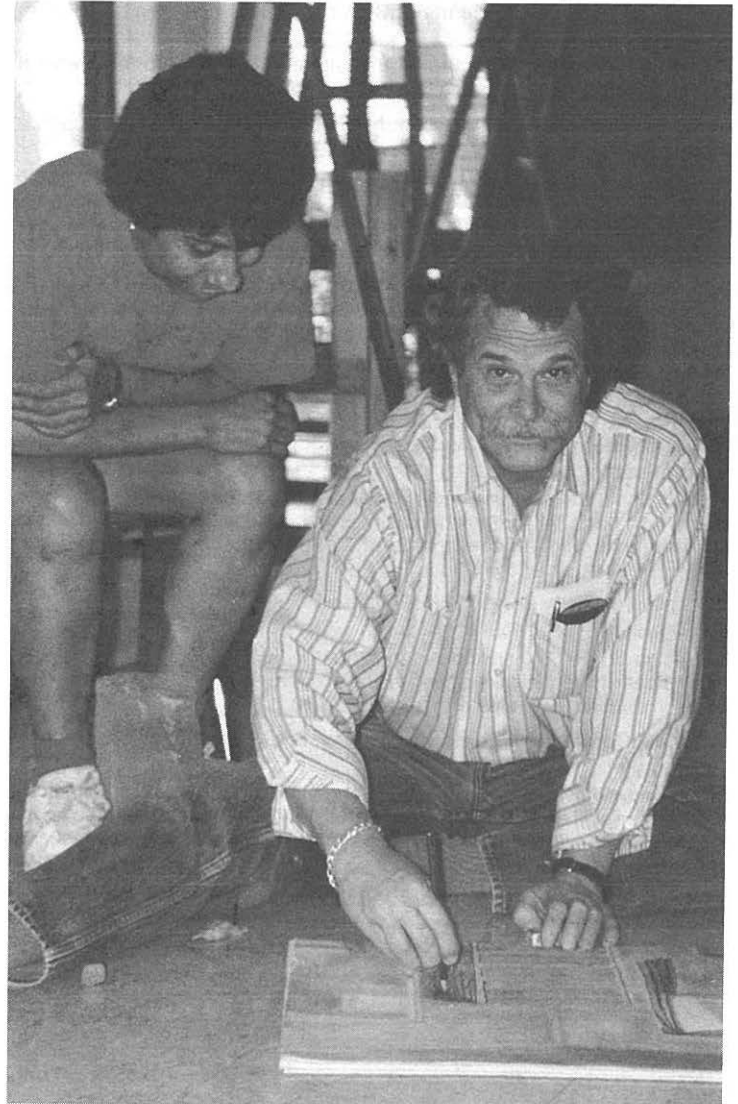
Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Survey of modern art trends in painting, sculpture, and architecture from the middle 19th century to recent times. Slide and lecture discussions will emphasize both formal and contextual aspects of art works.



**ART 133 Survey of American Art /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

American painting, architecture and sculpture from 1650 to the present. Emphasizes the history and culture of each period.

**ART 135 Pre-Columbian Art /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

A survey of the art of pre-Columbian Mexico. Students will learn to recognize major art styles and important sites. Course includes a survey of the art of the same time period in Southeastern and Southwestern America, Central America, and Peru. (Same as ANT 135 and HIS 135.)

**ART 136 Masks /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

A survey of traditional masks and sculpture of Africa, North and South America, Asia and Oceania. Major emphasis is on style, function and meaning of the masks of the Northwest Coast Indians and of the indigenous peoples of Africa and the South Pacific. (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 a general inquiry into basic techniques of making silver images. Includes developing, printing, enlarging, aesthetic language of photography, perspective and photography as an art form. Individual and group work.

**ART 141 Photography II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ART 140.

Extension of ART 140. Includes use of the medium as an art form with optimum creativity, technical skill and visual finesse. Also includes portfolio and book production, field trips and research.

**ART 143 Commercial Photography /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ART 141.

Introduction to commercial fields in photography and principles and practice of photography as a business. Includes studio management, laboratory techniques, pricing, record keeping, advertising, portraiture, weddings, and industrial and aerial work.

**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 163 Kiln Workshop /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): ART 160 or equivalent ceramic experience.

Introduction to the design, operation and construction of combustion fuel kilns used by the ceramic artist and studio potter. Includes historical evolution, kiln design and construction, refractories, combustion and firing systems, kiln maintenance/repair and the art of firing.

**ART 164 Raku Pottery 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 Sixteenth Century Japan. Includes traditional and contemporary approaches involved in clay body composition, in the forming, glazing and firing of pots and in Raku kiln building.

**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 171 Basic Jewelry Fabrication Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

Prerequisite(s): ART 100 or equivalent experience.

Techniques used in the construction of jewelry, including sawing, soldering, polishing and simple bezel setting of stones. Also includes an introduction to jewelry design.

**ART 172 Knife Making Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

Prerequisite(s): ART 100 or equivalent art experience.

Introduction to essential processes used in knife making. Includes design, layout, materials, angle structure, forging, heat treating, and finishing. Also includes ornamentation methods such as inlay, engraving, chasing and etching.

**ART 173 Basic Lapidary Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

Prerequisite(s): ART 100 or equivalent experience.

Fundamental techniques of cutting, grinding and polishing stones for jewelry. Includes the forming of cabochon and eccentric shapes. Medium hard stones such as agates and jaspers will be used.

**ART 174 Blacksmithing Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

Prerequisite(s): ART 100 or equivalent art experience.

Introduction to design, layout, materials, fuels, forge making and practices. Includes hot-working ferrous and non-ferrous metals, tool making and heat treating.



**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 Fiber Structures /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, macrame, plaiting, surface design, and mixed media.

**ART 185 Papermaking Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

Prerequisite(s): ART 100 or equivalent experience.

Introduction to papermaking as an art form. Includes use of various fibers, beating the pulp, forming and pressing sheets, and casting three dimensional forms.

**ART 186 Beginning Spinning Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

Prerequisite(s): ART 100 or equivalent experience.

Techniques of spinning wool on a drop spindle and spinning wheel, plus carding, blending, plying and caring for hand-spun yarn.

**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. (ART 110 is recommended.)

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. (ART 115 is recommended.)

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. 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 II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ART 120.

Exploration of various methods and materials used in sculpture. Methods may include modeling, casting, metal forming, construction techniques and carving. Materials may include 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.)**

Prerequisite(s): None.

Intensive study of the history of photography as an art form and its relationship to the other arts and to society. Includes development of the technical aspects of photography, styles and movements from 1839 to contemporary schools, and important photographers.

**ART 231 History, Philosophy and Psychology of Art and Design / 3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Consent of instructor.

Advanced projects in studio areas. Content to be determined by conference between student and instructor.

**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 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. May be taken four times for a maximum of twelve credit hours.

**ART FOR PERSONAL DEVELOPMENT**

**APD 009-078 Art for Personal Development**

A series of workshop and lecture courses designed to develop skill in or knowledge of various media.

**APD 009 Introduction to Freehand Sketching /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Beginning freehand sketching for interested persons with little or no previous art experience. Not intended for art majors.

**APD 010 Drawing /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Workshop designed to develop skill in drawing.

**APD 011 Designing Home Interiors /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Introduction to the basic principles of interior design. Emphasis on the planning of residential interiors that will satisfy individual and family needs, values and life styles. Consumer education regarding the selection of home furnishing materials is also stressed.

**APD 012 Photography /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Workshop designed to develop skill in photography.

**APD 013 Advanced Photography /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): APD 012.

Advanced techniques for still and portrait photography. Includes advanced darkroom techniques.

**APD 014 Painting I: Acrylic and Oil /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Exploration of design and composition using basic techniques in oil and/or acrylic. Emphasis on how to build a painting.

**APD 016 Painting II: Mixed Media /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): APD 014.

Continuation of APD 014. Intermediate studio painting. Further study and practice of basic techniques and processes of painting with oil, acrylic and mixed media. Emphasis on producing a complete painting.

**APD 017 Painting III: Techniques and Composition /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): APD 016.

Continuation of APD 016. Advanced studio painting. Emphasis on technique and composition as related to realism, expressionism and abstractionism. May be taken two times for a maximum of four credit hours.



**APD 018 Calligraphy I /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

The classic art of lettering and the illumination and decoration of manuscripts.

**APD 019 Calligraphy II /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): APD 018.

Continuation of APD 018. Advanced techniques of the classic art of lettering and the illumination and decoration of manuscripts.

**APD 020 Ceramics /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Workshop designed to develop skill in ceramics.

**APD 022 Weaving I /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Workshop designed to develop skill in weaving.

**APD 041 La Pintura Mural En Mexico /2 cr. hrs./4 periods (1 lec., 3 lab)**

Requisito: Ninguno.

Seminario diseñado para desarrollar la habilidad en la pintura mural.

**APD 042 Pastelería Creativa I /2 cr. hrs./4 periods (1 lec., 3 lab)**

Requisito: Ninguno.

Seminario diseñado para desarrollar la habilidad en la pastelería creativa.

**APD 043 Pastelería Creativa II /2 cr. hrs./4 periods (1 lec., 3 lab)**

Requisito: Ninguno.

Continuación de APD 042. Seminario diseñado para desarrollar aun más la habilidad en la pastelería creativa.

**APD 051 Mariachi Music I /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Workshop designed to develop in students mariachi music skills. Includes an introduction to reading and writing music, history of mariachi music, and an introduction to and maintenance and care of various instruments.

**APD 054 Color Photography /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Processing and printing of color negatives and color slide materials.

**APD 055 Advanced Color Photography /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): APD 054.

Advanced techniques in the printing of color negatives. Includes cibachrome and ektacolor processing techniques, sensitometry in printing color negatives and on-site shooting with the incorporation of studio lighting.

**APD 063 Pastel Painting /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Principles and techniques of using the pastel medium in developing a painting.

**APD 065 Watercolor I /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Introduction to methods and basic techniques of watercolor painting. Emphasis on the development of imagination and creativity.

**APD 066 Watercolor II /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): APD 065.

Continuation of APD 065. Techniques of painting with water-based media on paper. For beginning and intermediate painters. Personal creativity, color theory and composition are stressed.

**APD 067 Watercolor III /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): APD 065.

Introduction to the fundamentals of landscape painting in water-based media of the student's choice. Includes the use of photos and sketches as starting points for creativity.

**APD 068 Watercolor IV /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): APD 065.

Exploration of design and composition using basic and advanced techniques in water-based media. Includes the stroke technique.

**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 the mariachi, types of rhythms, and songs that are indigenous to the culture of Mexico.

**APD 073 Mariachi Music III /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): APD 072.

Continuation of APD 072. Includes basic music and style, keys, relationship of tonality to keys, and rhythmic patterns.

**APD 076 Art Appreciation /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Examination of contemporary art and understanding of the artistic heritage in visual world art. Includes museum and gallery visits, discussion with artists and visits to their studios. Experimental drawing and sculpture done in class.

**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.

**ASTRONOMY**

**AST 101 Solar System /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Descriptive and historical introduction to the science of astronomy focusing on the sun and its family of planets. Includes comets, origin of the solar system, the space program and critiques of related pseudosciences, e.g., astrology.

**AST 102 Stars, Galaxies, Universe /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Introduction to the universe beyond the solar system. Includes the nature of light, how astronomers and telescopes work, the possibilities of alien life in the universe, quasars, pulsars and black holes. Also includes the origin, nature and future of the universe.

**AST 105 Life in the Universe /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The science of astronomy focusing on the formation of the universe, the solar system, and life. Includes Earth's location in space and time, nature of life, light and the spectrum, origin of the universe, galaxies and stars, origin of the solar system, planetary atmospheres, origin of life on Earth, life on other solar system planets, and life around other stars.

**AST 111 Solar System Laboratory /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): None.

Laboratory for AST 101, involving exercises, star gazing sessions and field trips to planetariums and observatories.

**AST 112 Stars, Galaxies, Universe Laboratory /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): None.

Laboratory for AST 102, involving exercises, star gazing sessions and field trips to planetariums and observatories.

**AST 115 Life in the Universe Laboratory /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): Must take AST 105 concurrently or previously.

Laboratory for AST 105 involving observations, experiments and image analysis. Includes scientific and photogeology laboratory exercises, group telescopic observation projects, and personal observation projects.

**AST 294 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. May be taken three times for a maximum of twelve credit hours.

**AST 295 Special Topics in Astronomy: /1-5 cr. hrs./1-10 periods (0-5 lec., 0-10 lab)**

Prerequisite(s): Consent of instructor.

Special and current topics in astronomy. Includes charge-coupled device (CCD) imaging of planets, photoelectric photometry of variable stars, photography of various celestial objects, and photometry using CCD array.

**AUTO BODY REPAIR****ABR 115 Automotive Painting I /4 cr hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): None.

Introduction to automobile painting. Includes types of finishing materials, surface preparation, paint application, and paint equipment.

**AUTO SERVICE REPAIR****ASR 106 Auto Service Repair: Tune-up /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Theory and practice of engine tune-up. Includes operation, diagnosis, and repair of ignition and carburetor systems. Also includes customer relations and sales.

**AUTOMOTIVE TECHNOLOGY****AUT 091 Small Engine Troubleshooting and Repair /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): None.

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./3 periods (1 lec., 2 lab)**

Prerequisite(s): None.

Techniques of routine vehicle maintenance. Includes customer vehicle identification and handling, new vehicle predelivery inspection and preparation, safety inspection, lubrication tasks, and light line tasks.

**AUT 111 Automotive Body and Fender Repair /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Fundamentals of sheet metal repair using basic metalworking tools. Instruction is limited to minor damage repair, parts replacement and alignment.

**AUT 120 Internal Combustion Engines /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): None.

Principles of engine assembly and operation. Includes identification, installation and adjustment of the crankshaft, camshaft, timing chain, piston-connecting rods, fuel pump, water pump, oil pump, and cylinder head assemblies of internal combustion engines.

**AUT 122 Automotive Engine Service Repair /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Procedures for removing, repairing and replacing engine parts. Includes evaluation of internal and external engine parts, valve grinding and removal and replacement of camshaft crankshaft, timing chain, insert bearings and piston rings. Also includes assembling the engine to given specifications.

**AUT 124 Automotive Diesel Engine Tune-up /3 cr. hrs./5 periods (1 lec., 4 lab)**

Prerequisite(s): None.

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./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

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./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Diagnosis, service, and repair of computerized engine control systems. Includes turbo-charged and multi-port fuel injection, hall-effect ignition, throttle body injection, General Motors and Bosch sequential injection with distributorless, and direct ignition, and computerized emissions control systems.

**AUT 128 Automotive Electrical Fundamentals and Applications / 3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

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./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

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 Automatic Transmission Removal, Replacement and In-Car Repair /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): None.

Removal, repair, adjustment and replacement of automatic transmissions in popular use today. Includes in-car repairs and adjustments, transmission removal, replacement and tear down. These operations are performed according to factory time limitations and specifications.

**AUT 133 Automatic Transmission Rebuilding /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): None.

Duties of an automatic transmission builder. Includes overhauling automatic transmissions in popular use today within a given time and to specifications.

**AUT 136 Automotive Driveline /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): None.

Training in automotive driveline components. Includes removal and replacement of manual transmissions and clutches and overhauling of manual transmissions, universal joints and differentials.

**AUT 138 Automotive Chassis /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): None.

Training in automotive chassis components. Includes wheel alignments, wheel balancing and overhaul of suspension system, manual and power steering gears, and power steering pumps.

**AUT 140 Automotive Brakes /4 cr. hrs./ 5 periods (3 lec., 2 lab.)**

Prerequisite(s): None.

Service, repair, and diagnosis of hydraulic brake systems. Includes disc/drum and disc/disc brakes, hydraulic cylinders, disc brake caliper, machining and fabrication, and rear wheel and four wheel anti-lock brake diagnosis.

**AUT 142 Automotive Air Conditioning /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Diagnosis and repair of automotive air conditioning systems. Includes discharging and recharging air conditioning systems.

**AUT 199 Co-op Related Class in AUT /1 cr. hr./1 period (1 lec.)**

See Cooperative Education for description.

**AUT 199 Co-op Work in AUT /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education for description.

**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.)**

See Cooperative Education for description.

**AUT 299 Co-op Work in AUT /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education for description.

## AVIATION SCIENCE

### **AVS 110 Aviation Ground School: Private Pilot /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Theory and procedures associated with the ground phase of private pilot training. Includes theory of flight, weather and navigation.

### **AVS 210 Aviation Ground School: Commercial Pilot/Multi-Engine / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): AVS 110 or consent of instructor.

Theory and procedures associated with the ground phase of commercial pilot training/multi-engine. Includes aircraft flight and systems, airspace, weather, navigation, Federal Aviation Regulations (FAR), flight operations, and pilot physiology. Helps prepare the student for the Commercial Pilot FAA written test.

### **AVS 230 Aviation Ground School: Instrument Pilot /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): AVS 110 or consent of instructor.

Theory and procedures related to instrument flight. Includes airspace regulations, instrument navigation, aircraft instrumentation, meteorology, and Instrument Flight Rules.

## AVIATION TECHNOLOGY

### **AVM 088 Preventive Maintenance for Pilots /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Aircraft preventive maintenance principles and procedures for use by pilots. Includes engine design and function, aircraft design and function, operational safety standards, federal aviation regulations and an examination of industry maintenance practices.

### **AVM 101 Structural Repair I /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): Concurrent enrollment in AVM 115 or mathematics assessment above MAT 082 recommended.

Structural repair of fuselage, wings and empennage groups. Includes safety, hand, 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)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Aircraft structural repair blueprint reading. Includes measurement tools, drawing and layout equipment, views and projections, types of drawing and reference lines, drawing format, rivet code block, geometric construction and aircraft blueprint interpretation.

### **AVM 115 Applied Aircraft Mathematics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Mathematic functions used in structural repair work. Includes whole numbers, fractions, decimals, single numbers, percentages, ratio, measurement of area and volume and trigonometric functions.

### **AVM 120 Aviation Electricity I /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): None.

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 123 Airframe Familiarization /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Structure and system functions of aircraft. Includes fuselage, control systems, support systems, ground handling and servicing and publications.

### **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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Aircraft powerplant functions and systems. Includes reciprocating and turbine engine powerplants, requirements, hazards and safety, nacelles, cowlings, pylon and mounting systems and foreign object damage.

**AVM 203 Structural Repair V /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): AVM 151, 160.

Continuation of AVM 151. Includes jiggging, shoring and alignment, corrosion and heat treatment and structural repair processes.

**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 Advanced Composite Aircraft Repair I /5 cr. hrs./7 periods (4 lec., 3 lab.)**

Prerequisite(s): AVM 204.

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 troubleshooting, 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 235 Boeing 727 Maintenance /6 cr. hrs./6 periods (6 lec.)**

Prerequisite(s): None.

Familiarization and system functions of the Boeing 727 aircraft. Includes airframe and powerplant systems, locations and functions, instrumentation monitoring and basic troubleshooting techniques.

**AVM 236 Boeing 737 100/200 Series Maintenance /6 cr. hrs./6 periods (6 lec.)**

Prerequisite(s): None.

Familiarization and system functions of the Boeing 737 100/200 series aircraft. Includes airframe and powerplant systems, locations and functions, instrumentation monitoring and basic troubleshooting techniques.

**AVM 237 McDonnell Douglas DC-9 Maintenance Systems /6 cr. hrs./ 6 periods (6 lec.)**

Prerequisite(s): None.

Familiarization and system functions of the DC-9 Maintenance aircraft. Includes airframe and powerplant systems, locations and functions, instrumentation monitoring and basic troubleshooting techniques.

**AVM 238 McDonnell Douglas DC-8 Maintenance Systems /6 cr. hrs./ 6 periods (6 lec.)**

Prerequisite(s): None.

Familiarization and system functions of the DC-8 aircraft. Includes airframe and powerplant systems, locations and functions, instrumentation monitoring and basic troubleshooting techniques.

**AVM 250 Structural Repair VII /4 cr. hrs./10 periods (1 lec., 9 lab)**

Prerequisite(s): AVM 210.

Simulated industry repair performance. Includes quality assurance, required paperwork and repairs to aircraft structures.

**AVM 260 Advanced Composite Aircraft Repair II 4 cr. hrs./10 periods (1 lec., 9 lab.)**

Prerequisite(s): AVM 250.

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.

**BILINGUAL STUDIES FOR THE DEAF**

**BSD 070 ASL/English Studies I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): Consent of instructor.

Bilingual developmental course in American Sign Language and written English. Includes comparisons of ASL and English grammar, vocabulary, and composition. Also includes Deaf history and cultures of Deaf and Hearing People. This course is designed for Deaf students only.

**BSD 071 ASL/English Studies II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): BSD 070 or consent of instructor.

Advanced topics in American Sign Language and English grammar: pronouns, referencing, tenses, relative clauses and conditionals as well as composition in both languages. Adapted to the needs of deaf students. May be taken four times for a maximum of sixteen credit hours.

**BSD 074 ASL/English Studies III /6 cr. hrs./6 periods (6 lec.)**

Prerequisite(s): Consent of instructor.

Bilingual-bicultural course in American Sign Language and English. Includes reading, writing, and comprehension skills adapted to the needs of deaf students.

**BIOLOGY**

**BIO 083 Oceanus: Marine Environment /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 100 Biology Concepts /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

Basic principles and concepts of biology. Includes methods of scientific inquiry, cell structure and chemistry, metabolism, reproduction, genetics, evolution, and ecology.

**BIO 105 Environmental Biology /4 cr. hrs./6 periods (3 lec., 3 lab.)**

Prerequisite(s): None.

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.



**BIO 109 Natural History of the Southwest /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

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.

**BIO 115 Wildlife of North America /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

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.

**BIO 156 Human Biology for Allied Health /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

Introduction to biology for the health professions. Includes basic chemistry of life, cell and tissue structure and function, and patterns of inheritance.

**BIO 160 Introduction to Human Anatomy and Physiology /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

Structure and dynamics of the human body. Includes basic biological concepts, major structures and function of skeletal, muscular, cardiovascular, respiratory, urinary, digestive, nervous, endocrine, and reproductive systems. For students who require a one semester lab science course in anatomy and physiology.

**BIO 181 General Biology (Majors) I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): One year high school chemistry or one semester college level chemistry recommended.

Principles of structure and function of living things at molecular, cellular, and organismic levels of organization. Includes scientific method, chemistry of cell, cell structure and function, cellular metabolism, cell cycle, inheritance, plant and animal reproduction and development, biotechnology, and immunology.

**BIO 182 General Biology (Majors) II /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, diversity of organisms, structure and function of plants and animals, structure of ecosystems, and ecology.

**BIO 183 Marine Biology /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

A survey of marine environments and their biotic communities with emphasis on the natural history of marine organisms (from sponges to whales). Lab work included. Field trip required.

**BIO 184 Plant Biology /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

Study of principles and processes in plant biology with emphasis on vascular plants. Includes survey of plant kingdom.

**BIO 197 Introduction to Biological Research /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Introduction to the methods of research in biology. Includes scientific laboratory procedures, experimental design, scientific writing, bioethics, and current research in working laboratories.

**BIO 198 Special Topics: /1-4 cr. hrs./1-10 periods (1-4 lec., 0-9 lab)**

Prerequisite(s): None.

Special and current topics in biology. May be taken four times for a maximum of sixteen credit hours.

**BIO 201 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.

**BIO 202 Human Anatomy and Physiology II /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): BIO 201 with a grade of "C" or better.

Continuation of BIO 201. Includes the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems.

**BIO 204 Survey of Human Diseases /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): An introductory anatomy and physiology course or equivalent.

Examination of disease processes and their effects on the systems of the human body. Primarily for students in the health occupation programs, but also open to students who wish to take a lab-science course.

**BIO 205 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.

**BIO 210 Communicable Diseases /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): One semester of biological science.

The causes, prevention and control of microbial diseases with emphasis on those of importance to national and international public health.

**BIO 297 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. May be taken three times for a maximum of twelve credit hours.

**BIO 298 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. May be taken two times for a maximum of eight credit hours.

**BUSINESS****BUS 100 Introduction to Business /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of fundamental characteristics and functions of modern business. Business principles, marketing, record keeping, risks, and an historical review of business development, including the viewpoint of various ethnic groups.

**BUS 105 Survey of Microcomputer Uses /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

Same as CSC 105 and ARC 105. (See CSC 105 for course description.)

**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 I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Principles and sources of business law. Law of contracts, torts, agency consumer credit protection and sales. Includes an overview of the judicial system.

**BUS 201 Business Law II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): BUS 200.

Continuation of BUS 200, including the law of personal property, real property, partnerships, corporations, government regulation of business and environmental law.

**BUS 205 Statistical Methods in Economics and Business /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 172.

Introduction to statistical concepts and methods of business. Includes data collection, data description, inference, decision making, problem solving, prediction, and analyzing variation in economic and business systems. Also includes sampling techniques, methods of data description, sampling distributions, point and interval estimation on population mean and proportion, hypothesis testing about population mean and proportion, linear regression and correlation, chi-square tests, attribute and variables control charting.

**BUS 210 International Business /3 cr. hrs./3 periods (3 lec.)**

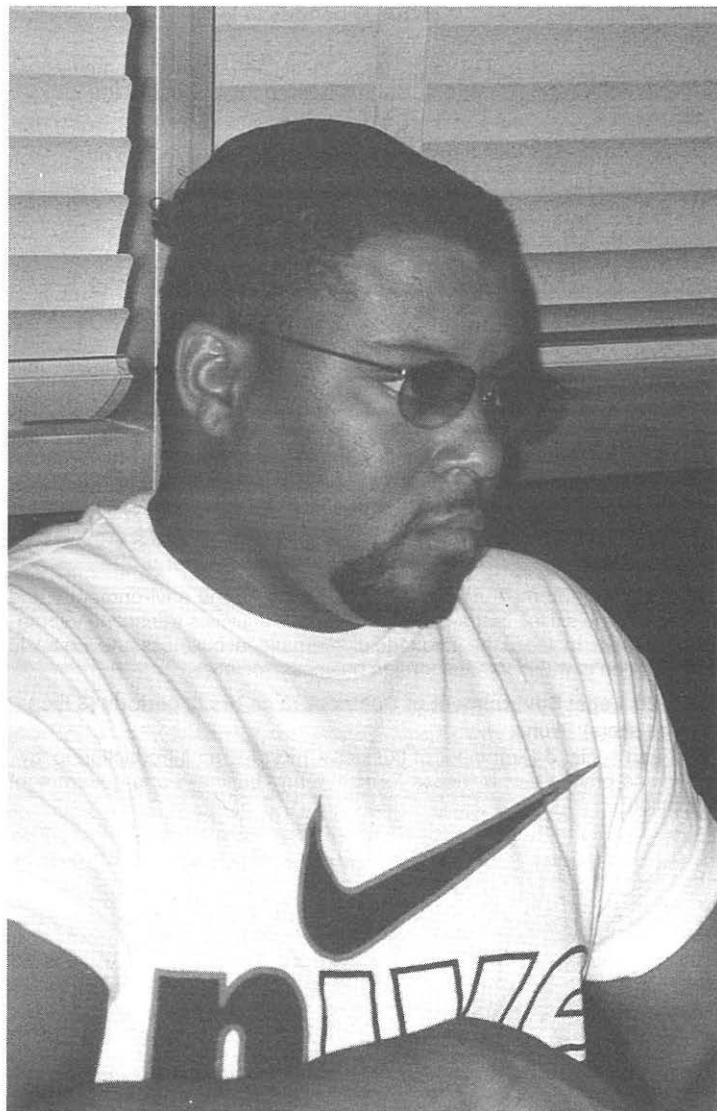
Prerequisite(s): None.

Introduction to international business, focusing on the environmental and strategic complexities that arise when business activities transcend international borders. Includes the language 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.)**

Prerequisite(s): None.

Legal and social environment of business. Includes an introduction to law, public and private law, business formation and business and government regulation.



## CERAMIC MANUFACTURING

### **CMT 101 Safety and Ceramic Parts Handling /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Safety, OSHA requirements and parts handling in a ceramic manufacturing plant. Includes hand tool, machine, electrical and chemical safety procedures. Also includes ceramic parts preparation and green, fired and finished ceramic parts handling.

### **CMT 102 Hand Tool Operations /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Hand tool terminology and applications. Includes cutting and non-cutting tools.

### **CMT 103 Precision Measuring Equipment /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): CMT 102.

Nomenclature, types and use of precision measuring equipment. Includes micrometers, verniers, gage blocks, and inside, depth and height instruments.

### **CMT 104 Ceramic Lathe Operations /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): CMT 103.

Lathe set-up, turning and cutting procedures in ceramic manufacturing. Includes safety, diamond cutting tools, speeds, feeds and tracer attachments.

### **CMT 105 Ceramic Press Operations /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Set-up and operation of punch, extender and wet bag presses. Includes material preparation, parts identification, assembly and insertion of molds, and clean up procedures.

### **CMT 106 Ceramic Saw Operations /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Procedures for ceramic manufacturing, using cut-off and slitting saws. Includes operating procedures, cycle movements, value controls and diamond cut-off wheel operations.

### **CMT 107 Basic Electricity for Ceramic Manufacturing Operations / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic electricity and applications for the operation and maintenance of ceramic machines. Includes static electricity, AC/DC current, resistance and measurements.

**CMT 201 Finishing Processes for Ceramic Materials /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): CMT 101.

Set-up and operation of various finishing processes used in the production of ceramic products. Includes the ultrasonic cleaner and tumbling, lapping and grinding machines.

**CMT 202 Operation and Maintenance of Ceramic Furnaces /1 cr. hr./ 1 period (1 lec.)**

Prerequisite(s): CMT 107.

Minor maintenance of furnaces used in the production of ceramic products. Includes kiln operation, globar failure and replacement, and controller operation and programming. Also includes operation of the visual defects camera.

**CMT 203 Automated Manufacturing Systems /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): CMT 107.

Applications of robotics and mechanics to power components in ceramic manufacturing machines.

**CHEMISTRY****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. Designed to prepare students for CHM 151.

**CHM 121 Introductory Chemistry /5 cr. hrs./7 periods (4 lec., 3 lab)**

Prerequisite(s): None.

Basic chemistry and its relationship to everyday experiences. Designed to meet the needs and interests of non-science majors. Includes classification and structure of matter, basic principles of chemical reactions and their environmental and societal impact.

**CHM 125 Applied Industrial Chemistry I /5 cr. hrs./7 periods (4 lec., 3 lab)**

Prerequisite(s): None.

Basic concepts of inorganic chemistry and their roles in industrial processes. Includes classification and structure of matter, identification of types of chemical reactions and their general industrial applications. General principles of laboratory and industrial safety will be emphasized.

**CHM 126 Applied Industrial Chemistry II /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): CHM 125, CSC 105.

Organic chemistry fundamentals as they relate to industrial processes. Includes the scientific method of investigation, environmental chemistry and pollution, chemical handling in the industrial environment, hydrocarbons, classes of organic compounds, polymers, surface chemistry and corrosion, adhesives and bonding, and paint and coating systems.

**CHM 127 Applied Industrial Chemistry III /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): CHM 126.

Continuation of CHM 126. Includes electrolytic and electroless plating processes, chemistry in miscellaneous processes, mechanical aspects of the plating shop, and process control measurements and equipment calibrations.

**CHM 130 Fundamental Chemistry /5 cr. hrs./7 periods (4 lec., 3 lab)**

Prerequisite(s): None.

Inorganic chemistry as a basis for the study of some life processes. Includes the classification, structure and general chemical behavior of inorganic matter. Adapted to the needs of students in allied health programs.

**CHM 140 Fundamental Organic and Biochemistry /5 cr. hrs./7 periods (4 lec., 3 lab)**

Prerequisite(s): CHM 130, 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. Adapted to the needs of students in nursing and other allied health programs.

**CHM 141 Introductory Organic and Biochemistry /5 cr. hrs./7 periods (4 lec., 3 lab)**

Prerequisite(s): CHM 121.

Continuation of CHM 121. Organic chemistry as it relates to consumer products and pollution of our environment. Includes biochemistry and physiochemistry and their relationship to medicines, drugs, health and food products.

**CHM 151 General Chemistry I /5 cr. hrs./7 periods (4 lec., 3 lab)**

Prerequisite(s): MAT 122, and CHM 080 with a grade of "C" or better. A satisfactory score on the chemistry assessment test may be substituted for CHM 080.

Basic chemistry for science majors. Includes examination of atomic structure and bonding with some historical background, fundamental chemical and scientific relationships, chemical reactions and energy, states of matter and solutions.

**CHM 152 General Chemistry II /5 cr. hrs./7 periods (4 lec., 3 lab)**

Prerequisite(s): CHM 151.

Continuation of CHM 151 with emphasis on certain chemical concepts such as equilibrium, kinetics, acids, bases, complexions and oxidation-reduction.

**CHM 192 Electronic Industrial Chemistry /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ETR 104, CHM 130 or 151.

Principles of chemistry and laboratory techniques. For students interested in microelectronic technology. Includes material properties (thermal and electrical resistivity, coefficient of expansion, heat capacity, chemical reactivity and mechanical strength), use and location of published references, safety in use of materials, polymer formation, plating methods and problems, cleaning methods and clean room principles. Some materials to be studied are ceramics, glasses, solders, polymers and materials which are required to fabricate microelectronic circuits (gold, silver, platinum, palladium, ruthenium, copper, nickel, kovar and silicon).

**CHM 196 Independent Studies in Chemistry /1-4 cr. hrs./3-12 periods (3-12 lab)**

Prerequisite(s): None.

Laboratory projects varying with students' interests and reasons for enrolling.

**CHM 197 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 198 Special Topics in Chemistry: /1-4 cr. hrs./1-10 periods (1-4 lec., 0-9 lab)**

Prerequisite(s): Consent of instructor.

Introduction to the techniques of laboratory research in chemistry. Includes topics concerned with scientific laboratory procedures, experimental design, ethics, and current research in working laboratories.

**CHM 235 General Organic Chemistry I /5 cr. hrs./7 periods (4 lec., 3 lab)**

Prerequisite(s): CHM 152.

Fundamentals of organic chemistry, including classification, occurrence, synthesis, analysis and reaction mechanisms of important classes of organic compounds. Alkanes, aromatics and arenes are classes stressed.

**CHM 236 General Organic Chemistry II /5 cr. hrs./7 periods (4 lec., 3 lab)**

Prerequisite(s): CHM 235.

Continuation of CHM 235 with emphasis shifting to synthesis and the use of chemical and instrumental methods as a means of identification. The remaining classes of organic compounds are discussed.

**CHM 297 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. May be taken three times for a maximum of twelve credit hours.

**CHINESE****CHI 050 Conversational Chinese I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Listening to and speaking Mandarin Chinese. Designed for persons with no previous knowledge of Chinese. Includes language skills needed for buying and selling, telling time, giving directions and making comparisons.

**CHI 051 Conversational Chinese II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): CHI 050.

Continuation of CHI 050, expanding on Mandarin Chinese conversational skills. Designed for persons able to ask and respond to simple questions. Includes language skills needed to communicate about people, places, travel, and food.



**COMMUNICATION GRAPHICS****CGR 001 Basic Drawing /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): None.

Basic fundamentals of drawing. Includes perspective, light sources, form, and texture.

**CGR 010 Visual Communication /3 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): None.

Layout and design for the visual communications fields. Includes layout and design techniques for print, terminology and procedures, occupations, and job securement procedures.

**CGR 020 Basic Macintosh for Computer Graphics /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to the Macintosh computer environment. Includes operating system, techniques, document file, hardware, and disks.

**CGR 021 Applied Computer Graphics /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): None.

Introduction to current computer graphics software. Includes desktop publishing, postscript illustration, painting or photo editing, computer graphics hardware, and professional environment.

**CGR 100 Color Rendering /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 001.

Essentials of drawing in color using markers and other media. Includes wood products, food, paper, glass, metallic, landscape, and cloth items.

**CGR 101 Figure Drawing I /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 001.

Drawing the human head, hands and features. Includes eyes, mouth, nose, hair, full head, and hands.

**CGR 110 Typography /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 010.

Letter forms and use in visual communications. Includes type rendering, letter spacing, type and headline groupings, type relationships, type images, and type applications.

**CGR 111 Graphic Design I /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 010, 110.

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.

**CGR 121 Desktop Publishing for Communication Graphics:****Pagemaker /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 020 or 021, or experience in computer graphics.

Layout, graphics, and typography on a computer system. Includes computer basics, current Pagemaker software, computer graphics hardware, documents, and professional environment.

**CGR 122 Desktop Graphics: Adobe Illustrator /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 020 or 021, or experience in computer graphics.

Computer generated graphics and illustrations. Includes current Adobe Illustrator software, computer graphics hardware, documents, and professional environment.

**CGR 130 Production Techniques and Processes I /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): MAT 082 or equivalent or concurrent enrollment.

Preparation of artwork for printing. Includes inking, paste-up, stat preparation, type ordering, and spot color separation.

**CGR 140 Illustration I /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 100, 101.

Basic principles and methods of illustration. Includes subject, media, techniques, composition, and professional environment.

**CGR 142 Airbrush Techniques I /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 001.

Introduction to the use of the airbrush. Includes airbrush operation, retouching, illustration, tools and materials, techniques, and professional environment.

**CGR 145 Cartooning I /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Introduction to cartoon drawing styles, techniques, and applications. Includes drawing in a loose manner, designing characters, developing cartoon ideas, materials and techniques, various applications, and developing a personal style.

**CGR 199 Co-op Related Class in CGR /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): CGR 111, 210, 211 and concurrent enrollment in CGR Co-op work.

See Cooperative Education section for description.

**CGR 199 Co-op Work in CGR /1-8 cr. hrs./5-40 periods (5-40 lab)**

Prerequisite(s): CGR 111, 210, 211 and concurrent enrollment in CGR Co-op related class.

See Cooperative Education section for description.

**CGR 200 Figure Drawing II /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 101.

Continuation of CGR 101. Includes proportions, anatomy, toning, and body positioning and movement.

**CGR 201 Figure Drawing III /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 200.

Continuation of CGR 200. Includes advanced anatomy, toning, body positioning and movement, and the clothed body.

**CGR 210 Graphic Design II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 111.

Continuation of CGR 111. Includes ads, billboard, logos, posters, brochures, quick ads/flyers, and other mediums.

**CGR 211 Graphic Design III /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 210.

Continuation of CGR 210. Includes advanced work on ads, billboards, logos, posters, brochures, quick ads/flyers, and other mediums.

**CGR 212 Graphic Design IV /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 211.

Continuation of CGR 211. Includes additional work on ads, billboards, logos, posters, brochures, quick ads/flyers, and other mediums.

**CGR 213 Package Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 111.

Procedures and techniques for creating wrapper and container comprehensives. Includes layout, packaging, construction techniques, mock-ups and the professional environment.

**CGR 214 Communication Graphics Business and Portfolio /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): CGR 111.

Business techniques for the communication graphics industry. Includes designer/client relationship, fee structures for designer services, documenting time, portfolio development, and advertising and promotion.

**CGR 220 Desktop Publishing for Communication Graphics: QuarkXpress /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 020 or 021, or experience in computer graphics.

Design and creation of publications on a personal computer system. Includes current QuarkXpress software, documents, hardware, and professional environment.

**CGR 221 Photo Image Editing: Adobe Photoshop /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 020 or 021, and 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.

**CGR 222 Advanced Photo Image Editing: Adobe Photoshop /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 221.

Continuation of CGR 221. Includes advanced techniques using current Adobe Photoshop software, hardware, documents, and professional environment.

**CGR 223 Computer Painting /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 001, and 020 or 021.

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.

**CGR 224 Desktop Graphics: Macromedia Freehand /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 020 or 021.

Computer generated graphics and illustrations. Includes current macromedia freehand software, documents, computer graphics hardware, and professional environment.

**CGR 230 Production Techniques and Processes II /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 121, 130, or 220.

Continuation of CGR 130. Includes keyline, spot color separation, tints and screens, reverse headlines, bleeds, brochure preparation, photo manipulation, position stats, amberlith overlays, and the computer as a production tool.

**CGR 231 Production Techniques and Processes III /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 230.

Continuation of CGR 230. Includes newspaper ad production, keylining, amberlith cutting, working environment, photographic special effects, and the computer as a production tool.



**CGR 232 Production Techniques and Processes IV /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 231.

Continuation of CGR 231. Includes complex color printing, multiple software use, specialty production jobs, and working environment.

**CGR 240 Illustration II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 140.

Continuation of CGR 140. Includes advanced subjects, advanced media, advanced techniques, advanced composition, and professional environment.

**CGR 241 Illustration III /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 240.

Continuation of CGR 240. Includes advanced media techniques, individual styles, media applications, pre-press applications, and portfolio preparation.

**CGR 242 Airbrush Techniques II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 142.

Continuation of CGR 142. Includes airbrush operation, color, illustration, and professional environment.

**CGR 243 Airbrush Techniques III /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 242.

Continuation of CGR 242. Includes additional applications, retouching, style, illustrations, and professional environment.

**CGR 244 Airbrush Techniques IV /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 243.

Continuation of CGR 243. Includes specialization, techniques, and professional environment.

**CGR 245 Cartooning II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 145.

Continuation of CGR 145. Includes applying cartooning skills to various disciplines, designing additional characters, additional cartoon ideas, additional materials and techniques, complex applications, and a marketable personal style.

**CGR 246 Cartooning III /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CGR 245.

Continuation of CGR 245. Includes applying cartooning skills into additional disciplines, designing additional characters, additional cartoon ideas, additional materials and techniques, complex applications, marketable personal style, and portfolio development.



**CGR 250 Computer 2D Animation /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 223 or experience in computer graphics.

Animation on the computer. Includes storyboards, techniques and terms, logo animation, character animation, metamorphic animation, and production techniques.

**CGR 251 Computer 3D Animation /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 122.

Solid modeling on the computer. Includes menus, image creation, color, printing, precision model making, object creation and design, and compatibility.

**CGR 252 Computer Multimedia Design I /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 020 or 021, or experience in computer graphics.

Computer interactive multimedia authoring. Includes using current Macromind Director software, graphics, text, animation, sound, authoring, and outputting methods.

**CGR 253 Digital Video with Premiere /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 221 or experience in computer graphics.

Design and creation of digital video on a personal computer using current Adobe Premiere software. Includes terminology and techniques, editing, special effects, and production within a professional environment.

**CGR 254 Computer Multimedia Design II /4 cr. hrs./5 periods (4 lec., 1 lab)**

Prerequisite(s): CGR 252.

Continuation of CGR 252. Includes multimedia formats and components, creation processes, production processes, business and legal considerations, and marketing and distribution.

**CGR 255 Television Commercial Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Designing television commercials. Includes a basic overview of videography, production procedures, conceptualizing, storyboarding, budgeting, casting, videotaping, editing, music, special effects, and legal considerations. Does not include the technical aspects of television production which are covered in MEC 125 and 225.

**CGR 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.

**CGR 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.

**CGR 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.

**CGR 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.

**CGR 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.

**CGR 296 Communication Graphics 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. May be taken four times for a maximum of sixteen credit hours.

**CGR 297 Communication Graphics Seminar: /1-4 cr. hrs./1-4 periods (1-4 lec., 1-4 lab)**

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.

**CGR 299 Co-op Related Class in CGR /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): CGR 199, concurrent enrollment in CGR 299 Co-op work. See Cooperative Education section for description.

**CGR 299 Co-op Work in CGR /1-8 cr. hrs./5-40 periods (5-40 lab)**

Prerequisite(s): CGR 199, concurrent enrollment in CGR 299 Co-op related class.

See Cooperative Education section for description.

**COMPUTER AIDED DESIGN/DRAFTING****CAD 100 Computer Aided Drafting I for Construction /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

Introductory two-dimensional design and drafting for Architecture/Construction, Design, and Landscape Technology. Includes the main menu, display screen layout, status line, function keys, coordinates, settings, draw and edit functions. Also includes display, save/end/quit, popdown menus, object snap, inquiry, plot, utility and DOS commands.

**CAD 150 Computer Aided Drafting II for Construction /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

Prerequisite(s): CAD 100 or consent of instructor.

Continuation of CAD 100. Advanced CADD for Architecture/Construction, Design, and Landscape Technology with emphasis on two-dimensional design and drafting. Includes advanced draw, edit, display, settings, plot and utility functions. Also includes isometric, dimension, blocks, bonus and DOS commands.

**CAD 210 CADD Programming I for Construction /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): CAD 150 or consent of instructor.

Introductory CADD programming for Architecture/Construction, Design, and Landscape Technology. Includes screen and tablet macros and CADD programming.

**CAD 230 Three Dimensional CADD I for Construction /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

Prerequisite(s): CAD 150 or consent of instructor.

Introductory three-dimensional CADD for Architecture/Construction, Design and Landscape Technology with emphasis on design and drafting. Includes settings, display, draw, solids and surface functions. Also includes shading and basic animation.

**CAD 295 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. May be taken four times for a maximum of sixteen credit hours.

**COMPUTER SCIENCE****CSC 090 Developmental Applications on Microcomputers /1-2 cr. hrs./ 1.5-2.5 periods (1-2 lec., .5 lab)**

Prerequisite(s): None.

Developmental computer science topics. Includes an overview of computer operations, application packages and simple programming for personal use, instructional use and/or small businesses.

**CSC 100 Introduction to Computers and Information Systems / 3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): MAT 092 or concurrent enrollment.

General introduction to personal and business computer systems. Includes terminology, fundamental concepts of information systems, hardware, software, operating systems, problem-solving, text-editing and programming.

**CSC 101 Computer Literacy /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

Introduction to basic computer skills. Includes computer terminology, operating systems, file management, and communications. Also includes a brief overview of word processing, spreadsheet, and database applications.

**CSC 103 Application Software: / .5-4 cr. hrs./ .5-12 periods (var. lec., var. lab)**

Prerequisite(s): Consent of instructor.

Customized variable credit course, offering state of the art and unique application software to meet a variety of needs.

**CSC 104 Spreadsheets /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 105 or consent of instructor.

Basic concepts of spreadsheet processing in the microcomputer environment. Includes entering data, modifying, creating graphs, logical functions, statistical functions, financial functions, and windows. CSC 104A through CSC 104C together constitute CSC 104.

**CSC 104A Beginning Spreadsheets /1 cr. hr./1.35 periods (1 lec., .35 lab)**

Prerequisite(s): CSC 105 or consent of instructor.

Beginning concepts of spreadsheet processing using the microcomputer. Includes techniques of creating, manipulating and printing a simple spreadsheet using popular spreadsheet software.

**CSC 104B Intermediate Spreadsheets /1 cr. hr./1.35 periods (1 lec., .35 lab)**

Prerequisite(s): CSC 104A.

Intermediate concepts of spreadsheet processing using the microcomputer. Includes functions, windows, logical operators, and graphics using a commercial spreadsheet package.

**CSC 104C Advanced Spreadsheets /1 cr. hr./1.35 periods (1 lec., .35 lab)**

Prerequisite(s): CSC 104B.

Advanced concepts of spreadsheet processing using the microcomputer. Includes macros, and the spreadsheet database using advanced spreadsheet software.

**CSC 105 Survey of Microcomputer Uses /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

Study of microcomputer application packages. Includes operating system commands, word processing, spreadsheet and database applications. Not for programmer/analyst or engineering majors. (Same as ARC 105 and BUS 105.)

**CSC 106 Database Concepts /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 105 or consent of instructor.

Basic database concepts in the microcomputer environment. Includes database setup, information access, and programming. CSC 106A through CSC 106C together constitute CSC 106.

**CSC 106A Database Concepts: Introduction /1 cr. hr./1.35 periods (1 lec., .35 lab)**

Prerequisite(s): CSC 105 or consent of instructor.

Beginning concepts of database processing using the microcomputer. Includes developing a database, assessing information interactively and producing reports using a popular software package.

**CSC 106B Database Concepts: Intermediate /1 cr. hr./1.35 periods (1 lec., .35 lab)**

Prerequisite(s): CSC 106A.

Intermediate concepts of database processing using the microcomputer. Includes modification of the database structure, manipulation and reorganization of the database, use of functions, and production of complex reports using commercial database software.

**CSC 106C Database Concepts: Advanced /1 cr. hr./1.35 periods (1 lec., .35 lab)**

Prerequisite(s): CSC 106B.

Advanced concepts of database processing using the microcomputer. Includes macros, programming with a procedural database language, and customizing data entry and output using a commercial database software package.

**CSC 107 Macintosh Software Applications /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

Principles and procedures for operating Macintosh application software. Includes microcomputer overview, Macintosh basics and operating system, computer graphics, word processing, spreadsheet, database, hypercard, and desktop publishing.

**CSC 108 Microcomputer Operating Systems /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

Fundamentals of microcomputer operating systems. Includes subdirectories, piping, utilities and advanced topics. CSC 108A through CSC 108C together constitute CSC 108.

**CSC 108A Microcomputer Operating Systems: Introduction /1 cr. hr./1.35 periods (1 lec., .35 lab)**

Prerequisite(s): None.

This introductory course on microcomputer operating systems will teach operating system fundamentals, functions, structures, storage and text editing. MS-DOS is the operating system of choice in the course.

**CSC 108B Microcomputer Operating Systems: Intermediate /1 cr. hr./1.35 periods (1 lec., .35 lab)**

Prerequisite(s): CSC 108A.

This intermediate course on microcomputer operating systems will teach more advanced concepts such as the use of subdirectories, multi-tasking, redirection, piping, debugging and backing up files. MS-DOS is the operating system of choice in the course.

**CSC 108C Microcomputer Operating Systems: Advanced /1 cr. hr./1.35 periods (1 lec., .35 lab)**

Prerequisite(s): CSC 108B.

This course will cover advanced topics on microcomputer operating systems. MS-DOS is the main operating system in the course, but another microcomputer operating system will be taught for comparison.

**CSC 109 Using the Windows Environment /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 105.

Introduction to the Windows environment. Includes installation, basic operations, applications under Windows, customizing the environment, direct data linking, and object linking and embedding.

**CSC 109A Using the Windows Environment: Beginning Concepts / 1 cr. hr./1.4 periods (1 lec., .4 lab)**

Prerequisite(s): Consent of instructor.

Introduction to the Windows environment at the beginning level. Includes hardware issues, install and configure process, basic mouse operations/ keyboard alternatives, switch and manipulate Windows, and the control panel.

**CSC 109B Using the Windows Environment: Intermediate Concepts / 1 cr. hr./1.4 periods (1 lec., .4 lab)**

Prerequisite(s): Consent of instructor.

Introduction to the Windows environment at the intermediate level. Includes running applications under Windows, desktop accessories, file manager, print manager, Windows Write, and Paintbrush.

**CSC 109C Using the Windows Environment: Advanced Concepts / 1 cr. hr./1.4 periods (1 lec., .4 lab)**

Prerequisite(s): Consent of instructor.

Introduction to the Windows environment at the advanced level. Includes Windows Terminal, customizing Windows environment, direct data linking, and object linking and embedding.

**CSC 110 Introduction to the Internet for New Computer Users / 1 cr. hr./2 periods (1 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. May be taken three times for a maximum of three credit hours.

**CSC 120 The Internet for Experienced Computer Users /1 cr. hr./ 2 periods (1 lec., 1 lab)**

Prerequisite(s): CSC 135 or multiuser computer experience.

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.

**CSC 130 Programming Fundamentals /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 100 or satisfactory score on CSC 100 test.

Structured programming principles and techniques. Includes problem analysis, the algorithm, structured program design, the program development cycle, table processing and file handling. Although emphasis is on logic rather than on a language, PASCAL is taught to reinforce basic principles.

**CSC 131 Computer Science Concepts /4 cr. hrs./6 periods (4 lec., 2 lab)**

Prerequisite(s): CSC 100 or equivalent.

Examination of fundamental computer science principles, including computer hardware and software concepts, problem analysis, algorithms, structured program design, data types, logic control structures, and the program development cycle. PASCAL is used to implement structured programming concepts.

**CSC 135 Introduction to Computer Operations /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 100.

Examination of basic computer hardware and software concepts. Includes operating systems, time sharing, file organization, compilers, utilities, networks, memory management, and text editing.

**CSC 136 Microcomputer Components /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

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.

**CSC 137 Introduction to the UNIX Operating System /3 cr. hrs./ 4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 135 or 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.

**CSC 139 Introduction to Visual BASIC /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 130 or 131 or consent of instructor.

Introduction to event-driven and object-oriented programming in Visual BASIC. Includes debugging techniques, data types, operators, application design, program flow, subroutines, objects, arrays, and functions.

**CSC 140 FORTRAN Programming /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 100, and MAT 092 or satisfactory score on math assessment test.

Principles and techniques of FORTRAN programming. Includes the writing of programs on-line via a text editor and the designing of logic algorithms and/or flow charts as preparation for writing FORTRAN code. Selection of programs includes engineering or business applications.



**CSC 160 COBOL Programming /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 130 or 131, and 135.

Comprehensive study of and practice in writing programs using COBOL (standard business language). Includes proper documentation, programming standards and programming techniques for utilizing auxiliary storage devices.

**CSC 170 RPG Programming /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 130 or 131.

Introduction to the solutions of business oriented problems through writing and executing Report Program Generator programs. RPG is the primary language of most small-scale computers.

**CSC 175 QBASIC/Quick BASIC /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 130 or 131.

Introductory and advanced design and programming of business problems using QBASIC and QuickBASIC. Includes interactive programs, sequential and random file manipulation, string and array processing, sorting, master and transaction file updates, menus, color, text graphics, and sound.

**CSC 195 Job Entry Procedures /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Principles and techniques for successful job hunting. Includes application letter and resume writing, interviewing and related topics.

**CSC 196 Work Standards and Job Attitudes /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Development of proper work standards and job attitudes. Includes ethics, work relationships and human relations using role playing. (Same as GEB 196.)

**CSC 198 Data Processing Projects I /1-3 cr. hrs./3-9 periods (3-9 lab)**

Prerequisite(s): None.

Practical work experience on assigned data processing projects in data entry, controls and operations. May be taken four times for a maximum of twelve credit hours.

**CSC 199 Co-op Related Class in CSC /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**CSC 199 Co-op Work in CSC /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**CSC 204 Advanced Spreadsheet Concepts /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 104 or CSC 104C.

Advanced concepts in electronic spreadsheet applications. Includes macros, graphical presentation of spreadsheet data, and analysis and design of large spreadsheets.

**CSC 206 Database Procedural Language Programming /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): CSC 106 or 106C, 130 or 131.

Fundamentals of database management systems. Includes programming of an associated procedural database language and an emphasis on Relational model and query language (SQL).

**CSC 220 Networking /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 130 or 131, 135.

Survey of a variety of networks and their implementation. Includes an introduction to local area network (LAN) administration. Also includes data transmission, different platforms, protocols, local and wide area networks, and hardware and software solutions to real world applications.

**CSC 225 Intermediate Programming Fundamentals /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 130.

Intermediate topics in programming techniques and problem solutions using Pascal. Includes arrays, modularity, user-defined types and subranges, sets, fixed and variant records, search and sort algorithms, binary files, recursion, and dynamic allocation.

**CSC 230 Data Structures /4 cr. hrs./6 periods (4 lec., 2 lab)**

Prerequisite(s): CSC 265.

Advanced topics in computer science and programming in C. Includes software design and development, testing and validation, and the algorithmic process. Also includes dynamic allocation, advanced sort and search algorithms, recursion, stacks, queues, linked lists, trees, hash tables, and graphs.

**CSC 235 Advanced Computer Operations /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 135.

Advanced operating system control commands involving utility control programs with emphasis on job and batch job stream organization. Includes overall system characteristics and detailed coding of selected functions. Operating systems and computers used vary because of diversity of campus facilities, but overall course emphasis remains constant.

**CSC 238 Integrated Package Project /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): CSC, 204.

Installation of horizontally integrated software to solve information processing problems. Integrated software functions in the microcomputer environment, such as electronic spreadsheets, database, graphics, telecommunications and programming languages.

**CSC 239 Programming in Visual BASIC /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 139.

Advanced event-driven and object-oriented programming in Visual BASIC. Includes DOS and Windows, multi-dimensional arrays, and a wide variety of program statements, forms, controls, properties, procedures, functions, and objects.

**CSC 250 Introduction to Assembly Language /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 130 or 131; and one high-level computer language or consent of instructor.

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 operatives, DOS and BIOS interrupts, macros, and file I/O.

**CSC 255 Microprocessor Applications /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 250.

Comparison of the architecture and features of available microprocessors. Includes application of microprocessors to monitor and control physical processes, displays, lights, switches, instruments, etc.

**CSC 256 Microcomputer Software Applications /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 130, ACC 102.

Study of microcomputer applications. Includes a word processor, a spread sheet, a micro level database, a graphics system and a widely based microcomputer operating system. Also includes a short overview of available microcomputer accounting systems.

**CSC 260 Advanced COBOL and File Management /4 cr. hrs./6 periods (4 lec., 2 lab)**

Prerequisite(s): CSC 135, 160.

Development of advanced COBOL programming techniques and use of language features. Includes report writer, sorts, multidimensioned array manipulation, sub-programs, interactive programming and on-line debugging aids. Students create, retrieve and update files using sequential, index sequential and direct organization methods.

**CSC 265 The C Programming Language /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): Two high level languages and an assembly language.

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.

**CSC 270 IBM/370 Assembly Language (BAL) /4 cr. hrs./6 periods (4 lec., 2 lab)**

Prerequisite(s): CSC 250.

Assembly level language and its relationship to machine language. Includes debugging techniques, basic input/output control and linkage. Emphasis on standard and decimal instruction sets, subroutine control and linkage.

**CSC 274 DEC Assembly Language (MACRO) /4 cr. hrs./6 periods (4 lec., 2 lab)**

Prerequisite(s): CSC 250.

Programming in the native instruction set of one of the large Digital Equipment Corporation computers, (either the DEC/10, DEC/20 or VAX/11). Includes bit and character manipulation, program modularity, file handling and linkage between machine language and high level languages.

**CSC 275 Advanced 80x86 Assembly Language /4 cr. hrs./6 periods (4 lec., 2 lab)**

Prerequisite(s): CSC 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.

**CSC 276 Advanced Programming in VAX Macro /4 cr. hrs./6 periods (4 lec., 2 lab)**

Prerequisite(s): CSC 274.

Creation and use of program sections and shareable, executable images. Accessing VAX system services. Using the Record Manager System (RMS) to work with sequential, direct and indexed files. Creation of subprocesses. Interprocess communication.

**CSC 277 Advanced Programming in C /4 cr. hrs./6 periods (4 lec., 2 lab)**

Prerequisite(s): CSC 265.

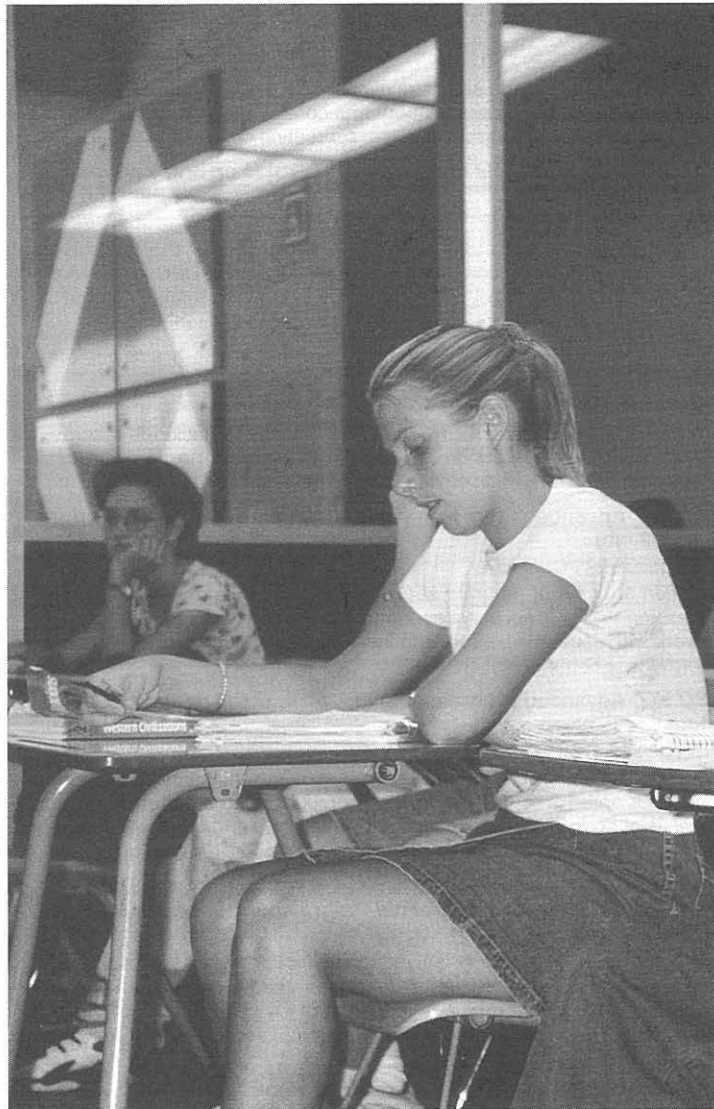
Advanced topics and techniques in the C programming language. Includes Object Oriented C, components of a compiler, data structures, graphics, analysis of code produced by typical C programs, and other advanced programming subjects. May be taken three times for a maximum of twelve credit hours.

**CSC 278 C++ and Object-Oriented Programming /4 cr. hrs./6 periods (4 lec., 2 lab)**

Prerequisite(s): CSC 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.



**CSC 280 Systems Analysis /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 140 or 160 or 206.

Tools of systems analysis. Includes documentation methods (systems flow chart, decision table, etc.), user communication, record layout, code design, file design (batch and on-line database concepts) and documentation design (source and printed output). Also includes selected business system applications of the above tools.

**CSC 281 Systems Design /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 280.

Application of the tools of systems analysis covered in CSC 280 to design a total system. The case study approach is used. The student will prepare a feasibility study to present alternatives or a systems proposal to recommend a course of action.

**CSC 290 Systems Programming Theory /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 274.

Writing of compilers, operating systems and utility programs. Includes sorting and timing techniques.

**CSC 291 Database Concepts /4 cr. hrs./6 periods (4 lec., 2 lab)**

Prerequisite(s): CSC 260 or 277 or 278, and 280.

Fundamentals of data structures and database management systems. Includes relational, hierarchical, network, and new data models. Also includes query language (SQL) concepts and a relational database system.

**CSC 294 Current Topics in Computer Science: /3-4 cr. hrs./4-6 periods (3-4 lec., 1-2 lab)**

Prerequisite(s): Consent of instructor.

Selected topics which reflect the most current technological and systems software concepts in the field of computer science. Includes such topics as teleprocessing, desktop publishing, Artificial Intelligence, Hypertext, new programming languages and new computers. May be taken four times for a maximum of twelve credit hours.

**CSC 296 Machine Architecture and Organization /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): CSC 250.

Introduction to digital computers, elementary hardware concepts, machine operations and instructions, assembly language concepts, and programming in assembly language.

**CSC 298 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.

**CSC 299 Co-op Related Class in CSC /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**CSC 299 Co-op Work in CSC /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**COMPUTER SCIENCE DATA ENTRY****CSD 060 Data Entry Microcomputer Proficiency Certification /1.5 cr. hr./1 period (1 lab)**

Prerequisite(s): None.

Skill building and certification for data entry on a microcomputer. Includes data input and a certification speed test. May be taken four times for a maximum of two credit hours.

**CSD 100 Data Entry Beginning Keystroke Development /2 cr. hrs./6 periods (6 lab)**

Prerequisite(s): None.

Training for beginning level speed and accuracy. Includes ten key pad, alpha-numeric pre-timed and self-timed exercises, and dexterity drills. May be taken four times for a maximum of eight credit hours.

**CSD 123 Data Entry Job Skill Development /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Procedures and skills for securing a data entry job. Includes resume writing, interviewing techniques, application forms, application letter, research of requirements, and job standards and attitudes for data entry positions.

**CSD 125 Data Entry Procedures and Operations /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Practical applications on MS-DOS and Macintosh platforms. Includes terms and procedures, MS-DOS operations, on-line simulation, database file creation, and an integrated software package.

**CSD 126 Data Entry Basic Software Routines /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CSD 125.

Techniques and procedures for creating files. Includes database, spreadsheet, document files, and manipulation of data using Macintosh and MS-DOS platforms.

**CSD 127 Data Entry Advanced Software Routines /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CSD 126.

Techniques and procedures for accessing industrial software files. Includes on-line simulation, grading, MS-DOS operations and master file comparison. Also includes set-up, keying, updating, editing, file identification, and printing.

**CSD 129 Data Entry Software Procedures /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Data entry software procedures. Includes an integrated software package, word processing, spreadsheets, database programs and the use of DOS.

**CSD 130 Data Entry Advanced Software Procedures /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CSD 129.

Techniques and procedures using data entry equipment and software. Includes file creation, file correction, search and find, volume input, and statistical files.

**CSD 132 Data Entry Simulated Work Site Routines /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CSD 125 or concurrent enrollment.

Operations and techniques in a data entry work environment. Includes daily transactions, record extraction, corrections and additions, billing, numerical and alphabetical sorting, overdue notices, and operator statistics.

**CSD 134 Data Entry Advanced Keystroke Development /2 cr. hrs./6 periods (6 lab)**

Prerequisite(s): CSD 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.

**CSD 150 Skills Update for Data Entry Operator /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Data entry techniques and procedures using current equipment and software. Includes file creation, data manipulation, printing, calculations, and editing. May be taken four times for a maximum of twelve credits.

**CSD 198 Data Entry Projects: /25-4 cr. hrs./25-16 periods (.25-4 lec., .25-16 lab)**

Prerequisite(s): Consent of instructor.

Data entry job-related training. Includes development of skills and knowledge in a given area and topics of timely or limited interest.

**CSD 199 Co-op Related Class in CSD /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**CSD 199 Co-op Related Work in CSD /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**CSD 299 Co-op Related Class in CSD /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**CSD 299 Co-op Related Work in CSD /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**CONSTRUCTION****CON 021 Introduction to Construction I /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to basic construction principles and techniques. Includes basic subsystems of homes, job safety, work habits, construction techniques, electrical systems, plumbing, dry wall, framing, stucco, and pest control. Also includes hand and power tools, windows, and employment.

**CON 022 Introduction to Construction II /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Continuation of CON 021. Includes cabinets, HVAC systems, roofing, carpentry, painting, energy conservation, and porcelain refinishing. Also includes office machines, final inspections, warranties, alternative construction techniques, and interviewing for employment.

**CON 100 Principles of Construction /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Introduction to the construction industry. Includes terminology and concepts of projects, regulations, structural systems, environmental control, and bidding.

**CON 101 Building Materials /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Construction standards and specific types of building materials used in commercial, industrial and private construction projects. Includes industrial and local area standards and properties of material (wood, concrete, masonry and other standard construction materials).

**CON 110 Civil Blueprint Reading /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Fundamentals of civil engineering blueprint reading. Includes road construction layout, grade staking, excavation and embankment layout, site development layout and construction, and utility construction layout.

**CON 111 Commercial Blueprint Reading I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.

**CON 112 Construction Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

Introduction to drafting. Includes developing working drawings for a small single family residence: plot and floor plans, sections, details, and structural, mechanical, electrical, and plumbing plans. Also includes line weights, lettering, and composing working drawing sets. (Same as DES 112.)

**CON 121 Introduction to the Building Trades I /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Introduction to residential and commercial construction. Includes safety, site layout, plumbing, electrical, masonry, and carpentry. Students must have transportation to selected job sites.

**CON 122 Residential Construction /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Principles and procedures of residential construction. Includes safety, foundations, wall and roof construction, electrical, plumbing, mechanical, and interior/exterior finishing.

**CON 130 Plumbing /3 cr. hrs./5 periods (1 lec., 4 lab)**

Prerequisite(s): None.

Principles and techniques of plumbing system construction. Includes project planning, plumbing design, installation, safety parameters, inspection criteria, and maintenance.

**CON 140 Electricity /3 cr. hrs./5 periods (1 lec., 4 lab)**

Prerequisite(s): None.

Principles of electrical system construction. Includes basic theory of electricity, circuit components, distribution systems, electrical equipment, power consumption, costs and the National Electric Code.

**CON 150 Concrete/Masonry /3 cr. hrs./5 periods (1 lec., 4 lab)**

Prerequisite(s): None.

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.

**CON 160 Carpentry I /3 cr. hrs./5 periods (1 lec., 4 lab)**

Prerequisite(s): None.

Residential and commercial carpentry. Includes safety, construction materials, blueprint reading, site layout and preparation, excavation, forming, framing and use of commercial concrete.

**CON 162 Construction Drafting II /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): CON 112, MAT 110 or higher.

Practical application of construction drafting principles. The student will develop a complete set of working drawings for a wood frame and masonry building, using a systems-drafting format.

**CON 171 Leadership and Motivation /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Principles of leadership and motivation for supervisors in the construction industry. Includes the needs of leaders and followers, goal setting, communication, example setting, coaching on the job, leadership and commitment and being in control.

**CON 172 Oral and Written Communication /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Oral and written communication for supervisory training in the construction industry. Includes positive direct communication, combining oral and written communication, helping other people communicate, listening, understanding, negotiation and getting the point across.

**CON 173 Problem Solving and Decision-Making /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Problem solving and decision-making techniques for supervisory training in the construction industry. Includes problem prevention, identifying problems, strategies for solving scheduling, technical and performance problems, barriers to developing creative solutions, creative problem solving, establishing a problem solving atmosphere, gauging solution effectiveness and selecting alternative solutions.

**CON 174 Contract Documents /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

An examination of contract documents as they relate to supervisory training in the construction industry. Includes primary and secondary documents, regulation and design standard documents, document information and construction decisions, authority on a project, the supervisor as an agent of the contractor and contract documents in perspective.

**CON 175 Planning and Scheduling /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Planning and scheduling techniques for supervisory training in the construction industry. An introduction to scheduling techniques such as bar charts, precedence diagramming, arrow diagramming, critical paths and networks. Also includes three phases of planning and scheduling.

**CON 176 Cost Awareness and Production Control /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Cost awareness and production control techniques for supervisory training in the construction industry. Includes cost control cycle, bidding procedures and estimate, work and cost analysis, production scheduling, cost reporting, production control, and project debriefing and evaluation.

**CON 177 Project Safety and Loss Prevention /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

An overview of project safety and loss prevention as they relate to supervisory training in the construction industry. Includes communication and motivation, reference material and advisory sources, security and traffic control, techniques used to prevent losses, assignment of responsibility, equipment inspection and maintenance, inclement weather and emergencies, and government regulation and inspections.

**CON 178 Project Management /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Project-management techniques for supervisory training in the construction industry. Includes preconstruction planning, cost and risk control, policies and procedures, purchasing and receiving, subcontractor management, project layout and project start up and close out.

**CON 179 Construction Law: Changes, Claims, and Negotiations /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Changes, claims and negotiations as they pertain to construction law in supervisory training in the construction industry. Includes chain of contracts and contract risk, clauses, negotiation, documentation, liens, bonds and closing out the job.

**CON 180 Productivity Improvement /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Productivity improvement techniques for supervisory training in the construction industry. Includes productivity, planning, communication, motivation, evaluation, analysis techniques, timelapse film techniques and methods improvement program.

**CON 181 Introduction to the Uniform Building Code /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Survey of the Uniform Building Code. Includes overview of codes, ordinances and regulations, UBC organization and code application problems. May be taken four times for a maximum of four credit hours.

**CON 182 Introduction to the Uniform Mechanical Code /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Survey of Uniform Mechanical Code. Includes an overview of codes, ordinances and regulations, UMC organization and code application problems. May be taken four times for a maximum of four credit hours.

**CON 183 Introduction to the Uniform Plumbing Code /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Survey of Uniform Plumbing Code. Includes an overview of codes, ordinances and regulations, UPC organization and code application problems. May be taken four times for a maximum of four credit hours.

**CON 184 Introduction to the National Electric Code /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Survey of National Electric Code. Includes an overview of codes, ordinances and regulations, NEC organization and code application problems. May be taken four times for a maximum of four credit hours.

**CON 190 Residential Energy Audit /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as ACD 190.

**CON 196 Independent Study in Construction /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.

**CON 197 Training 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. May be taken four times for a maximum of thirty-two credit hours.

**CON 199 Co-op Related Class in CON /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Consent of instructor.

Introduction to Cooperative Education in the construction industry. Includes social and psychological reasons for working, methods of securing employment, preparation of career and job-related objectives, and evaluation of student work experience. May be taken four times for a maximum of four credit hours.

**CON 199 Co-op Work in CON /1-8 cr. hrs./5-40 periods (5-40 lab)**

Prerequisite(s): Consent of instructor.

Supervised cooperative work program for students in the construction industry. Teacher-coordinators work with students and their supervisors. May be taken sixteen times for a maximum of sixteen credit hours.

**CON 200 Soils and Materials Testing /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CON 101, MAT 110.

Evaluation of construction materials of earth, concrete, mortar, block, and steel. Includes soil relationships, strength testing, and use.

**CON 201 Cost Estimating /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): CON 101, MAT 110 or higher.

Principles of cost estimating. Includes specifications, site work, concrete, steel, masonry, electrical, piping, carpentry and alteration take-offs, job overhead, subcontractor's bids, and pricing.

**CON 202 Construction Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Construction management procedures. Includes analysis of the general provisions of contracts and review of material submittals.

**CON 205 Civil Blueprint Reading II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): CON 110.

Continuation of CON 110. Includes advanced road construction and utility plans, advanced site development layout, box culvert construction, drainage way installation, bridges, aqueduct structures, and appropriate mathematics to handle these topics.

**CON 211 Commercial Blueprint Reading II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): CON 111.

Continuation of CON 111. Includes blueprint reading and specifications for general and heavy commercial construction. Also includes heavy timber, structural steel, and reinforced concrete construction for townhouses and large commercial buildings.



**CON 212 Construction Drafting III /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): CON 162.

Advanced construction drafting principles and applications. Using various media and specialized techniques, the student will develop drawings based on the following types of drafting problems: structural, architectural, mechanical, plumbing and electrical.

**CON 212A Construction Drafting: Structural /1 cr. hr./1.5 periods (.75 lec., .75 lab)**

Prerequisite(s): CON 162.

Advanced structural drafting principles and applications using various media and specialized techniques.

**CON 212B Construction Drafting: Architectural /1 cr. hr./1.5 periods (.75 lec., .75 lab)**

Prerequisite(s): CON 212A.

Advanced architectural drafting principles and applications using various media and specialized techniques.

**CON 212C Construction Drafting: Mechanical /1 cr. hr./1.5 periods (.75 lec., .75 lab)**

Prerequisite(s): CON 212B.

Advanced mechanical (HVAC and Plumbing) drafting principles and applications using various media and specialized techniques.

**CON 212D Construction Drafting: Electrical /1 cr. hr./1.5 periods (.75 lec., .75 lab)**

Prerequisite(s): CON 212C.

Advanced electrical drafting principles and applications using various media and specialized techniques.

**CON 221 Introduction to the Building Trades II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): CON 121.

Continuation of CON 121. Includes stair framing, rafter layout, energy efficiency, installation of doors and windows, and interior and exterior finish. Students must have transportation to selected job sites.

**CON 222 Site Development Drafting /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): CON 112, MAT 110 or higher.

Introduction to drafting principles involved in the development of construction sites: topography, grading and drainage, boundary descriptions and site planning.

**CON 260 Carpentry II /3 cr. hrs./5 periods (1 lec., 4 lab)**

Prerequisite(s): CON 160.

Continuation of CON 160. Exterior and interior finishing for wood and concrete construction. Includes installation of outside wall coverings, cornices, door installations, and concrete forms for architectural and structural concrete.

**CON 299 Co-op Related Class in CON /1 cr. hr./1 period (1 lec.)**

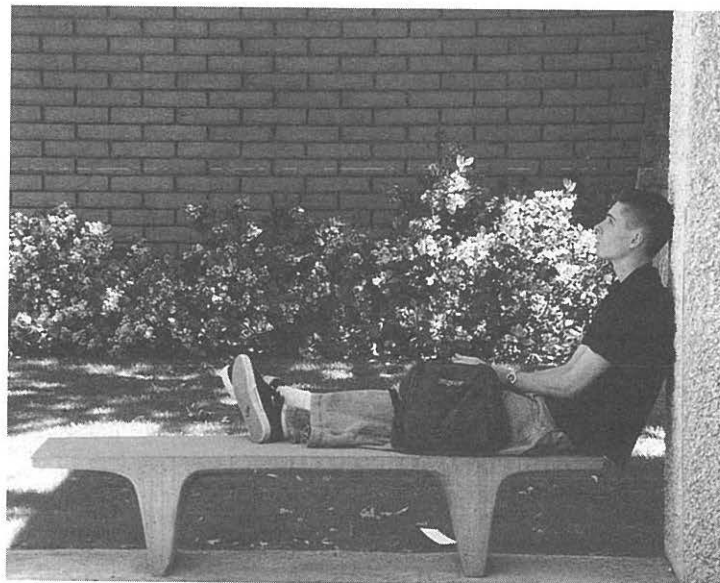
Prerequisite(s): Consent of instructor.

Principles of job success in the construction industry. Includes preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, and evaluation of student work experience. Also includes an emphasis on attitude adjustment. May be taken four times for a maximum of four credit hours.

**CON 299 Co-op Work in CON /1-8 cr. hrs./5-40 periods (5-40 lab)**

Prerequisite(s): Consent of instructor.

Supervised cooperative work program for students in the construction industry. Teacher-coordinators work with students and their supervisors. May be taken sixteen times for a maximum of sixteen credit hours.





**COOPERATIVE EDUCATION****199 Co-op Related Class /1 cr. hr./1 period (1 lec.)**

Prerequisite(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. May be taken two times for a maximum of two credit hours.

**199 Co-op Work /1-8 cr. hrs./5-40 periods (5-40 lab)**

Prerequisite(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. May be taken two times for a maximum of sixteen credit hours.

**299 Co-op Related Class /1 cr. hr./1 period (1 lec.)**

Prerequisite(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. May be taken two times for a maximum of two credit hours.

**299 Co-op Work /1-8 cr. hrs./5-40 periods (5-40 lab)**

Prerequisite(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. May be taken two times for a maximum of sixteen credit hours.

**CED 199 Co-op Related Class in Liberal Arts /1 cr. hr./1 period (1 lec.)**

See description above.

**CED 199 Co-op Work in Liberal Arts /1-8 cr. hrs./5-40 periods (5-40 lab)**

See description above.

**CED 299 Co-op Related Class in Liberal Arts /1 cr. hr./1 period (1 lec.)**

See description above.

**CED 299 Co-op Work in Liberal Arts /1-8 cr. hrs./5-40 periods (5-40 lab)**

See description above.

**CORRECTIONAL OFFICERS TRAINING****COT 100 Introduction To Corrections Systems /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Philosophy and history of correctional services and a survey of the correctional sub-systems of institutions, by type and function, probation concepts, and parole operations. Includes correctional employee responsibilities as applied to offender, behavior modification via supervisory control techniques and rehabilitation goals as they affect individual and inmate cultural groups in both confined and field settings.

**COT 101 Correctional Institutions /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Examination of correctional institutions with an emphasis on personnel and security measures, care and treatment programs and institutional planning. Includes familiarization with the criminal justice system and matters of custody and treatment. Inmate sub-cultures, and organized crime in correctional institutions and jails will also be discussed.

**COT 102 Firearms /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Moral aspects, legal provisions, safety precautions and restrictions covering the use of firearms. Includes firing of the sidearm and shotgun.

**COT 103 Prisoners' Rights /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Overview of prisoners' procedural due process and substantive constitutional rights. Includes the rights of pretrial detainees and the liability of police and correctional officers.

**COT 104 Methods of Crisis Intervention /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Use of appropriate conflict resolution techniques by police and correctional officers. Includes use of assertive communication, force, safety procedures, and referrals.

**COT 106 Firearms Certification /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): None.

Training and practical application in the use of firearms. Includes qualification in the use of .38 caliber revolver, .22 caliber rifle, and the 12-gauge shotgun.

**COT 107 Communication in Criminal Justice /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Barriers to effective communication in the field of criminal justice. Development of effective intradepartmental and interdepartmental communication as well as communication with the community and within the courtroom.

**COT 121 Correctional Case-Work Techniques /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Theory and application of case-work techniques and treatment. Includes theories of crime and delinquency, perspectives on the application of theory to treatment, case-worker attitudes and counseling styles, models of offender classification and treatment, and models for correctional counseling.

**COT 122 Identification of Gangs /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

History, philosophy, and identification of prison organized gangs and revolutionary groups in the United States. Includes types of gangs, philosophy underlying gang behavior, beliefs and philosophies of individual organizations, and techniques for identifying gang members.

**COT 123 Organization and Impact of Gangs /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Structure and development of gang organizations. Includes organization and oaths, development of a new gang, current and projected impact, gang activity in community, and curtailing activities and development.

**COT 124 Special Populations I /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Recognition of non-psychotic and psychotic behaviors. Includes personality disorders, drug-affected behavior, and suicide. Emphasis upon appropriate correctional staff response and the identification of community agencies that can provide assistance.

**COT 125 Special Populations II /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Special problems of illegal aliens, the physically and mentally disabled, and the elderly in the criminal justice system. Includes cultural impact and differences in perception of racial and ethnic groups, problems and needs of physically and mentally impaired persons and the elderly, and the legal problems associated with illegal aliens.

**COT 126 Basic Management Skills /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Overview of the management process in criminal justice agencies. Includes management processes, motivation, leadership, communication, decision making, and public relations.

**COT 127 Management By Objectives /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Overview of Management By Objectives (MBO) as pertaining to criminal justice agencies. Includes definition and phases of MBO, the benefits of implementing the program, and basic MBO processes.

**COT 128 Parole Supervision /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Supervisory techniques for the parole officer. Includes defensive driving, vehicle dynamics, driving exercises, crisis/conflict intervention, restraint devices, hostage negotiations, parole relationships, caseload management, counseling, and stress management.

**COT 129 Correctional Supervision /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic supervision of correctional employees. Includes personnel issues, employee discipline and motivation, trust/team building, and the *One Minute Manager* principles.

**COT 130 Correctional Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): COT 129.

Management techniques for correctional supervisors and managers. Includes leadership, writing/preparing of reports, legal issues, budget management, personnel issues and problem solving techniques.

**COT 131 Correctional Administration /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Organization and management of correctional facilities. Includes organizational principles and practices, structuring the organization, administrative communications, personnel management, supervision, training and education for correctional personnel, research and planning, fiscal management, and probation and parole administration.

**COT 132 Criminal Justice Management Problems /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Common management problems in criminal justice agencies. Includes conflict, labor, fiscal, and time management; organizational change and development; and discipline.

**CORRECTIONS OFFICER ACADEMY****COA 124 Corrections Officer Academy I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Part A of the basic entry level training program for corrections officers. Designed to meet or exceed standards established by COTA (Arizona Correctional Officer Training Academy) for entry level correctional officers. Includes introduction to corrections law, legal issues, ethics, professionalism, and interpersonal communication skills. For admission to program, students must comply with Arizona Department of Corrections or Pima County Corrections employment standards for correctional officers and be sponsored by a state or county correctional agency.

**COA 125 Corrections Officer Academy II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): COA 124 or concurrent enrollment.

Part B of the basic entry level training program for corrections officers. Designed to meet or exceed standards established by COTA (Arizona Correctional Officer Training Academy) for entry level corrections officers. Includes basic operational procedures, inmate management, stress awareness, officer survival, conflict resolution, and general correctional officer proficiency skills.

**COA 126 Corrections Officer Academy III /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): COA 125 or concurrent enrollment.

Part C of the basic entry level training program for corrections officers. Designed to meet or exceed standards established by COTA (Arizona Correctional Officer Training Academy) for entry level correctional officers. Includes correctional supervision issues, search and seizure, and general correctional officer proficiency skills. Includes 3 units on-site orientation and training.

**COA 140 Cardiopulmonary Resuscitation (CPR) /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Same as HED 140B.

**COURT SUPPORT SERVICES****CSS 101 Survey of Court Systems I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

An 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 201 Survey of Court Systems II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): CSS 101.

An 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.)**

Prerequisite(s): None.

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 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 MANAGEMENT****CRM 177 Fundamentals of Credit Management /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Fundamental principles of credit management and its relationship to business. Includes historical roots and role of commercial credit, credit function, policy and procedures, and credit department administration and systems. Also includes an introduction to sources of information for financial analysis.

**CRM 178 Applied Credit Management /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Application of credit management procedures to the diagnosis and solution of credit problems. Includes financial statement analysis, ratios, and credit management specialties.

**CRM 179 Credit Management Law /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Survey of laws and regulations in commercial credit. Includes contract and corporate law, negotiable instruments and bankruptcy, collection principles, credit correspondence, and credit responsibility.

**DANCE****DNC 166 Beginning Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Development of basic skills for dance. Includes biomechanical function and care of the body, dance theory and technique, and expressive movement. May be taken four times for a maximum of four credit hours. (Same as FSS 166.)

**DNC 167 Intermediate Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

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. May be taken four times for a maximum of four credit hours. (Same as FSS 167.)

**DNC 168 Advanced Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

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. May be taken four times for a maximum of four credit hours. (Same as FSS 168.)

**DNC 169 Dance Ensemble /2 cr. hrs./3 periods (1 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. May be taken four times for a maximum of four credit hours. (Same as FSS 169.)

**DENTAL ASSISTING****DAE 059 Preparation for Oral Radiography Certification /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Principles and practices of oral radiography. Designed to prepare the student for the written radiography certification examination for dental assistant.

**DAE 160 Orientation to Dental Care /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Consent of program coordinator.

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.

The biosciences as they relate to the oral cavity. Includes anatomy, physiology, histology, microbiology and nutrition as it affects total dental health.

**DAE 162 Dental Assisting I /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Consent of program coordinator.

Principles and techniques of dental assisting. Includes morphology of human dentition and dental instruments and their use in various operative procedures.

**DAE 163 Oral Radiography /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Consent of program coordinator.

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 Dental Materials /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Consent of program coordinator.

Chemical and physical properties of dental materials used in dental practice. Includes materials used in preventive, restorative, and prosthetic procedures.

**DAE 165 Pre-Clinical Procedures /2 cr. hrs./5 periods (1 lec., 4 lab)**

Prerequisite(s): Consent of program coordinator.

Techniques and procedures of chairside assisting in general and specialty dental practices.

**DAE 166 Dental Assisting II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): DAE 160 through 165.

Principles and techniques 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 161 through 165.

Principles and techniques of dental practice management and oral health education as applied to dental assisting.

**DAE 168 Clinical Procedures /8 cr. hrs./24 periods (24 lab)**

Prerequisite(s): DAE 161 through 165.

Application of acquired skills in a clinical environment under direct supervision of the dentist and instructor.

## DENTAL HYGIENE

**DHE 101 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 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.

Development and histology of teeth, intra and extra oral tissues of the head as they relate to the practice of dental hygiene.

**DHE 110 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 113 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 116 Oral Radiography /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): DHE 101, 104, 107, 110

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, 110.

Etiology, diagnosis and prognosis of periodontal disease.

**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 124 Clinical Dental Hygiene II /3 cr. hrs./7 periods (1 lec., 6 lab)**

Prerequisite(s): Completion of first year of Dental Hygiene Program.

Application of dental hygiene skills with a variety of clinical patients.



**DHE 127 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 201 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 procedures. Includes beginning treatment planning.

**DHE 204 Oral Pathology /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): DHE 101, 104, 107 and concurrent enrollment in DHE 113 and DHE 116.

Introduction to diseases of the mouth and surrounding structures. Includes diagnosis and etiology, oral manifestation of generalized disease, and neurological conditions.

**DHE 207 Pharmacology /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): DHE 101, 104, 107, 113, 116, 119, 121.  
Introduction to the theory of pharmacology as it relates to dentistry. Includes identification of drugs which affect or are affected by dental treatment.

**DHE 208 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 210 Clinical Dental Hygiene IV /4 cr. hrs./10 periods (1 lec., 9 lab)**

Prerequisite(s): DHE 201, 204, 207.  
Advanced treatment planning. Includes application of skills for difficult and special needs patients and extramural rotations to community facilities.

**DHE 213 Advanced Periodontal Services /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): DHE 201, 204, 207.

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 201, 204, 207.

Public health dentistry and modalities of dental health education. Includes literature reviews of public health issues with extramural community experiences.

**DENTAL LABORATORY TECHNOLOGY****DLT 101 Dental Morphology /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Consent of program director.

Development and structure of teeth and construction of dentures. Includes configuration of hard and soft areas of the jaws, as related to denture construction. Emphasis on principles in tooth design and balanced occlusion with regard to normal and abnormal ridge relationship. Plaster sculpture is used in the production of a full complement of anatomical teeth.

**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. Products reviewed include gypsum materials, plastic and elastic duplicating materials, denture base materials, acrylic resin teeth, dental waxes, separating media and dental porcelain.

**DLT 103 Complete Dentures /4 cr. hrs./10 periods (1 lec., 9 lab)**

Prerequisite(s): DLT 101 or concurrent enrollment, and consent of program director.

Complete examination of the relationship between upper and lower dentures as interpreted on a functional articulator. Includes casting of models, trays, bite blocks, setting up dentures in balanced occlusion, investing, packing, curing and finishing of dentures.

**DLT 104 Dental Laboratory I /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): DLT 101 or concurrent enrollment, and consent of program director.

Chemistry and metallurgy of dental alloys, the compositions of plating solutions and principles of electroplating. Includes use of cast gold alloys, abnormal castings, base metal casting alloys, metallographic techniques and wrought metal bars and clasps. A full complement of teeth is sculptured from wax ivory blocks and set up to occlusion. Upper and lower partial frame structures are constructed in cast chromium-cobalt alloy.

**DLT 105 Partial Denture Construction /4 cr. hrs./10 periods (1 lec., 9 lab)**

Prerequisite(s): DLT 101 or concurrent enrollment, and consent of program director.

Construction of partial dentures and appliances. Includes wrought metal lingual bars and clasps; investing and soldering techniques of bilateral appliances; processing partial dentures in acrylic in three techniques; fabrication of dies of inlays and abutments; and repair and relining of dentures.



**DLT 106 Orthodontics and Maxillofacial Construction /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): DLT 101 or concurrent enrollment, and consent of program director.

Construction and theory of simple orthodontic and maxillofacial appliances. Includes construction utilizing wrought wire and/or cast metal frames as retentive devices and the processing of acrylic to form final appliances.

**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, principle of management and computer usage in the Dental Laboratory. May be taken two times for a maximum of six credit hours.

**DLT 201 Dental Laboratory II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): DLT 101 or concurrent enrollment, and consent of program director.

Principles of fixed bridgework, abutments, inlays and crowns. Includes theory of spanning spaces with various types of artificial teeth in complete fixed and cantilever bridgework; importance of stress, function and aesthetics in the design of fixed bridgework; handling of wax patterns, investments, casting techniques and making dies from impressions; and techniques in waxing, investing, casting inlays, three-quarter crown, full crown and veneers. Tooth carving techniques taught in previous semester are used.

**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 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 metal, porcelain and plastic, separately or in conjunction with one another.

**DLT 204 Dental Laboratory III /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): DLT 101 or concurrent enrollment, and consent of program director.

Principles of surveying, design of cast partials and technical applications of metallurgy and engineering principles. Includes composition and physical

properties of gold and chromium-cobalt alloys and their working qualities. All types of known designs and principles of retention are used in the construction of removable bridgework.

**DLT 206 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 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.

## DESIGN

**DES 100 Introduction to Design /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Introduction to a variety of design disciplines including architecture, computer aided design/drafting, industrial interior, fashion, and landscape design. Includes definitions of design and the specific design disciplines including their history, similarities, differences, and interactions. Also includes training strategies, employment opportunities, the future of design, and the ever-changing impact of design on society.

**DES 110 Marketing /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as MKT 111.

**DES 111 Fundamentals of Design /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

Elements and theories of design. Includes proportion, scale, balance, harmony, unity and variety, rhythm and emphasis. Projects on specific theories of design will be assigned and evaluated.

**DES 112 Construction Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

Same as CON 112.

**DES 122 Graphic Communication I /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Graphic design techniques and processes. Includes lettering, 2D drafting, 3D model and perspective presentation skills, sketchbooks and portfolios in black and white with mixed media.

**DES 149 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 150 Programming and Planning for Design /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

Theory and methods of information gathering pertaining to any design project. Includes schematic design techniques, programming theory, methods of information gathering and information analysis.

**DES 151 Structural Concepts /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Structural design concepts, systems and applications for industrial and interior designers. Includes live loads, dead loads, tension, compression, moment, shear and torsional bending. Lightweight structural systems and examples will be examined as they appear in nature and the built environment.

**DES 152 Color and Lighting Theory /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

Color design concepts. Includes color theory of vision, light and pigments, color symbolism, perception and psychology in the design of industrial products and interior environments.

**DES 198 Special Topics in Design: /1-4 cr. hrs./1-10 periods (1-4 lec., 0-9 lab)**

Prerequisite(s): Consent of instructor.

Special and current topics in applied design. Includes topics such as futuristic design, solar studies, environmental applied design, southwestern themes, and preservation of historical environments.

**DES 212 History of Design /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

History of industrial and interior design work. Includes pre-historic to present-day examples through multi-media presentations and field trips.



**DES 215 Interior Plantscape Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Same as LTP 215.

**DES 220 Interior Methods and Materials /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Interior design materials, methods and finishes. Includes interior mechanical/lighting systems, specifications for materials and finishes and sample boards. The CSI Masterformat (Construction Specifications Institute) will be referenced to specify all interior finishes and surface treatment applications.

**DES 222 Graphic Communication II /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): DES 122.

Advanced graphic techniques and processes. Includes 2D and 3D graphic techniques, application of color technique and principles, model building and continued sketchbook and portfolio development.

**DES 230 Business/Professional Practices /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Professional business principles and practices for the industrial and interior designer. Includes basic professional services of programming, conceptual design, design development, contract administration, documentation, specifications and project management and evaluation.

**DES 251 Computer Communications/Applications /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): DES 122.

Computer applications for industrial and interior designers. Includes computer-aided drafting and design, word processing, specifications and desktop publishing. Also includes strategies and procedures to integrate computer technology into the execution of professional services.

**DES 255 Spatial Design Concepts /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): DES 122.

Creative and technical use of design principles. Includes theory and practice of interior design applied to specific situations and problems in the design environment.

**DES 256 Human/Environmental Factors /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): DES 122.

Industrial and interior design environmental issues. Includes human design factors, toxicity in the built environment, material recycling and issues of human health, safety and welfare.

**DES 296 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.

**DRAFTING**

**DFT 101 Blueprint Reading and Sketching /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): None.

Principles and concepts of blueprint reading and technical freehand sketching. Includes common blueprint and manufacturing terms, blueprint fundamentals and standards, freehand sketching applications, and blueprint analysis.

**DFT 101A Blueprint Reading /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Blueprint reading involving many areas of trade and industry. Includes orthographics, lettering, sections and auxiliaries, dimensioning, manufacturing operations, and tolerance of position and form.

**DFT 101B Sketching /1 cr. hr./2 periods (2 lab)**

Prerequisite(s): None.

Freehand sketching involving many areas of trade and industry. Includes orthographics, lettering, sections and auxiliaries, dimensioning, manufacturing operations, and tolerance of position and form.

**DFT 102 Techniques of Dimensional Tolerancing /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): DFT 101 or the ability to interpret blueprints at the machinist level.

Principles of limits and fits as applied to working drawings. Includes basic dimensions, unilateral and bilateral tolerancing, and true positional tolerancing.

**DFT 149 Independent Study in 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.

**DFT 150 Technical Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

Mechanical drafting fundamentals and standards used by industry. Includes mechanical drafting fundamentals and standards, drafting applications, introduction to computer aided drafting techniques, and drawing control and reproduction.

**DFT 151 Technical Drafting II /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): DFT 150.

Continuation of DFT 150. Includes review of mechanical drafting fundamentals and standards, advanced mechanical drafting applications, continuation of introduction to computer aided drafting techniques, and drawing control and reproduction.

**DFT 154 Electronic Drafting /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): DFT 150, ETR 100 or higher.

Basic concepts, techniques, and applications for electronic drafting. Includes electronic drafting fundamentals and standards, electronic component, block, and schematic applications, continuation of introduction to computer aided drafting techniques, and drawing control and reproduction.

**DFT 180 Computer Aided Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): DFT 150 or consent of instructor.

Computer aided drafting concepts, techniques and problems in mechanical design. Includes computer aided drafting fundamentals and standards, computer aided drafting applications, and hard copy production.

**DFT 199 Co-op Related Class in DFT /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**DFT 199 Co-op Work in DFT /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**DFT 201 Advanced Computer Aided Drafting: Customizing CAD / 4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): DFT 180 or one year of CAD experience and consent of instructor.

Concepts, techniques, and applications for customizing computer aided drafting menus. Includes review of computer aided drafting fundamentals and standards, menu customization, and hard copy production.

**DFT 211 Advanced Computer Aided Drafting: Three-Dimensional / 4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): DFT 180 or one year of CAD experience and consent of instructor.

Advanced computer aided drafting three dimensional concepts, techniques, and problems. Includes review of computer aided drafting fundamentals and standards, wire frame, surface, and solid modeling applications, hard copy production, and electronic control and transfer of files.

**DFT 240 Manufacturing Processes I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.

**DFT 245 Manufacturing Processes II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Equipment and tooling applications. Includes measuring, gaging, metal cutting, turning and boring, drilling and reaming, milling, broaching, abrasive machining, and thread cutting and forming.

**DFT 254 Computer Aided Drafting: Electro-Mechanical Design / 4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): DFT 151, 154, 180, 240 or concurrent enrollment.

Concepts, techniques, and applications for electro-mechanical design and product development. Includes electro-mechanical CAD design fundamentals and standards, electronic symbol library design applications, hard copy production, and electronic control and transfer of files.

**DFT 256 Computer Aided Drafting: Mechanical Design I /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

Prerequisite(s): DFT 151, 180, 240 or concurrent enrollment.

Advanced technical drawing concepts, techniques, and problems in mechanical design. Includes mechanical design fundamentals and standards, mechanical symbol library, mechanical drawing applications, hard copy production, and electronic control and transfer of files.

**DFT 257 Computer Aided Drafting: Mechanical Design II /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

Prerequisite(s): DFT 245, 256 or concurrent enrollment.

Continuation of DFT 256. Includes computer aided drafting geometric dimensioning and tolerancing fundamentals and standards, geometric dimensioning and tolerancing symbol library, computer aided drafting applications containing geometric dimensioning and tolerancing, hard copy production, and electronic control and transfer of files.

**DFT 261 Computer Aided Drafting: Solid Modeling /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): DFT 211.

Concepts and procedures for designing, modeling, and mass property analysis of mechanical/electro-mechanical models. Includes solid modeling and parametric design fundamentals and standards, design applications, mass property calculations, hard copy production, and electronic control and transfer of files.

**DFT 270 Computer Aided Drafting: Microelectronic Design /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): DFT 245 or concurrent enrollment, and DFT 254.

Concepts, techniques, and applications for microelectronic design. Includes microelectronic computer aided drafting (CAD) fundamentals and standards, microelectronic symbol library, CAD microelectronic design applications, hard copy production, and electronic control and transfer of files.

**DFT 297 Drafting Seminar: /25-4 cr. hrs./25-16 periods (.25-4 lec., .25-12 lab)**

Prerequisite(s): Consent of instructor.

Drafting job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

**DFT 299 Co-op Related Class in DFT /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**DFT 299 Co-op Work in DFT /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**DRAMA****DRA 051 Theater Workshop /3 cr. hrs./5 periods (2 lec., 3 lab.)**

Prerequisite(s): None.

Development and enhancement of a variety of theatrical skills for personal growth and enjoyment. Includes a range of activities which may vary according to the goals of the members of the class--from scene study, to staged plan readings, to full theatrical production. May be taken three times for a maximum of nine credit hours.

**DRA 103 Voice and Movement for the Actor I /1 cr. hr./2 periods (2 lab)**

Prerequisite(s): None.

Principles and practice of beginning voice and movement skills for the actor. Includes phonetics, physical isolation and awareness exercises. May be taken two times for a maximum of two credit hours.

**DRA 104 Voice and Movement for the Actor II /1 cr. hr./2 periods (2 lab)**

Prerequisite(s): DRA 103.

Continuation of DRA 103. Includes development and practice of stage dialects and physicalization of character. May be taken two times for a maximum of two credit hours.

**DRA 107 Introduction to Pantomime /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Development of theater skills through the language of mime. Includes technique and vocabulary necessary to articulate thought process by means of body dynamics.

**DRA 109 Special Topics in Theater: /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Experience in and study of selected styles and forms in theater. One topic is covered each time course is offered. Examples: ethnic theater (Chicano-Latino theater or Black theater), children's theater, commedia del arte, mime theater and musical theater. May be taken four times for a maximum of twelve credit hours.

**DRA 110 Movement/Dance for Actors /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Physical dynamics of actor training. Includes warm-up and relaxation techniques, test and scene analysis through movement and an introduction to dance and movement traditions of musical theater.

**DRA 111 Stagecraft /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Principles of the operation and effects of various types of stages and stage scenery. Includes the construction of stage scenery and the history and construction of costumes and properties.



**DRA 112 Stagecraft Laboratory /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): Concurrent enrollment in DRA 111 and 113.

Practical application of techniques for constructing stage scenery and properties. Includes uses of various materials; construction of flats, steps and platforms; and rigging systems. May be taken three times for a maximum of three credit hours.

**DRA 113 Stagecraft Crew /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): Concurrent enrollment in DRA 111 and 112.

Preparing, organizing, setting up, running and shifting of theatrical sets, properties and costumes for approved theatrical productions. May be taken three times for a maximum of three credit hours.

**DRA 115 Make-up /1 cr. hr./3 periods (1 lec., 2 lab)**

Prerequisite(s): None.

Principles and practice of straight and character make-up under various conditions. Includes special effects, masks, clown make-up and fantasy make-up.

**DRA 118 Basic Theater Graphics /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Principles and practice of graphic skills necessary in the planning of theatrical productions. Includes drafting and mechanical drawing, perspective drawing and watercolor painting techniques.

**DRA 140 History of Theater I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of theater, drama and audiences from ancient Greece to the late 18th century. Includes changes in theaters, stages and theatrical conventions; and representative plays from each period.

**DRA 141 History of Theater II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.

**DRA 149 Introduction to Acting I /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

Introduction to performance techniques and the development of physical skills for effective performance. Includes techniques of acting and characterization.

**DRA 151 Introduction to Acting II /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): DRA 103 or concurrent enrollment, and DRA 149.

Further skill development in performance techniques. 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.

**DRA 201 Independent Studies in Drama /1-4 cr. hrs./3-12 periods (3-12 lab)**

Prerequisite(s): None.

Students work at various assigned tasks in theatrical productions under the guidance of an instructor. Alternatively, students may design their own projects with the instructor's approval.

**DRA 220 Stage Lighting /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): Concurrent enrollment in DRA 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.

**DRA 221 Stage Lighting Laboratory /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): Concurrent enrollment in DRA 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. May be taken three times for a maximum of three credit hours.

**DRA 222 Stage Lighting Crew /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): Concurrent enrollment in DRA 220 and 221.

Organizing, setting up and operating of stage lighting for approved theatrical productions. May be taken three times for a maximum of three credit hours.

**DRA 223 Scene Design /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): DRA 118 and concurrent enrollment in DRA 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.

**DRA 224 Scene Design Laboratory /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): DRA 118 and concurrent enrollment in DRA 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. May be taken three times for a maximum of three credit hours.

**DRA 225 Scene Design Crew /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): DRA 118 and concurrent enrollment in DRA 223 and 224.

Planning, painting, and decorating stage settings for approved theatrical productions. May be taken three times for a maximum of three credit hours.

**DRA 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.



**DRA 250 Intermediate Acting I /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): DRA 103 and 112 or concurrent enrollment, and DRA 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 presentational styles and practice in auditioning techniques.

**DRA 251 Intermediate Acting II /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): DRA 104 and 112 and either DRA 151 or 250 (DRA 104 and 112 may be taken concurrently with DRA 251).

Continuation of DRA 250. Includes scene and monologue development and focusing on conventions of non-realistic styles.

## EARLY CHILDHOOD EDUCATION

**ECE 106 The Growing Years /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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 118 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 developments in education. Includes current theories, multicultural education, and the role of local, state, and national government. Also involves supervised exposure to educational settings.

**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 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 128 Preschool Education /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Acquisition and development of competencies required by child care personnel in the education of preschool children.

**ECE 130 Day Care Programs /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Examination of child care programs. Includes infant and toddler care, after-school child care programs, and issues specific to full-day child care programs.

**ECE 199 Co-op Related Class in ECE /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**ECE 199 Co-op Work in ECE /2 cr. hrs./10 periods (10 lab)**

See Cooperative Education section for description.

**ECE 296 Independent Studies in Early Childhood Education /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Departmental approval.

Students independently continue their development in Early Childhood Education under the guidance of a faculty member. 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.)**

See Cooperative Education section for description.

**ECE 299 Co-op Work in ECE /2 cr. hrs./10 periods (10 lab)**

See Cooperative Education section for description.

**ECONOMICS****ECN 136 Personal and Family Finance /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Principles which assist individuals and families to choose among financial alternatives to meet their needs. Includes choosing a career, making major purchases, sources of consumer and financial information, and effective use of income.

**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. 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.)**

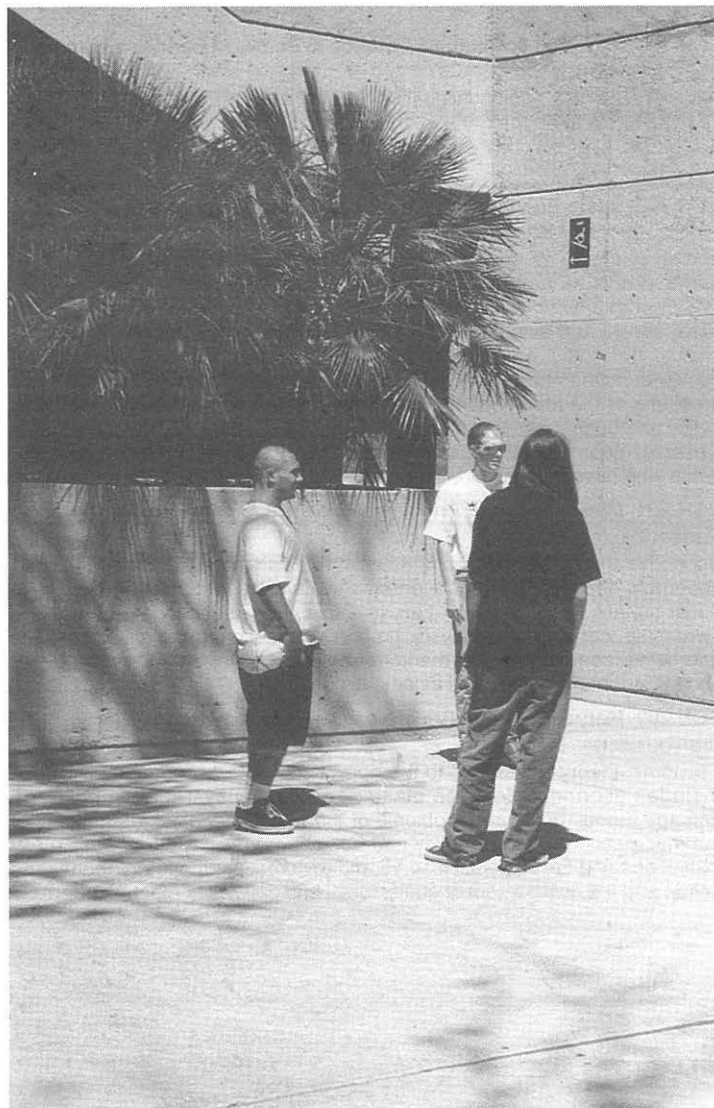
Prerequisite(s): MAT 092.

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

### **EDU 100 Principles of Bilingual Education /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Examination of basic principles of bilingual education. Includes philosophy, history, rationale, legislation and models.

### **EDU 101 Teaching Techniques: Desert Plants /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

An introduction to a variety of Sonoran Desert plants and their special survival strategies. Includes plant identification, desert plant adaptation, the interrelationship between desert plants and animals, and preparing native desert foods. Also includes making a teaching kit, preparing an "in-classroom" or "at the museum" activity and lesson plan. Available teaching resources and how the Desert Museum can be incorporated into classroom activity will also be discussed.

### **EDU 104 Teaching Mathematics Through Problem Solving, K-8 / 2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

An in-depth study of the teaching of mathematics in grades kindergarten through eight. Includes problem solving in all strands of the elementary mathematics curriculum for the developing and understanding of mathematical concepts and skills.

### **EDU 105 Teaching Mathematics Through Problem Solving, 9-12 / 2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

An in-depth study of the teaching of mathematics in grades nine through twelve. Includes problem solving in all courses of the secondary mathematics curriculum for the development of mathematical reasoning and application of mathematics to problem-solving situations.

### **EDU 114 Teaching Math 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.)**

Prerequisite(s): None.

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 Math 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 Water and Environment /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Water issues and their impact on the environment, specifically in the Southwest region of the U.S. Includes the hydrologic cycle, water treatment, distribution systems, water pollution, conservation and protection and safe water for the general public.

**EDU 135 Math Applications Across the Curriculum for Instructors of K-8 /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Applying mathematical concepts to non-mathematical disciplines for grades K-8. Includes classroom management, curriculum in the classroom and the teacher as a learner. May be taken four times for a maximum of four credit hours.

**EDU 140 Instructional Methodology /1-3 cr. hrs./1-3 periods (1-3 lec.)**

Prerequisite(s): None.

Methods of instruction designed to improve teaching skills. Includes preparing goals and objectives, analyzing material to be taught, building the lesson plan, using visual aids, and organizing and presenting materials to fit classroom time frames.

**EDU 141 Techniques for Teaching Science K-12 /2 cr. hrs./3 periods (2 lec., 1 lab)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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 /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Exploration of the philosophy and functions of the Arizona community college. Includes history, mission, goals, legislation, curriculum and instruction, board and administration functions, student development, and continuing education.

**EDU 198 Special Topics in Education: /1.5-4 cr. hrs./1.5-12 periods (variable lec., variable lab)**

Prerequisite(s): Consent of instructor.

Selected topics in education for classroom instruction. Includes current specialized materials to meet classroom needs for local educators.

**ELECTRONICS****ETR 100 Exploring Electronics /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

Survey of electronics. Includes identifying basic components, reading schematics, working with power supplies, signal generators, multimeters, and oscilloscopes. Also includes troubleshooting simple circuits, soldering components, and assessing the work quality. The construction of an electronics project is required.

**ETR 101 Basic DC Electronic Circuit Analysis /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): MAT 115 or concurrent enrollment.

DC electronic circuits. Includes the analysis of DC circuits using superposition, loop and node analysis; Thevenin and Norton equivalents of circuits; introduction to multimeters and DC power supplies.

**ETR 102 Basic AC Electronic Circuit Analysis /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): ETR 101, and MAT 116 or concurrent enrollment.

AC electronic circuits. Includes the mathematical treatment of AC circuit theory using transformers, resonant circuits and various electronic filters. Voltage, frequency, and phase shift measurements are performed using an oscilloscope.

**ETR 104 Introduction to Microelectronics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 an overview of technical areas, including thick and thin film materials and processes, monolithic integrated circuits, hybrid assembly and packaging, art work and design, quality control and reliability. (Same as MRE 104.)

**ETR 105 Electronic Circuits /6 cr. hrs./8 periods (4 lec., 4 lab)**

Prerequisite(s): ETR 102 or concurrent enrollment.

Active devices. Includes transistor circuit analysis, power supplies, regulators, amplifiers (class A, B, AB and C) and introduction to feedback amplifiers.

**ETR 110 Digital Electronics /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): MAT 115.

Digital electronics. Includes binary, octal, hexadecimal arithmetic, digital logic, discrete and integrated circuits.

**ETR 121 Electronic Solder Assembly /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): None.

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. (Same as MRE 121.)

**ETR 122 Electronics Construction and Assembly /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): MAT 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.

**ETR 123 Electronic Fabrication and Processing /2 cr. hrs./ 3 periods (1 lec., 2 lab)**

Prerequisite(s): None.

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. (Same as MRE 123.)

**ETR 124 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.

**ETR 125 Printed Circuit Board Solder Assembly /3 cr. hrs./5 periods (1 lec., 4 lab)**

Prerequisite(s): None.

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. (Same as MRE 125.)

**ETR 130 Microcomputer Assembly and Testing /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): TEC 101B or consent of instructor.

Same as TEC 130.



**ETR 132 Microcomputer Systems Servicing /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): ETR 130.

Servicing microcomputers, peripherals and software. Includes determining the operational status of monitors, printers, floppy disk drives, hard drives, installed operating systems, and application software.

**ETR 133 Computer Aided Schematic Capture/PCB Development / 4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ETR 100 or equivalent experience.

Concepts of circuit layout and documentation. Includes schematic capture, PC board layout of schematics and circuit documentation using the personal computer.

**ETR 143 Television Theory and Servicing /6 cr. hrs./8 periods (4 lec., 4 lab)**

Prerequisite(s): ETR 105, 110.

Principles and techniques of television servicing. For students who wish to become troubleshooting television electronic technicians or those with other majors who wish to learn or sharpen troubleshooting skills on analog and linear circuitry. Includes tools of the trade, television standards, circuit analysis, alignment techniques, troubleshooting, signal tracing and signal substitution.

**ETR 150 Home Entertainment Equipment Repair /6 cr. hrs./8 periods (4 lec., 4 lab)**

Prerequisite(s): ETR 143.

Repair of home entertainment equipment other than television receivers. Includes theory and repair of audio amplifiers, AM-FM-MPX receivers, tape decks, cassette decks, turntables and Dolby and other noise reduction devices.

**ETR 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.

**ETR 210 Local Area Network (LAN) Servicing /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): CSC 108, ETR 130.

Installation and maintenance of LAN hardware and software. Includes setting up servers, workstations, and cabling between the units. Also includes installation and maintenance of the networking operating system, use of support software and hardware, and detection and replacement of faulty components within the system.

**ETR 230 Linear Integrated Circuits /6 cr. hrs./8 periods (4 lec., 4 lab)**

Prerequisite(s): ETR 105.

Theory and application of linear integrated circuits. Includes applications of operational amplifiers in linear and non-linear modes and analog systems; amplifier configurations, audio and radio frequency applications, and active filters. Also includes linear and switching voltage regulators, timers, and phase lock loop circuits.

**ETR 235 Fundamentals of Electronic Communications /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

Prerequisite(s): ETR 230.

Communications circuit fundamentals. Includes audio and radio frequency amplifiers, resonant and coupling circuits, modulation techniques (amplitude, frequency, and phase modulation), power supply, and system noise problems.

**ETR 250 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.

**ETR 251 Analog Circuits /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ETR 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.

**ETR 252 Microcomputer Repair /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): ETR 250 or TEC 124, and ETR 132 or TEC 132.

Same as TEC 234.

**ETR 255 Microcomputer Systems I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ETR 160 and ETR 250 or concurrent enrollment.

Microcomputer operation, including operating systems, diagnostics, system monitor, assemblers, linking loaders and backup procedures. Also includes machine language, assembly language and subroutine calls from higher level languages.

**ETR 256 Microcomputer Systems II /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ETR 255.

In-depth study of microcomputer hardware to the component level. Includes microprocessors, bus structure and timing, memory, input/output, interrupt, DMA and troubleshooting.



**ETR 265 Communications/RF Microwave /4 cr. hrs./6 periods (3 lec., 3 lab.)**

Prerequisite(s): ETR 235.

Advanced circuit analysis, including RF amplifiers, transmission lines, wave guides, microwave device theory and applications of RF and microwave circuits.

**ETR 266 Fiber-Optics and Laser Communications /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ETR 235 or concurrent enrollment.

Laser and fiber-optics communications systems. Includes laser and fiber-optic devices and components, system problems and system measurements.

**ETR 270 Rotating Machines and Prime Movers /6 cr. hrs./8 periods (4 lec., 4 lab)**

Prerequisite(s): ETR 105.

Theory and application of single and polyphase AC and DC motors and generators, stepper motors and linear actuators. Includes support equipment (i.e., starters, contractors, safety devices and speed controls).

**ETR 276 Industrial Electronic Systems /6 cr. hrs./8 periods (4 lec., 4 lab)**

Prerequisite(s): ETR 230.

Study of electronic control systems with emphasis on industrial applications. Several types of closed loop systems are analyzed with respect to errors, instability and frequency response. Both analog and digital computers are studied in the process control context.

**ETR 290 General Radio/Telephone FCC License /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): ETR 230 or equivalent experience.

Preparation for FCC general radio/telephone certificate examination. Includes review of electronic circuit analysis, basic radio theory, laws and regulations.

**ETR 294 Microcomputer Repair Internship /2 cr. hrs./10 periods (10 lab)**

Prerequisite(s): ETR 132.

Computer Repair Technician volunteer work experience at an approved work site.

**ETR 299 Co-op Related Class in ETR /1 cr. hr./1 period (1 lec.)**

See Cooperative Education Section for description.

**ETR 299 Co-op Work in ETR /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education Section for description.

**EMERGENCY MEDICAL TECHNOLOGY****EMT 057 Review Topics in Basic EMT /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): EMT certificate.

Review course for the basic emergency medical technician pursuing recertification. Includes practice in the manipulative skills, mechanical aids to BLS, MAST, splinting and intravenous monitoring.

**EMT 058 Refresher Training for EMT /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): EMT 151 and graduation from the basic program at least one year prior to enrollment.

For students in the Emergency Medical Services field who must meet refresher training requirements for recertification. May be taken nine times for a maximum of eighteen credit hours.

**EMT 059 Emergency Cardiac Care /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): EMT 151.

Introduction to more advanced techniques for pre-hospital care of the cardiac patient. Includes anatomy and physiology of the heart, the conductive system, EKG recording and basic interpretation, physical assessment of the cardiovascular and respiratory systems and mechanisms of cardiovascular disease processes.

**EMT 100 Basic Cardiac Life Support /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Principles and techniques of basic cardiac life support. Includes techniques of airway care and cardiopulmonary resuscitation, introduction to the common types of equipment used in basic cardiac life support, introduction to the pathogenesis of coronary artery disease, electric shock, drowning and sudden death. Designed to train and certify allied health personnel and other interested individuals. Upon course completion, the student may be eligible for basic life support certification by the American Heart Association.

**EMT 101 Intermediate Emergency Medical Technology I /6 cr. hrs./7 periods (6 lec., 1 lab)**

Prerequisite(s): EMT 151.

Continuation of training in techniques of pre-hospital emergency medical care and examination of aspects of human anatomy and physiology surveyed in EMT 151. Includes pharmacology; the respiratory, cardiovascular, and central nervous systems; soft tissue and musculoskeletal injuries; obstetrics/gynecological emergencies; rescue techniques; and communications.

**EMT 102 Intermediate Emergency Medical Technology II /4 cr. hrs./ 5 periods (4 lec., 1 lab)**

Prerequisite(s): EMT 101.

Continuation of training in techniques of pre-hospital emergency medical care. The recognition, management and pathophysiology involved with the respiratory, nervous and cardiovascular systems. Expands on disorders of hydration, including progression of shock. Also includes a study of blood and its components and techniques of management. Emphasis on patient assessment and the importance of report writing.

**EMT 103 Intermediate Emergency Medical Technology III /4 cr. hrs./ 5 periods (4 lec., 1 lab)**

Prerequisite(s): EMT 102.

Continuation of training in techniques of pre-hospital emergency medical care. Includes methods used by the I-EMT for interviewing in a medical emergency; a survey of the eight clusters of a medical situation associated with medical emergencies with exposure to environmental extremes.

**EMT 104 Intermediate Emergency Medical Technology IV /4 cr. hrs./ 5 periods (4 lec., 1 lab)**

Prerequisite(s): EMT 103.

Continuation of training in techniques of pre-hospital emergency medical care. Includes techniques involved in rescue, communications and the systems approach to medical emergencies with emphasis on oral evaluation and skills evaluation. Also provides rotations through clinical settings, which allows for further exposure to I-EMT skills.

**EMT 151 Basic Emergency Medical Technology /7 cr. hrs./9 periods (6 lec., 3 lab)**

Prerequisite(s): None.

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 198 Special Topics in EMT: /1-4 cr. hrs./1-12 periods (0-4 lec., 0-12 lab)**

Prerequisite(s): Consent of instructor.

Selected topics in Emergency Medical Technology which reflect current issues, trends, and technologies.

**EMT 201 Introduction to Paramedicine /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.

Introduction to the paramedic career field. Includes medico-legal implications, psycho-social aspects and interpersonal communication skills for pre-hospital emergency medicine. Also includes shock and fluid therapy, anatomy and physiology, and medical terminology. Lab portion provides basic EMT skills application at the paramedic level.

**EMT 202 Paramedicine: Pharmacology /2 cr. hrs./3 periods (2 lec., 1 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.

Drug information and administration. Includes action of drugs, weights and measures and principles and techniques of drug administration for effective paramedical pre-hospital care.

**EMT 203 Pathophysiology and Management of Respiratory Emergencies /2 cr. hrs./3 periods (2 lec., 1 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.

Advanced techniques for life support in the pre-hospital setting. Includes airway management, oxygen therapy, respiratory system, pathophysiology and assessment.

**EMT 204 Advanced Life Support: Cardiology /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.

Principles of cardiology and advanced cardiac life support skills for the paramedic. Includes cardiac disease states, electrocardiography and identification and field management of cardiac arrhythmias.

**EMT 205 Pathophysiology and Management of Neurological Problem / 2 cr. hrs./3 periods (2 lec., 1 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.

Advanced life support approaches to neurological injuries, including head trauma, spinal injury and other medical problems.

**EMT 206 Pathophysiology and Management of Soft Tissue Injuries / 2 cr. hrs./3 periods (2 lec., 1 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.

Advanced life support approaches to soft-tissue injuries, including patient assessment and techniques and management of soft tissue injuries.

**EMT 207 Pathophysiology and Management of Musculoskeletal Injuries /2 cr. hrs./3 periods (2 lec., 1 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.

Advanced life support approaches to traumatic injuries, including fractures, dislocations, sprains, strains and various splinting devices.

**EMT 208 Pathophysiology and Management of Medical Problems / 2 cr. hrs./3 periods (2 lec., 1 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.

Advanced life support approaches to emergency medical problems. Includes diabetic, anaphylactic reaction, environmental, alcoholism and drug abuse, poisoning, abdomen genitourinary aquatic and management of these problems.

**EMT 209 Pathophysiology and Management of Gynecologic Emergencies /2 cr. hrs./3 periods (2 lec., 1 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.  
Advanced life support approaches to gynecologic emergencies. Includes complications and abnormal delivery, breech birth, multi-birth, postpartum hemorrhage and ruptured uterus.

**EMT 210 Pathophysiology and Management of Pediatric and Neonatal Patient /2 cr. hrs./3 periods (2 lec., 1 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.  
Advanced life support approaches to the pediatric and neonatal patient under emergency situations, including SIDS, croup, epiglottitis and battered child.

**EMT 211 Emotional Aspects of Illness and Injury /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.  
Advanced life support skills approaches to emergency care of the emotionally disturbed, including psychiatric disorders, high anxiety and stress in emergencies.

**EMT 212 Extrication/Rescue Techniques /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.  
Advanced life support approaches to extrication and rescue. Includes devices used for extrication and aspects of rescue that directly relate to patient care.

**EMT 213 Telemetry and EMS Communications /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.  
Introduction to the capabilities of telemetry and communication systems used by the paramedic.

**EMT 214 Paramedic Procedures: Hospital /3 cr. hrs./15 periods (15 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.  
In-hospital clinical procedures for the paramedic.

**EMT 215 Paramedic Procedures: Ambulance /5 cr. hrs./25 periods (25 lab)**

Prerequisite(s): Acceptance into Advanced Paramedic Program.  
Clinical procedures, on ambulance, for the paramedic.

**ENGINEERING****ENG 102 Problem-Solving and Engineering Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): MAT 220 or concurrent enrollment and high school physics. 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.

**ENG 110 Construction Surveying /3 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): MAT 110.  
Principles and techniques of construction surveying. Includes use of surveying instruments, measurement of horizontal distances, leveling, angle measurements, traversing, locating details, stadia surveys, topographic mapping and grade staking.

**ENG 120 Engineering Graphics /3 cr. hrs./7 periods (1 lec., 6 lab)**

Prerequisite(s): MAT 094 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.

**ENG 130 Elementary Surveying /3 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): MAT 152 and 182, or 187.  
Basic principles and techniques of surveying. Includes measurement of horizontal distances, use of surveying instruments, angle measurements, traverse surveys and computations, topographics, government land surveys and solar observations.

**ENG 170 Problem-Solving Using Computers /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ENG 102.  
Design of problem-solving algorithms. Includes implementation in a structured programming language and application to engineering.

**ENG 210 Engineering Mechanics: Statics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): PHY 210 and 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 220 Engineering Mechanics: Dynamics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ENG 210.  
Engineering analysis of dynamic mechanical systems. Includes rectilinear motion, curvilinear motion, kinetics of rigid bodies, plane motion of rigid bodies and mechanical vibrations.

**ENG 230 Mechanics of Materials /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ENG 210.

Analysis of mechanical properties of materials and their engineering applications. Includes material behavior, external forces on rigid and elastic bodies, stress, strain, load analysis and design factors.

**ENG 240 Introduction to Digital Systems /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ENG 102.

Basic principles of digital systems. Includes digital coding of information, basic logic design, number systems, sequential circuit design and computer organization.

**ENG 241 Microprocessors /3 cr. hrs./5 periods (2 lec., 3 lab.)**

Prerequisite(s): ENG 240.

Introduction to microprocessor programming. Includes assembly language, input/output, stacks and interrupts.

**ENG 250 Numerical Analysis for Engineers /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ENG 170, MAT 231.

Applications of numerical methods and computer programming techniques for the creation of mathematical models of engineering systems.

**ENG 260 Elements of Electrical Engineering /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): PHY 216, MAT 231.

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 261 Elements of Electronics /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ENG 260.

Introductory survey of the principles of electronics and instrumentation. Includes semiconductor devices, operational amplifiers, digital logic, microprocessors, transducers and analog, digital and hybrid applications.

**ENG 274 Digital Logic /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ENG 102.

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.

**ENG 275 Computer Programming for Engineering Applications / 3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ENG 102.

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.

**ENG 280 Introduction to Circuits and Electronics I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ENG 102 and concurrent enrollment in MAT 241.

Basic principles of electronics circuits and components. Includes analysis of resistive networks, nodal and mesh analysis, power, resistive two-ports, nonlinear two-ports, diode networks and bipolar and field-effect transistors in elementary configurations.

**ENG 281 Introduction to Circuits and Electronics II /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ENG 280 and concurrent enrollment in MAT 262.

Continuation of ENG 280. System functions, transient response, Laplace transforms, impedance concepts, network stability, sinusoidal steady-state, pole-zero concepts, power, op amp circuits, transistor amplifiers, power supplies and silicon controlled rectifier circuits.

**ENGLISH AS A SECOND LANGUAGE**

The ESL curriculum is designed for bilingual and foreign students to help them develop proficiency in oral and written English by practicing basic skills in listening to, speaking, reading and writing American English. Students will be placed in the program according to assessment test results and teacher evaluation.

**ESL 040 English for Beginners /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

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 061 Elementary Listening, Speaking, and Pronunciation / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Placement by ESL assessment test.

Principles of good listening and speaking skills, and standard pronunciation of American English. Includes basic conversational skills and sound and rhythm patterns.

**ESL 062 Elementary Grammatical Patterns I /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ESL 061 or placement by ESL assessment test.

Development of listening, speaking, reading and writing skills in frequently used patterns of American English. Includes reading, writing, and laboratory exercises to reinforce these patterns. Also includes the development of basic vocabulary in daily life.

**ESL 063 Elementary Grammatical Patterns II /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ESL 062 or placement by ESL assessment test.

Continuation of ESL 062. Includes development of listening, speaking, reading, and writing skills in frequently used patterns of American English. Also includes the development of basic vocabulary.

**ESL 064 Elementary Reading /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): Placement by ESL assessment test or consent of instructor.

Basic reading course designed to develop vocabulary in various situations. Includes comprehension, analysis of the main idea, supporting details, and interpretation of different types of reading.

**ESL 071 Intermediate Listening, Speaking, and Pronunciation / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ESL 061 or 063 or placement by ESL assessment test.

Intermediate development of skills in listening, speaking and pronunciation. Includes a review of grammatical structures and sound patterns. May be taken two times for a maximum of six credit hours.

**ESL 072 Intermediate Grammatical Patterns /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ESL 063 or placement by ESL assessment test.

Development of listening and speaking skills in the frequently used patterns of American English. Includes reinforcement of these grammatical patterns in reading and writing. Also includes the study of the verb tenses, nouns, pronouns, and modal auxiliaries.

**ESL 073 Intermediate Reading /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ESL 064 or placement by ESL assessment test.

Intermediate course designed to develop vocabulary, comprehension, analysis of the main idea, supporting details, and interpretation of different types of reading. Includes selected modified readings from the literary classics, writing, and laboratory exercises.

**ESL 074 Intermediate Writing /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ESL 063 or consent of instructor.

Intermediate writing instruction. Includes word order, sentence patterns, punctuation, grammar and usage, paragraph development, sentence organization, and error correction.

**ESL 081 Advanced Listening, Speaking, and Pronunciation /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): ESL 072 or placement by ESL assessment test.

Advanced course designed to develop fluency in American English pronunciation. Includes the use of oral reading materials, conversational practice, and laboratory exercises.

**ESL 082 Advanced Grammatical Patterns /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ESL 072 or placement by ESL assessment test.

Advanced listening and speaking skills in the frequently used patterns of American English. Includes reinforcement of grammatical patterns in reading and writing. Also includes the study of the verb tenses, modal auxiliaries, clauses, and conditional sentences.

**ESL 083 Advanced Reading /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ESL 073 or placement by ESL assessment test.

Advanced reading course designed to improve reading vocabulary and comprehension of more difficult texts. Includes a variety of texts in both fiction and non-fiction formats. Also includes exercises to build speed reading and to analyze textual features.

**ESL 084 Advanced Writing /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ESL 074 or placement by ESL assessment test.

Advanced writing skills. Includes grammar, writing sentence patterns, paragraph development, and organization of ideas at a higher level.

**ESL 090 English with Ease /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ESL 074 or placement by ESL assessment test.

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 098 Topics in ESL: /1-3 cr. hrs./1-3 periods (1-3 lec.)**

Prerequisite(s): Consent of instructor.

Selected topics in ESL which reflect current issues, trends, and technologies.



## ENVIRONMENTAL TECHNOLOGY

### ENV 091 Household Environmental Awareness /2 cr. hrs./3 periods (2 lec., 1 lab)

Prerequisite(s): None.

Exploration of environmental issues that face households in modern society. Includes home energy generation and conservation, solar power, water conservation, recycling, composting, food production, alternative home-building techniques, and home chemical use/indoor air pollution. Not for ENV majors.

### ENV 092 Chemical Handling for Exterminators /2 cr. hrs./3 periods (2 lec., 1 lab)

Prerequisite(s): None.

Chemical storage, transportation, and disposal of "cidal" agents in conjunction with all applicable state and federal regulations, including a regulatory overview, audit survival tips, and individual safety issues, as well as state licensing information. Not for ENV majors.

### ENV 093 Environmental Issues for Realtors /2 cr. hrs./3 periods (2 lec., 1 lab)

Prerequisite(s): None.

Technical and legal issues concerning the sale of commercial, industrial, and residential properties that may involve "environmental damage." Includes detailed Environmental Phase I Site Assessments. Not for ENV majors.

### ENV 095 Basic Applied Environmental Technology /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): None.

Basic skills in Mathematics, chemistry, and biology for students entering the environmental technology programs.

### ENV 100 Introduction to Environmental Technology /4 cr. hrs./ 4 periods (4 lec.)

Prerequisite(s): College reading requirement or concurrent enrollment in REA 100, and concurrent enrollment in WRT 100 and MAT 082.

Overview and interrelationships of environmental resources. Includes environmental regulations, basic sciences, biological resources, water resources, air resources, toxic and hazardous materials, solids waste, geologic and soils resources. Technologies for resource management and protection are emphasized.

### ENV 102 Hydraulics /3 cr. hrs./5 periods (3 lec., 2 lab)

Prerequisite(s): ENV 100, MAT 092.

Fundamentals of hydraulics as applied to water and wastewater management. Includes basic hydraulic concepts, pressure, fundamentals of pipe and open channel flow, friction loss, compound pipe system, flow measurement, pumps and pump types and characteristics.





**ENV 104 Basic Operational Laboratory Skills /1 cr. hr./1.5 periods (5 lec., 1 lab)**

Prerequisite(s): None.

Basic training in laboratory skills for water/wastewater plant operators and lab personnel. Designed to prepare the technician for safe and effective use of laboratory equipment and instruments as they relate to water/wastewater analysis. May be taken two times for a maximum of two credit hours.

**ENV 105 Humanity and the Environment /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

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. (Same as ANT 105.)

**ENV 106 Chemistry of Water/Wastewater Treatment /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ENV 100 and concurrent enrollment in MAT 092.

Basic concepts of inorganic and organic chemistry as applied to water and wastewater treatment. Includes classification and structure of matter, fundamental chemical principles and relationships, fundamental water quality analyses, identification of chemical reactions and their applications to the water treatment industry, and basic process control analyses. Laboratory principles and safety are emphasized.

**ENV 120 Introduction to Wastewater Treatment /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ENV 100 or concurrent enrollment, MAT 092 or concurrent enrollment.

Overview of wastewater treatment processes. Includes applicable regulations, wastewater characteristics, pretreatment, primary treatment, secondary treatment, tertiary treatment, and solids treatment and handling. Emphasis is placed on wastewater treatment systems, liquid/solid waste streams, and basic laboratory and mathematical process control.

**ENV 132 Water and Wastewater Conveyance Systems /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): ENV 100, 102, and MAT 092 or concurrent enrollment.

Operation and maintenance of water distribution and wastewater collection systems. Includes system management, components and design, principles of construction, flow characteristics, inspection testing and maintenance, pump and lift stations, reservoirs, appurtenances, applications of mathematics, and safety programs.

**ENV 140 Introduction to Water Treatment /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ENV 100 or concurrent enrollment, MAT 092 or concurrent enrollment.

Conventional processes involved in ground and surface water treatment. Includes raw water collection, pretreatment, coagulation/ flocculation, sedimentation, filtration, disinfection and the relationships between water quality and public health.

**ENV 150 Introduction to Hazardous Materials /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ENV 100 or concurrent enrollment, MAT 092 or concurrent enrollment.

Basic concepts 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, underground storage tanks and site and facility safety.

**ENV 153 Chemistry of Hazardous Materials /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ENV 150, 151, and concurrent enrollment in WRT 101.

Chemical principles as applied to hazardous materials handling. Includes basic chemical principles, nomenclature, equations, reactivity and hazards (radioactivity, organics, corrosives, combustibles, oxidizers, flammables, cryogenic materials and explosives).

**ENV 155 Site Investigation I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ENV 150, 151, and concurrent enrollment in WRT 101.

Hazardous materials site investigation and clean up. Includes planning and organization, training and medical programs, site characterization, sampling and monitoring, site control, container handling and emergency response.

**ENV 157 DOT-Transportation of Hazardous Materials /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ENV 150, 151, and concurrent enrollment in WRT 101.

Overview of regulations for transporting hazardous materials and substances. Includes Title 49 code of Federal Regulations, definitions, requirements for transportation and classes of hazardous materials.

**ENV 158 Explosives Handling /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Valid Arizona driver license, medical certificate, and SED 101 or lift truck operator permit.

Movement and storage of explosive components. Includes regulations, definitions, protective equipment, tools, handling and movement, safety and responsibility.

**ENV 159 OSHA: Hazard Communication /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ENV 150, 151, WRT 101.

Principles of researching, designing and writing hazard communication programs for industry. Includes hazard determination, MSDS file preparation, development of training programs for employees and writing of a hazard communication program.

**ENV 192 Water and Wastewater Operator Proficiency /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ENV 102, 106, 120, 132, 140, 200. ENV 200 and 192 may be taken concurrently.

Capstone course for Water and Wastewater Treatment System Technology certificate program. Includes up-to-date information and regulations pertaining to the field of water and wastewater systems.

**ENV 195 Pollution Management Proficiency /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ENV 153, 155, 157, 159, 251. ENV 157, 159, 251 and 195 may be taken concurrently.

Capstone course for Hazardous Materials Management certificate program. Includes up-to-date information and regulations pertaining to the field of solid and waste management.

**ENV 200 Industrial/Workplace Safety /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ENV 120 or 140 or 150, and concurrent enrollment in WRT 101.

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 202 Environmental Sampling and Monitoring /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): Advanced Certificate in Water, Wastewater or Hazardous Materials.

Principles of qualitative and quantitative sampling and monitoring. Includes water, wastewater, air and solid materials (soils, geology, solids and hazardous waste). Also includes flow measuring devices, sampling equipment, use of tables, calculations, chain of custody, and sample handling.

**ENV 204 Advanced Laboratory Skills Seminar /1 cr. hr./1.5 periods (.5 lec., 1 lab)**

Prerequisite(s): Basic knowledge of laboratory operations.

Designed to enhance operators' knowledge of laboratory operations, equipment and instruments as they relate to water/wastewater analysis. Includes advanced laboratory skills training for water/wastewater plant operators and lab personnel. May be taken two times for a maximum of two credit hours.

**ENV 205 Environmental Law for Non-Lawyers /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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, Clean Water Act.

**ENV 206 Air Monitoring and Sampling /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ENV 100.

Principles of sampling, monitoring, and testing air samples. Includes identification of air contaminants, methods of monitoring and sampling each type of contaminant, instruments used in monitoring and sampling, and means of calculating exposure levels. Also includes an introduction to government regulations concerning air quality and industrial air pollution control devices.

**ENV 208 Environmental Laboratory Analysis /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Advanced Certificate in Water, Wastewater or Hazardous Materials.

Principles of environmental analysis and laboratory training. Includes chemical and biological laboratory analyses techniques, sample preparation, equipment use and maintenance, recordkeeping and report preparation, and laboratory management. Emphasis is placed on equipment and analyses commonly employed in environmental laboratory.

**ENV 210 Environmental Technology Special Topics: /1-3 cr. hrs./1-3 periods (1-3 lec.)**

Prerequisite(s): Advanced Certificate in Water, Wastewater or Hazardous Materials.

Variable content designed to respond to advances in the field of environmental technology, relationships between environmental technology and other related disciplines, specific student interests and needs and faculty expertise in special topics.

**ENV 220 Advanced Wastewater Treatment /3 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): ENV 106, 120 and concurrent enrollment in MAT 122.

Exploration of the principles of biological and physical/chemical methodologies to treat municipal and industrial wastewater. Includes uses of chemicals for neutralization, coagulation, and precipitation; activated sludge systems, biological and trickling filters, and land treatment for removal of solids from wastewaters. Also includes an emphasis on utilizing laboratory, visual, and mathematical techniques for process control and troubleshooting.

**ENV 240 Advanced Water Treatment /3 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): ENV 106, 140 and concurrent enrollment in MAT 122.

Processes of ground and surface water treatment. Includes softening, manganese and iron removal, trihalomethane control, alternative disinfection, carbon treatment, air stripping, ion exchange, the principles of toxicology and process control utilizing laboratory techniques and results.

**ENV 242 Cross-Connection Control /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ENV 102, 132.

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. Helps prepare students for American Water Works and ASETT general tester examination.

**ENV 244 Electrical and Mechanical Maintenance /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ENV 100 or concurrent enrollment, MAT 092 or concurrent enrollment.

Water and wastewater equipment maintenance. Includes maintenance program development and recordkeeping, electricity and electrical equipment maintenance, mechanical maintenance as applied to prime movers, pumps and pumping stations, couplings, compressors, valves, chemical feeders and flow meters.

**ENV 250 Toxicology and Industrial Hygiene /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ENV 100.

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: Hazardous Materials - Health and Safety /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): ENV 100 or concurrent enrollment, MAT 092 or concurrent enrollment.

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 258 Advanced Laboratory Analysis /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ENV 208.

Principles of advanced environmental analysis. Includes EPA methodology, quality assurance/quality control, record-keeping, instrument maintenance, and sample preparation. Also includes emphasis on hands-on experience with methods and instrumentation commonly employed in environmental and other chemical laboratories.

**ENV 299 Co-op Related Class in ENV /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Consent of instructor.

See Cooperative Education section for description.

**ENV 299 Co-op Work in ENV /1-8 cr. hrs./5-40 periods (5-40 lab)**

Prerequisite(s): Consent of instructor.

See Cooperative Education section for description.

## EQUINE SCIENCE

### **EQS 101 Equine Anatomy and Physiology /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

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. Prepares student for further science and equitation studies in equine science.

### **EQS 102 Equine Judging /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

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. May be taken four times for a maximum of twelve credit hours.

### **EQS 120 Beginning Horsemanship /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Introduction to horsemanship. Includes horse handling, tack and equipment, introduction to riding and training, and training techniques.

### **EQS 130 Introduction to Farrier Science /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Basics of horseshoeing. Includes anatomy and physiology of the equine leg and foot, trimming, leveling and balancing of the hoof, shaping of shoes, and attaching shoes with the emphasis on soundness and performance.

### **EQS 200 Equine Animal Science I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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 210 Equine Business Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Practical management procedures of an equine facility. Includes setting up an equine business, facility requirements and maintenance, breeding versus training program requirements, and marketing.

## EQUINE SCIENCE—EXPLORATORY—FASHION DESIGN AND CLOTHING

## EXPLORATORY

### **EXP 051 Social Science Survey /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Units from the social or behavioral sciences selected by the student.

## FASHION DESIGN AND CLOTHING

### **FDC 111 Clothing Construction (Beginning) I /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

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. Proficiency test may be taken for level placement.

### **FDC 112 Alteration and Designing /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Methods of altering commercial patterns and principles of fitting garments. Includes production of personal patterns for basic dress, shirt and pants.

### **FDC 121 Applied Dress Design /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Flat pattern method of pattern making with emphasis on engineering.

### **FDC 122 History of Fashion /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

History of clothing and personal decoration as a reflection of society and culture. Includes social, aesthetic, economic and philosophical expressions from 3000 B.C. to the 20th century. Also includes individual and group expression through the following as related to historical events and trends: fabric and decoration, silhouettes, garments, accessories, hairstyles and cosmetics.

### **FDC 126 Textiles /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Technology of textile fibers, yarns, fabric construction and special finishes. Includes design projects applicable to interior design, fashion design and merchandising. Also includes selection, economics and care of fabrics.

**FDC 131 Clothing Selection /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Consumer analysis of clothing design, construction and cost based on social, aesthetic and individual needs. Includes selection of color and line. Designed for personal use or for those in the fields of fashion design, clothing consultation or merchandising.

**FDC 132 Psychology of Dress /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Human behavior in relationship to clothing and body image. Includes satisfaction of basic human needs, effect on individuals and groups, reflection of self-perception, evaluation of clothing trends and changing society and culture. Students pursue a research project.

**FDC 141 Fashion Design I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Theory and practice of fashion design. Includes profile of the designer at work, basic fashion design sketching and the application of fine art principles to fashion design.

**FDC 142 Alteration and Repair /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Techniques for lengthening the life and increasing the usefulness of garments. Includes methods of altering, fitting, repairing, restyling, reconditioning and restoring clothes.

**FDC 199 Co-op Related Class in FDC /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**FDC 199 Co-op Work in FDC /1-3 cr. hrs./5-15 periods (5-15 lab)**

See Cooperative Education section for description.

**FDC 211 Clothing Construction (Advanced) II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): FDC 111 or satisfactory score on proficiency test.

Advanced clothing construction techniques. Includes selection of fabrics and patterns. Commercial patterns are used.

**FDC 212 Clothing Construction (Tailoring) III /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): FDC 211 or consent of instructor.

Custom and semi-commercial tailoring techniques. Includes experiments with recent developments in construction methods. Emphasis on use of natural fibers.

**FDC 241 Fashion Design II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): FDC 111, 141 or consent of instructor.

Application of fashion design principles. Students design and construct original garments by draping fabric on the dress form.

**FINANCE**

**FIN 102 Principles of Bank Operations /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Fundamentals of bank functions providing a comprehensive introduction to the diversified services offered by the banking industry. Includes bank accounting, pricing and profitability and personnel and security functions. Designed to help the beginning banker view his profession in a broad perspective.

**FIN 106 Teller Operations /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Development of skills needed by tellers to provide accurate, efficient and effective service. Includes handling of cash and checks, savings accounts and account insurance.

**FIN 108 Principles of Savings Institutions /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Role of savings institutions in the modern business world. Includes the historical development of savings institutions and their present-day dynamics and trends in business.

**FIN 109 The Human Side of Savings Institutions /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Interpersonal relations as applied to the financial services professional. Includes customer and peer relations and techniques for applying human relations concepts on the job.

**FIN 110 Communicating in a Savings Institution /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Interpersonal communication skills in a financial institution setting. Includes practical techniques for listening more effectively, persuading others, solving problems and managing conflicts with customers and co-workers.

**FIN 111 Personal Investment Portfolios /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Examination of various investment vehicles and portfolios. Includes strategies for achieving investment goals in view of risk and return relationships. Also includes common stocks, bonds, investment companies, types of speculative investments and a review of various portfolios with different investment objectives.



**FIN 112 Economic Topics For Savings Institutions /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Relationship of economic behavior to savings institutions. Includes current economic issues, government's role in the economy, fiscal and monetary policies, and the current exchange system.

**FIN 113 Deposit Accounts and Services /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Deposit accounts and services in a deregulated market. Includes the savings counselor's role in opening regular savings accounts, certificate accounts and access accounts.

**FIN 114 Individual Retirement Accounts/Keogh Plans /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Eligibility requirements and contribution limits set by congressional acts for individual retirement accounts and Keogh plans. Includes retirement counseling, opening accounts and handling problem situations. Also includes record keeping and reporting requirements.

**FIN 115 Savings Bank Data Processing /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Data processing principles as they apply to savings institutions. Includes computer systems, terminology, concepts and applications, and technological trends.

**FIN 121 Introduction to Personal Financial Planning /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The financial planning process. Includes regulations affecting financial planners, developing personal financial statements and analyzing the client's financial position. Also includes understanding the economic cycles and concepts of time value of money. Helps the student prepare for the first IBCFP certification examination.

**FIN 123 Personal Investment Strategies /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Investment techniques and analysis. Includes markets, taxation, risk analysis, and appropriate use. Also includes the interpretation of prospectus and corporate financial statements.

**FIN 124 Tax Management and Planning /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Individual income, business, and tax sheltered investment techniques. Includes individual income and business taxation, case analysis, tax advantage investments, and planning.

**FIN 131 Principles of Credit Unions /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Information and training to prepare persons as credit union executives. Includes credit union operations, preparing and conducting annual meetings and presenting the credit union concept at a public meeting.

**FIN 136 Investments and Family Financial Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Overview of investment and family financial management concepts and practices. Includes yields, limited income securities, growth factors analysis of financial statements, family budgeting, property insurance, mutual funds, variable annuities and aspects of other investment media.

**FIN 139 Credit Union Accounting /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Accounting systems used by credit unions for internal control, record keeping and report generation. Includes terms and procedures unique to credit unions.

**FIN 140 Political Action Topics for Savings Banks /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Political and governmental effects on financial institutions. Includes analysis of political events and policies, political participation, the electoral process, lobbying and the media.

**FIN 141 Savings Bank Supervisor I /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Skills and techniques for the new financial supervisor. Includes decision making, delegation, employee assessment, effective communications, time management and counseling.

**FIN 142 Speaking for Financial Professionals /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Principles of public speaking designed to increase the confidence and effectiveness of a financial professional in both formal and informal situations. Includes practice in preparing and delivering presentations and in evaluating the presentations of others.

**FIN 143 Savings Institution Operations /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Major operating areas of savings institutions. Includes deposit services, lending functions and accounting operations. Also includes marketing and other departments.



**FIN 144 Funds Transfer Services /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): FIN 143.

Retail electronic services and electronic funds transfer. Includes automatic teller machines, bank credit cards, point of sale services, check truncation, automated clearing houses and home banking.

**FIN 146 Techniques for Customer Counseling /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Customer needs, financial services and the relationship to both the financial institution and the customer. Includes many aspects of customer contact, drawing on sociology, psychology, economics and other disciplines. Also includes practical, job-related techniques and guidelines for meeting special challenges.

**FIN 147 Effective Business Writing /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Writing effectively in the financial services business. Includes the use of writing resources, techniques used to write effective business letters and reports, writing persuasive messages and how modern technology is used for business communications.

**FIN 150 Marketing for Financial Institutions /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Fundamentals of marketing as they apply to the problems and opportunities of the financial services business. Includes how to conduct market research, plan marketing strategies, monitor change and use personal selling techniques that work.

**FIN 155 Accounting Practices for Savings Institutions /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): FIN 148.

Basic accounting practices as applied to savings institutions. Includes differences between four financial statements, depreciation, FASB rules, statement of cash flow, borrowed funds, investments and auditing.

**FIN 157 Practical Business Math Procedures /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Review of basic arithmetic operations and their applications. Includes checking account procedures, calculating payroll and interest, estimating depreciation, calculating the price on stocks and bonds and explaining the present value concept.

**FIN 158 Commercial Banking /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Commercial bank operations. Includes major banking functions, federal and state laws, organization, structure and management of commercial banks in today's deregulated financial environment.

**FIN 161 Commercial Lending Basics /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Introduction to commercial lending. Includes terms, concepts and techniques in the commercial lending area.

**FIN 162 Financial Institutions /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Financial services described in the context of the nation's financial system. Includes financial markets, how financial intermediaries channel funds through the economy, impact of interest rates on the economy and the role of the Federal Reserve System in determining monetary policy.

**FIN 163 Mortgage Loan Servicing /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Procedures used in the operation of the loan servicing function. Includes organization, exceptions, recurring charges, accounting for escrow accounts, assessing, billing and paying real estate tax, insurance coverage, contract changes, delinquency on the lender and purposes, terms and characteristics of FHA and VA loans.

**FIN 165 Real Estate Law II /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): FIN 151.

Real estate finance and forms of mortgages on lenders and borrowers. Includes fraud and deceit, fair housing laws, contract law, mortgage law, real estate purchase contracts, land installment contracts, default and foreclosure and the obligations and remedies of the landlord and the tenant.

**FIN 166 Real Estate Principles I /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Real estate administration. Includes physical and legal characteristics of real estate resources, valuation principles, financing institutions and agencies and mortgage lending.

**FIN 167 Real Estate Principles II /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): FIN 166.

Continuation of FIN 166. Includes the effective utilization and management of real estate resources. Also includes subdivision and land development, marketing, property management, income approach to valuation and the analysis of land uses.

**FIN 199 Co-op Related Class in FIN /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**FIN 199 Co-op Work in FIN /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**FIN 205 Real Estate Finance /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as RLS 205.

**FIN 208 Installment Credit /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Techniques of installment lending. Includes credit, obtaining and checking information, servicing the loan, collecting amounts due, inventory financing, special loan programs, business development, advertising and the public relations aspect of installment lending.

**FIN 213 Business Finance /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ACC 102.

Basic methods of securing and managing fixed and working capital funds for individual business units. Emphasis on special problems encountered by minority enterprises in obtaining funds.

**FIN 217 Analyzing Financial Statements /2-3 cr. hrs./2-3 periods (2-3 lec.)**

Prerequisite(s): None.

Characteristics of financial statements and their analysis. Includes review of basic accounting principles for those who have studied accounting. For those who have not, minimum accounting background needed for financial statement analysis is provided.

**FIN 226 Savings Bank Supervisor II /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): FIN 141.

Continuation of FIN 141. Responsibilities and techniques of supervision. Includes organizational options and hiring, orienting and appraising of employees.

**FIN 227 Residential Appraising for Lenders /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): RLS 101.

Appraisal of residential property, emphasizing single-family units from a lender's perspective. Includes basic principles of appraising, specialized vocabulary, neighborhood and site analysis, and the three approaches to value.

**FIN 228 Residential Mortgage Lending /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): FIN 108.

Procedures involved in originating, processing and servicing residential mortgage loans. Includes different types of residential mortgage loans that federally chartered institutions can make.

**FIN 229 Statement Analysis for the Lender /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): ACC 100 or 101.

Analysis of financial statements submitted by business and self-employed borrowers. Includes financial statement construction and analytical techniques used in commercial lending.

**FIN 230 Managing Deposit Accounts and Services /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): FIN 108.

Detailed coverage of deposit services. Includes the impact of federal regulation on managing deposit accounts and services.

**FIN 231 Credit Union Operations /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): FIN 131.

Functions of teller transactions, loan granting, financial counseling and collections. Includes credit union advertising, budgeting, EFTs, ATMs and membership expansion.

**FIN 238 Fundamentals of Estate Planning I /3 cr. hrs./3 periods (3 lec.)**

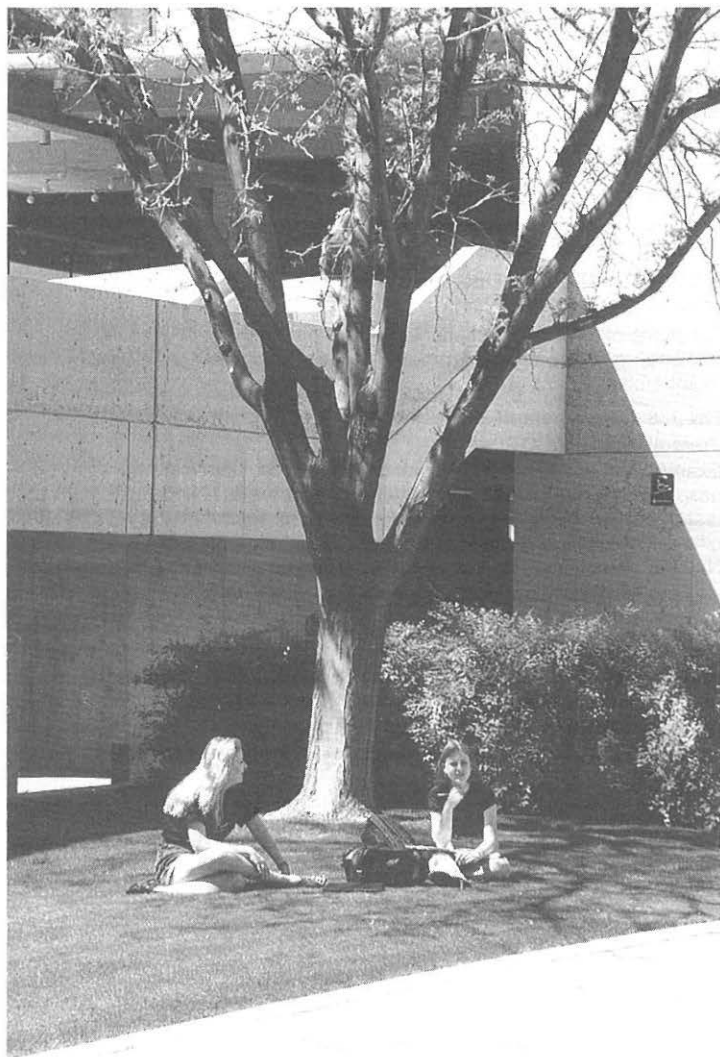
Prerequisite(s): ACC 204.

Examination of the nature, valuation, disposition, administration and taxation of property. Includes the use of revocable and irrevocable trusts, testamentary trusts, life insurance, powers of appointment, wills, lifetime gifts and marital deductions. Prepares candidates for the American College National examination for estate planning and taxation.

**FIN 239 Credit Union Financial Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): FIN 139 or ACC 101.

Principles of credit union financial management. Includes financial statement analysis, budgeting, liquidity management, financial planning, risk management, insurance, and investment procedures.



## FIRE SCIENCE

### **FSC 149 Fire Operations I /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

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 /3 cr. hrs./4 periods (2 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. Completion of FSC 149 and 150 will help prepare the student for successful completion of State of Arizona Firefighter I practical evaluations.

### **FSC 151 Introduction to Fire Science /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Introduction to the principles of fire prevention. Includes fire prevention surveys, "selling" the service to businessmen, helping the businessman to stay in business, public relations and the application of fire prevention codes.

### **FSC 153 Hazardous Materials I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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. 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, MAT 092 or consent of instructor.

Fire prevention in high risk and industrial occupancies. Includes overview of fire prevention, codes, occupancy classification, building construction, means of egress, fire safety, chemistry of fire, protection systems and appliances, hazardous materials, principles of electricity, inspection procedures and reports, arson, and publication education.

**FSC 155 Fire Investigation: Arson III /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Advanced principles and techniques of fire investigation. Includes forensic lab services, incendiary devices and fuses, laws of arrest, search and seizure, scene photography and insurance fraud.

**FSC 156 Fire Investigation: Arson IV /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Advanced techniques of arson investigation. Includes special topics on state of the art investigative techniques, including those involved in research, legal cases and arson scenes.

**FSC 160 Wildland Firefighting /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

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 161 Hazardous Materials II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): FSC 153.

Principles and techniques of dealing with flammable, explosive, reactive and toxic materials. Includes identification, classification, researching of such materials and handling them under both hazardous and safe conditions. Also includes information on the special problems they cause and where they are likely to be found, shipped and used.

**FSC 162 Hydraulics and Fire Suppression /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 092. (PHY 101 recommended.)

Principles of hydraulics as applied to fire suppression. Includes physical laws affecting the movement of water through pipes, hydrants, pumps, hoses, etc.; functions and limitations of mechanical equipment to overcome these restrictions; effect of friction loss; head and pressure; water system; fire flow requirements; and organization for fire suppression.

**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.)**

Prerequisite(s): None.

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 and First Aid /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Application of rescue practices and first aid techniques to emergency situations.

**FSC 168 Special Hazard Tactical Problems /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Tactical problems and specific hazards not normally encountered. Designed for experienced fire fighters. Includes hazard characteristics and hazardous materials under fire conditions.

**FSC 175 Introduction to Fire Investigation: Origin and Recognition of Arson /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 185 Advanced Fire Investigation: Arson /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

An advanced course designed for training in fire investigation for those private sector agencies, fire science and governmental agencies at state and local level, with or without police powers, who have direct responsibility for fire investigations.

**FSC 190 Current Issues in Fire Science /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Selected topics in fire science which reflect current issues, trends, and technologies.

**FSC 198 Special Topics in Fire Science: /5-3 cr. hrs./1-4 periods (.5-3 lec., 0-3.5 lab)**

Prerequisite(s): Consent of instructor.

Selected topics which reflect current issues in fire science. May include special topics to meet student needs or interests.

**FITNESS AND RECREATION**

**FAR 105 Beginning Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Aerobics for the beginning student. Includes a variety of exercises and dance routines to strengthen the cardiovascular system and tone muscles. Also, includes warm-ups and stretches for loosening muscles and joints and cool-down routines that stress relaxing and tapering off from the rigorous exercise program. This course is not intended for Fitness and Sports Science majors.

**FAR 161 Beginning T'ai-chi Chuan /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): None.

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. This course is not intended for Fitness and Sports Science majors.

**FITNESS AND SPORT SCIENCES**

**GENERAL ACTIVITIES PROGRAM FOR ALL STUDENTS:**

**Individual & Dual Sports Courses**

**FSS 110 Beginning Golf /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to golf for the beginner. Includes grip, stance, swing, putting, and rules. May be taken four times for a maximum of four credit hours.

**FSS 111 Intermediate Golf /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Development of skills introduced in the beginning class. Includes grip, stance, swing, driving, chipping, rules, and etiquette. May be taken four times for a maximum of four credit hours.

**FSS 112 Advanced Golf /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Advanced skills in golf and development of the mental aspects of the game. Includes techniques for playing hazards, difficult lies, and making special shots. May be taken four times for a maximum of four credit hours.

**FSS 113 Beginning Racquetball /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

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. May be taken four times for a maximum of four credit hours.

**FSS 114 Intermediate Racquetball /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

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. May be taken four times for a maximum of four credit hours.

**FSS 115 Advanced Racquetball /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Techniques and skills for competitive game or tournament play. Includes strategies, shot selection and a review of all skills. May be taken four times for a maximum of four credit hours.

**FSS 116 Beginning Tennis /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

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. May be taken four times for a maximum of four credit hours.

**FSS 117 Intermediate Tennis /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

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. May be taken four times for a maximum of four credit hours.



**FSS 118 Advanced Tennis /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

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. May be taken four times for a maximum of four credit hours.

**FSS 119 Track and Field /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Fundamental techniques of track and field. Includes development of personal skills, rules, courtesies, safety, philosophy, and training. May be taken four times for a maximum of four credit hours.

**FSS 122 Beginning Fencing /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to the skills basic to the sport of fencing. Includes rules, terminology, footwork, handwork, and a historical perspective. Also includes development of physical and mental agility. May be taken four times for a maximum of four credit hours.

**FSS 123 Intermediate Fencing /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Fencing for students who have developed intermediate skills. Includes physical conditioning and strengthening program, the on-guard position, lunging, tactical action, and USFA rules. May be taken four times for a maximum of four credit hours.

**FSS 124 Advanced Fencing /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Fencing for students who have developed intermediate skills. Includes physical conditioning and strengthening program, the on-guard position, lunging, tactical action, and USFA rules. May be taken four times for a maximum of four credit hours.

**Team Sports Courses****FSS 125 Beginning Basketball /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to the fundamentals of basketball. Includes development of offensive and defensive skills, rules, team play, and strategy. May be taken four times for a maximum of four credit hours.

**FSS 126 Intermediate Basketball /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Development of techniques for students with basic basketball skills. Includes footwork, jumping, rebounding, guarding, designed plays, and officiating techniques. May be taken four times for a maximum of four credit hours.

**FSS 127 Advanced Basketball /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Advanced skills for basketball. Includes game-like conditions, special plays, and advanced game strategies. May be taken four times for a maximum of four credit hours.

**FSS 128 Beginning Baseball /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to the fundamentals and basic skills of baseball. Includes infield, outfield, catching, pitching, offensive and defensive strategies. May be taken four times for a maximum of four credit hours.

**FSS 129 Beginning Softball /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to slow and fast pitch softball. Includes defensive and offensive skills, strategies, pitching strategies, officiating, and rules. May be taken four times for a maximum of four credit hours.

**FSS 130 Beginning Soccer /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to soccer for the beginner. Includes history of soccer, basic skills, strategies, terminology, and rules to be used in drill and game activities. May be taken four times for a maximum of four credit hours.

**FSS 131 Beginning Volleyball /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to volleyball for the beginning player. Includes basic skills, rules, and team systems and strategies. May be taken four times for a maximum of four credit hours.

**FSS 132 Intermediate Volleyball /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to volleyball for the player with previous volleyball experience. Includes refinement of basic skills, introduction of advanced skills, and team systems. May be taken four times for a maximum of four credit hours.

**FSS 133 Advanced Volleyball /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Volleyball for the skilled and experienced player. Includes refining skills and introducing advanced techniques and team systems. May be taken four times for a maximum of four credit hours.



### **Combative Activities Courses**

#### **FSS 139 Beginning Tae Kwon Do /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

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. May be taken four times for a maximum of four credit hours.

#### **FSS 140 Intermediate Tae Kwon Do /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): FSS 139 or consent of instructor.

Continuation of FSS 139. Includes combinations of punches, strikes, and kicks. Also includes skills necessary to pass the green belt test. May be taken four times for a maximum of four credit hours.

#### **FSS 141 Advanced Tae Kwon Do /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): FSS 140 or consent of instructor.

Continuation of FSS 140. Includes advanced techniques and tournament type skill performance. May be taken four times for a maximum of four credit hours.

#### **FSS 142 Defensive Tactics /2 cr. hrs./3 periods (2 lec., 1 lab)**

Prerequisite(s): None.

The theory of rough and tumble fighting. Includes fundamentals and precaution, close-in defense and attack, control over the armed and unarmed opponent, chin maneuvers, prisoner handling and control, and physical fitness. May be taken four times for a maximum of eight credit hours.

#### **FSS 143 Self Defense for Women /2 cr. hrs./3 periods (2 lec., 1 lab)**

Prerequisite(s): None.

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. May be taken four times for a maximum of eight credit hours.

#### **FSS 145 Beginning Karate /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to Okinawan Karate. Includes history and philosophy, basic techniques, performance categories, and self-defense strategies. May be taken four times for a maximum of four credit hours.

#### **FSS 146 Intermediate Karate /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): FSS 145.

Continuation of FSS 145. Includes intermediate level katas (combinations of movements). May be taken four times for a maximum of four credit hours.

### **Fitness Related Courses**

#### **FSS 150 Fitness Activities /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

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. May be taken four times for a maximum of four credit hours.

#### **FSS 151 Sports Conditioning /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): Concurrent enrollment in an athletic team class.

Conditioning class for athletes. Athletes work with their respective coaches with exercises and drills designed for their particular sport. May be taken four times for a maximum of four credit hours.

#### **FSS 152 Independent Activity /1 cr. hr./2 periods (1 lec., 1 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. May be taken four times for a maximum of four credit hours.

#### **FSS 185 Beginning Weight Training and Cardiovascular Fitness / 1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Basic, balanced fitness training program designed for the beginner. Includes the development of a personalized weight training and cardiovascular routine designed for growth in muscle endurance, strength, and cardiovascular fitness. May be taken two times for a maximum of two credit hours.

#### **FSS 186 Intermediate Weight Training and Cardiovascular Fitness / 2 cr. hrs./4 periods (4 lab)**

Prerequisite(s): None.

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. 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)**

Prerequisite(s): None.

Intensive weight training and cardiovascular activities for physically qualified individuals. Includes advanced training techniques and development of higher degree skill techniques. May be taken six times for a maximum of twelve credit hours.

**Dance Courses****FSS 158 Beginning Country Western Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to country western dance for the beginner. Includes basic steps, turns, techniques, and skill development. May be taken four times for a maximum of four credit hours.

**FSS 159 Intermediate Country Western Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Country western dance techniques for the confident dancer. Includes dance patterns, styles and performance transformation. May be taken four times for a maximum of four credit hours.

**FSS 160 Ballroom/Latin Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Basic techniques of ballroom and Latin dancing. Includes foxtrot, waltz, swing, rumba, cha-cha, and tango. Also includes dance movement variations.

**FSS 161 Advanced Country Western Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Advanced country western dance techniques. Includes dance patterns, dance execution, and performance techniques. May be taken four times for a maximum of four credit hours.

**FSS 162 Beginning Tap Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to tap dancing. Includes basic foot movement, body movements, simple steps, and a complete routine. May be taken four times for a maximum of four credit hours.

**FSS 163 Intermediate Tap Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Tap Dance for students with basic skills. Includes time steps, coordination skills, footwork, and more complex combinations and routines. May be taken four times for a maximum of four credit hours.

**FSS 164 Advanced Tap Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Advanced techniques and skills in tap dance. Includes time steps, footwork, and combinations and routines. May be taken four times for a maximum of four credit hours.

**FSS 166 Beginning Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Same as DNC 166.

**FSS 167 Intermediate Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Same as DNC 167.

**FSS 168 Advanced Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Same as DNC 168.

**FSS 169 Dance Ensemble /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): DNC 166, 167, 168.

May be taken four times for a maximum of eight credit hours.

Same as DNC 169.

**FSS 170 Introduction to Bailes Folklóricos Mexicanos /2 cr. hrs./3 periods (1 lec., 2 lab)**

May be taken four times for a maximum of eight credit hours.

**FSS 171 Folkloric Mexican Dance I: Oaxaca /2 cr. hrs./3 periods (1 lec., 2 lab)**

May be taken four times for a maximum of eight credit hours.

**FSS 172 Bailes Folklóricos Mexicanos: Vera Cruz /2 cr. hrs./3 periods (1 lec., 2 lab)**

May be taken two times for a maximum of four credit hours.

**FSS 173 Folkloric Mexican Dance II: Michoacan /2 cr. hrs./3 periods (1 lec., 2 lab)**

May be taken two times for a maximum of four credit hours.

**Aerobic Dance Exercise Courses****FSS 176 Low Impact Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Introduction to cardiovascular and muscular exercises. Includes walking, jogging, stretching, calisthenics, and muscle toning. Also includes cool down and relaxation exercises. May be taken four times for a maximum of four credit hours.

**FSS 177 Medium Intensity Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Moderate cardiovascular and muscular conditioning. Includes increasing stamina and exercise levels, and the development of individual workout routines. May be taken four times for a maximum of four credit hours.

## FITNESS AND SPORT SCIENCES

### **FSS 178 High Intensity Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Intensive aerobics designed for muscular and cardiovascular efficiency. Includes the development of a complete exercise program. May be taken four times for a maximum of four credit hours.

### **FSS 179 Bench Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

High intensity, low impact aerobics. Includes developing skill in stepping onto a platform while simultaneously performing upper body movements. For both intermediate and advanced students. May be taken four times for a maximum of four credit hours.

## Special Interest Courses

### **FSS 193 Plus-Sized Exercise /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): Twenty-five pounds or more overweight.

Comprehensive approach to weight control involving exercise, nutrition and diet counseling, behavior modification and a support group of people with similar goals. Each class will consist of exercise followed by lecture discussion. May be taken four times for a maximum of eight credit hours.

### **FSS 195 Athletic-Academic Success /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Development of the student athlete's skills and attitudes to successfully make the transition from high school to college. Includes an examination of the similarities and differences between high school and college athletics, athletic-academic success skills and lifetime health and fitness. May be taken three times for a maximum of nine credit hours.

## FITNESS AND SPORT SCIENCES COURSES

### **FSS 199 Co-op Related Class in FSS /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Concurrent enrollment in 199 Co-op Work.

See Cooperative Education section for description.

### **FSS 199 Co-op Related Work in FSS /1-3 cr. hrs./5-15 periods (5-15 lab)**

Prerequisite(s): Concurrent enrollment in 199 Co-op Related Class.

See Cooperative Education section for description.

### **FSS 236 Motivation and Human Relations In Motor Performance / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Elements of human behavior which enable the professional and technician to motivate and relate to the physically active participant. Includes an examination of professional behavior in the fitness work place.

### **FSS 238 Introduction to Sports Injury Management /2 cr. hrs./ 2 periods (2 lec.)**

Prerequisite(s): WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Introduction to principles and techniques of preventing, treating and rehabilitating sports related injuries. Includes recognition of sports injuries, therapeutic methods, mechanisms of sports injuries, nutrition, and taping and wrapping techniques.

### **FSS 239 Introduction to Leisure Education /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of job careers in the leisure service field. Includes sports and recreation specialty, health, teaching, and coaching in the commercial, private, and public sector.

### **FSS 241 Nutrition and Body Composition /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 assessment, regulating the body through exercise, and recent research findings.

### **FSS 242 Elementary School Physical Education /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic skills in and knowledge of materials and methods for teaching physical activities, games and sports. Includes relays and theoretical basis of the movement education approach to physical education.

### **FSS 276 Individualized Exercise for Wellness /2 cr. hrs./3 periods (3 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 exercise, 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): BIO 156, FSS 276, or consent of instructor.

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 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 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 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 290 Independent Studies in Fitness and Sport Sciences /3 cr. hrs./ 9 periods (9 lab)**

Prerequisite(s): Consent of instructor.

Students independently continue their development in health, physical education and recreation with the help of a faculty member. 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.)**

Prerequisite(s): Concurrent enrollment in 299 Co-op Work.

See Cooperative Education section for description.

**FSS 299 Co-op Related Work in FSS /1-3 cr. hrs./5-15 periods (5-15 lab)**

Prerequisite(s): Concurrent enrollment in 299 Co-op Related Class.

See Cooperative Education section for description.

**PROFESSIONAL ACTIVITIES COURSES/FOR STUDENTS PLANNING A TEACHING 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)**

Prerequisite(s): WRT 100 or 106 or concurrent enrollment or satisfactory score on the writing assessment test.

Weight training skills and teaching methods for the Fitness and Sport Sciences major. Includes basic techniques and methods, development of muscle groups, learning theory, and evaluation methods.

**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**

**FSN 055 International Cuisine /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): None.

Study of international foods with lectures and food preparation by students. Includes history of foods studied. May be taken two times for a maximum of four credit hours.

**FSN 056 Authentic Mexican Cookery /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Methods of utilizing home and commercial cooking facilities and resources to prepare authentic Mexican dishes. Includes selection and substitution of ingredients, cooking procedures and eye appeal. Also includes an appreciation of cultural aspects of Mexican people through the art of cooking.

**FSN 057 Vegetarian Dietary Cookery /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): None.

The study of food combinations from vegetable sources which supply adequate nutrition. Includes demonstrations in the planning and preparation of foods from plants which supply essential nutrients.

**FSN 110 Cake Decorating and Candy Making I /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

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)**

Prerequisite(s): None.

The composition of various types of food. Includes methods of preparing foods to be flavorful, attractive and nutritious. Emphasis on selection and utilization of proper nutrients for maintenance of health in persons of all ages.

**FSN 114 Nutrition /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Examination of nutrients and their use by the body for growth and development. Includes maintenance of health through proper diet. (Same as SSE 154.)

**FSN 124 Nutrition for the Young Child /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

In-depth study of the nutritional needs of children. Emphasis on the total basic nutrient requirements for optimal health and development.



## FOUNDATIONS FOR PERSONAL CHANGE

### **FPC 100 Family Living and Relationships /5-2 cr. hrs./5-2 periods (5-2 lec.)**

Prerequisite(s): None.

Strategies in dealing with family living and relationships. Includes the human anatomy and their biological function, communications in relationships, sexual behavior patterns, sexually transmitted diseases and sex and the law.

### **FPC 102 Rebuilding Personal Relationships /5-2 cr. hrs./5-2 periods (5-2 lec.)**

Prerequisite(s): None.

Study and analysis of family relationships at time of offense and the present time, study of factors that cause disenfranchisement, goal setting and development of a personal, self-help plan. Also includes building on family relationship strengths and making and keeping commitments.

### **FPC 104 Intimate Relationships /1-2 cr. hrs./1-2 periods (1-2 lec.)**

Prerequisite(s): None.

Techniques for building relationships with age-appropriate partners. Includes strategies for finding the "right" partner, prospect evaluation, getting acquainted, courtship and maintaining the relationship.

### **FPC 106 Values Clarification /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Techniques for understanding, developing and clarifying values that lead to survival in prison and the free world.

### **FPC 108 Techniques for Self-Motivation /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Study of basic psychological theories of behavior, personality and personality development. Includes specific techniques for self-motivation from Carnegie to Pareto.

### **FPC 130 Offense Cycle /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Events that lead to the commission of sexual offenses. Includes childhood experiences, rejection, depression, narcotics, deviant fantasies, cruising and grooming and relapse prevention techniques.

### **FPC 132 Study of Sexual Misconduct /3-1 cr. hr./3-1 period (3-1 lec.)**

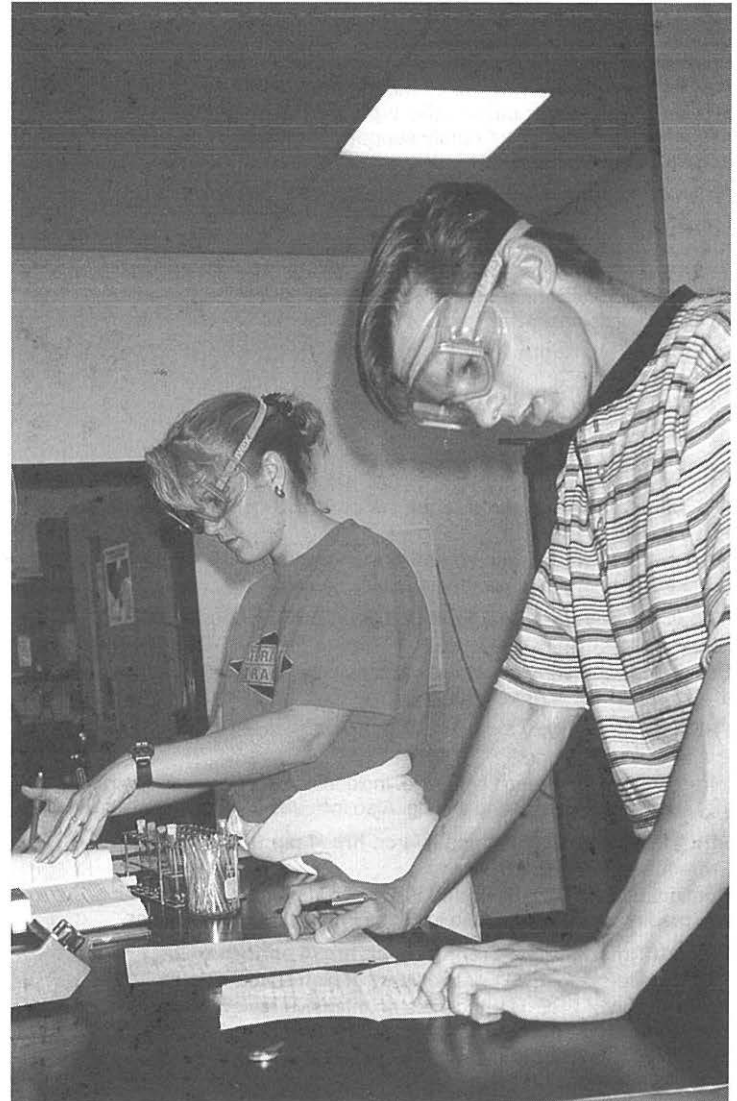
Prerequisite(s): None.

Sexual offenses and offenders and the behaviors that lead to sexual misconduct.

### **FPC 134 Survey of Sexual Behavior Research /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Survey and research relevant to sex offenders, sexually abused victims, and families of offenders.





**FPC 140 Orientation for Families of Offenders /5-1 cr. hr./5-1 period (5-1 lec.)**

Prerequisite(s): None.

Orientation for the families of offenders. Includes review of deviant behaviors and theories of cause, the typical offense cycle, treatment and education, importance of family support, community and agency support and relapse prevention.

**FPC 142 Sexual Victimology /5-1 cr. hr./5-1 period (5-1 lec.)**

Prerequisite(s): None.

Analysis of the trauma of the victims of sex offenders. Includes the dynamics of the offender, victim and spouse of the offender, victim emotional response and treatment strategies. Also includes issues of spousal anger, guilt and revulsion.

**FRENCH**

**FRE 050 Conversational French I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Designed for persons with no previous knowledge of French. Primary focus on listening to and speaking elementary French.

**FRE 051 Conversational French II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): FRE 050.

Designed for persons able to ask and respond to simple questions relevant to self and to the environment.

**FRE 110 Elementary French I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Introduction to the French language. Includes developing proficiency in listening, speaking, reading, and writing. Also includes French cultural traditions.

**FRE 111 Elementary French II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): FRE 110.

Continuation of FRE 110. Includes increased proficiency in listening, speaking, reading, and writing. Also includes French cultural traditions.

**FRE 210 Intermediate French I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): FRE 111 or two years of high school French.

Continuation of FRE 111. Includes an intensive review of grammar, in addition to reading selected authors and writing short compositions. Also includes extensive practice in speaking French. This course will be conducted primarily in French.

**FRE 211 Intermediate French II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): FRE 210.

Continuation of FRE 210. Includes an emphasis on efficient and contemporary language usage. This course will be conducted primarily in French.

**FRE 240 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. 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**

**GEB 084 Public Relations /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

All categories of public relations problems and practices. Includes corporate, business, association, government, education and other agencies; good media relations; writing news releases, news letters, speeches and memos; step-by-step operation of a public relations campaign; and the place of public relations in an efficient organization.

**GEB 091 Fund Raising From Private Sources /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic concepts, principles and process of successful fund raising. Includes a capital fund-raising program, sources of funds, deferred giving program and preparation of the fund raising proposal.

**GEB 099 The Stock Market /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic principles of investing in the stock market. Includes stocks, bonds, speculative investments, mutual funds and commodities.

**GEB 110 Self Management for Personal Productivity /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Techniques for enhancing personal productivity. Includes concepts of time and time management, goal setting, self management system, dealing with time wasters, conducting effective meetings, principles of daily planning, desk organization, and delegation.

**GEB 120 Elements of Agency Management I /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Skill development in the problem-solving process to assist trainees in organizing their casework. For beginning social workers with limited casework experience.

**GEB 142 Improving Human Relations /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Techniques for improving interpersonal relationships in the work environment. Includes enhancing one's self-image and the self-image of co-workers, communications, Maslow's hierarchy of human needs, appreciation of others' differences, cultural and religious awareness and appreciation for individual differences.

**GEB 150 Management Update Techniques I /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Techniques of reviewing and improving management and supervisory skills. For first line managers. Includes management coordination, effective decision making, the planning process, organization control, staffing, terminations and sources of authority.

**GEB 151 Management Update Techniques II /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Techniques of reviewing and improving management and supervisory skills. For first line managers. Includes interviewing, communication, effective presentations, time management and career advancement.

**GEB 152 Management Update Techniques III /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Techniques of reviewing and improving management and supervisory skills. For first line managers. Includes self-image, working with others, group processes, motivation, personality and leadership.

**GEB 153 Management Update Techniques IV /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Techniques of reviewing and improving management and supervisory skills. For first line managers. Includes leadership techniques, management training, coping with change, executive ethics, dealing with complaints and criticism, motivation, selling yourself, the habit of success and the laws of success.

**GEB 154 Management Update Techniques V /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Techniques of revising and improving management and supervisory skills. For first line managers. Includes brownout, burnout, mental habits, body language, life choices, executive mid-life crisis, love and work and maintaining balance.

**GENERAL TECHNOLOGY****GTC 068 General Welding /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): None.

Techniques and practices of joining metals by electric arc welding as applied in the ironworking trade.

**GTC 090 Landscaping for the Southwestern Home /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Principles and practices of home gardening. Includes design, elementary botany, environmental considerations and commonly used materials. Emphasis on landscaping in the Southwest.

**GTC 110 Basic Electricity /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Introduction to electrical principles. Includes electrical safety, DC currents, AC wiring systems, and electrical troubleshooting.

**GTC 198 Special Topics in Integrated Technologies: /5-4 cr. hrs./ .5-12 periods (0-4 lec., 0-12 lab)**

Prerequisite(s): Consent of instructor.

Selected topics in science, mathematics, and technologies which reflect current issues, trends, and student needs.

**GTC 219 Industrial Data Acquisition and Control Systems /6 cr. hrs./ 8 periods (4 lec., 4 lab)**

Prerequisite(s): ETR 105, 110 and concurrent enrollment in ETR 276.

Familiarization with modern, computer-based data acquisition and industrial control systems. Includes integration into systems of various electronic components (i.e., analog to digital convertors, signal conditioning circuits and microcomputers). Integration of these components, discussed in lectures, will be explored in laboratory exercises.

**GEOGRAPHY****GEO 101 Physical Geography: Weather and Climate /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

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)**

Prerequisite(s): None.

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 /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

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.

**GEOLOGY****GLG 101 Introductory Geology I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

An introduction to the physical aspects of the earth's crust; rocks and minerals, their relationship to one another; and the surface and subsurface processes that operate on and in the earth.

**GLG 102 Introductory Geology II /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

This course traces the history of the earth and life on earth as indicated by the sequence of rock layers, the distribution of surface sediments, former geographic relationships, the fossil record and the nature of ancient environments. (GLG 101 is strongly recommended.)

**GLG 110 Environmental Geology and Natural Hazards /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): GLG 101 or equivalent.

A survey of geologic processes that interact with human activities with emphasis on rivers and floods, landslides, earthquakes and volcanic action. Problems of water quality, resource availability and toxic and radioactive waste disposal will also be considered.

**GLG 209 Mineralogy and Introduction to Petrology /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): GLG 101.

This course deals with the relationships between crystal chemistry, atomic structure and the properties of minerals and teaches students how to use these relationships to make identifications. The students will also learn fundamental principles for the more detailed study of igneous, sedimentary and metamorphic rocks.

**GLG 221 Structural Geology /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): Trigonometry and GLG 101 or equivalent required. (GLG 102 is recommended.)

Study of structures from formation and deformation of rocks, of the forces which cause such deformations and the geographic features which result. Field mapping techniques will be introduced in the lab portion of the course.

**GLG 240 Geology of Selected Regions: /2-3 cr. hrs./2-3 periods (2-3 lec.)**

Prerequisite(s): GLG 101 (GLG 102 also recommended).

Geologic survey of specific region, reviewing the stratigraphy, structure, historical geology and most important geologic processes operating today, in a selected region of interest. May be taken four times for a maximum of twelve credit hours.

**GLG 244 Geological Field Excursions /1-3 cr. hrs./5 periods (0-1 lec., 1-5 lab)**

Prerequisite(s): Consent of instructor.

Field excursions to provide encounters with geologic features and processes. Overnight camping is usually involved, moderately strenuous overnight or day hikes may be undertaken. May be taken four times for a maximum of twelve credit hours.

**GLG 280 Geology of Arizona /3 cr. hrs./3 periods (2 lec., 1 lab)**

Prerequisite(s): GLG 101, 102.

The stratigraphy, structure and geologic history of Arizona and adjacent areas. Lab will consist of multi-day field excursions. Emphasis will be on discovery of the stories behind today's often spectacular Arizona scenery.

**GERMAN****GER 110 Elementary German I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Introduction to the German language. Includes developing proficiency in listening, speaking, reading, and writing. Also includes German cultural traditions.

**GER 111 Elementary German II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): GER 110 or one year of high school German.

Continuation of GER 110. Includes increased proficiency in listening, speaking, reading, and writing. Also includes German cultural traditions.

**GER 210 Intermediate German I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): GER 111 or two years of high school German.

Continuation of GER 111. Includes an intensive review of grammar, in addition to reading selected authors and writing short compositions. Also includes extensive practice in speaking German.

**GER 211 Intermediate German II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): GER 210.

Continuation of GER 210. Includes an emphasis on efficient and contemporary language usage.

**GER 240 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. 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.

**GOVERNMENT/INDUSTRY/BUSINESS****GIB 197 Training for GIB: / .25-4 cr. hrs./ .25-4 periods (.25-4 lec., .25-4 lab)**

Prerequisite(s): None.

Customized credit course to meet the immediate training needs of business, industry and government within Pima County.

**GRAPHIC TECHNOLOGY****GRA 101 Graphic Technology I /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

Basic principles of graphic reproduction and application. Includes printer's system of measurement, design and layout, offset printing process, offset photography, graphic cameras, offset platemaking, image assembly, computerized typesetting, proofreading, presswork, and Macintosh computer operations.

**GRA 102 Graphic Technology II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): GRA 101.

Continuation of GRA 101. Includes a review of the printer's system of measurement, paper cutting, planning and layout, typesetting, proofreading, copy preparation, line and halftone photography, color separation, process colors, stripping, platemaking, offset presswork, Aldus PageMaker, Adobe Illustrator, Adobe Photoshop, QuarkXpress, and color proofing.

**GRA 103 Binding, Finishing and Estimating /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Cost determination in the printing and paper finishing processes. Includes printer's system of measurement, paper estimating, cutter operations, binding, stitching, collating, padding, pricing paper, folding, and drilling.

**GRA 104 Offset Photography: Stripping and Platemaking /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): GRA 101 or consent of instructor.

Use of the process camera for offset photography. Includes the use of various light sensitive materials, darkroom chemistry, use of filters, stripping and platemaking techniques for offset duplicators.

**GRA 105 Typesetting I /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): GRA 101 and some keyboarding ability (speed not essential.)

Application of typesetting in the graphic arts industry. Includes photo and desktop typesetting techniques, paste-up, copy preparation, file management, typesetting functions, editing and tabular composition.

**GRA 110 Computerized Photo-Copy Technology /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): GRA 101, MAT 082 or assessment.

Principles and procedures of photo-copy operations. Includes photo-copier programming, finisher operations, optimizing productivity, troubleshooting and routine maintenance.

**GRA 199 Co-op Related Class in GRA /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**GRA 199 Co-op Work in GRA /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**GRA 200 Publishing from the Desktop /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ADA 115, GRA 101, and any ADA Computer Graphics course. Principles and procedures of electronic publishing for offset printing. Includes printer's measurement system, producing a printed piece, word processing programs, design sequence, designing for output, typography, paper, ink, registration methods, impositions, pantone matching system, special layouts, binding, and file construction.

**GRA 201 Color Theory and Practice /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): GRA 104.

Theory and practice of color process photography. Includes matching and mixing ink, selection of photographic filters and their darkroom application, working with difficult camera copy and production of uncorrected copy.

**GRA 202 Offset Presswork /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): GRA 102.

Theory, operation and minor maintenance of small offset duplicators. Includes printing of line and halftone copy.

**GRA 206 Typesetting II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): GRA 105.

Continuation of GRA 105. Advanced techniques in photo and desktop typesetting in the graphic arts industry. Includes multi-column layout and parameters, tabs, data input, unit measures, automatic kerning, layout at keyboard, non-counting mode, direct-entry keyboarding and foreground/background typesetting techniques.

**GRA 221 Advanced Stripping and Platemaking for Color /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): GRA 201.

Techniques used in stripping and platemarking for color production. Includes the use of various types of impositions.

**GRA 222 Advanced Offset Presswork /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): GRA 202.

Continuation of GRA 202. Includes printing of close register work, work and turn, work and tumble, multi-color jobs on 2-color press, color ink mixing, solving minor technical problems as they arise during the printing process and blanket and molleton cover replacement and care.

**GRA 225 Offset Production /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): GRA 103, 221, 222.

Production printing used in the graphic communications industry. Includes estimating, layout and typesetting, camera operations, stripping and platemaking, press operations, and binding and finishing techniques. May be taken two times for a maximum of six credit hours.

**GRA 232 Offset Operations and Maintenance /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): GRA 202 or concurrent enrollment.

Principles and techniques of operating and maintaining large offset presses. Includes printing of close register work, halftones, multi-color; on 2-color press, color ink mixing and solving minor technical problems.

**GRA 297 Graphic Technology Seminar: /25-4 cr. hrs./25-16 periods (.25-4 lec., .25-12 lab)**

Prerequisite(s): Consent of instructor.

Graphic technology job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

**GRA 299 Co-op Related Class in GRA /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**GRA 299 Co-op Work in GRA /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

## HEALTH CARE

**HCA 099 Independent Studies in Health Sciences /1-6 cr. hrs./3-18 periods (3-18 lab)**

Prerequisite(s): None.

Special health-related projects permitting students to do research and experimental work. Proposals for projects must be submitted to preceptor and results of projects are presented as agreed in individual written contract.

**HCA 101 Here's To Your Health /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basics for developing a healthier lifestyle. Includes defining a healthy lifestyle, making knowledgeable decisions about health issues, improving lifestyle to enjoy optimal health and understanding the hazards that can jeopardize good health.



**HCA 102 Drug Calculations /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Computation of medication dosage. Includes medical abbreviations related to medications, Roman numerals, physician's medication order and correct dosage calculation.

**HCA 154 Introduction to Health Care /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Introduction to the action, dosage, side effects and adverse effects of drugs. Includes effects on the anatomy, physiology, pathogenic organisms and individual responses of the patient.

**HCA 156 Psychotropic Medications /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Medication utilized in the treatment of psychiatric conditions. Includes drug actions, dosages, side effects, adverse reactions, interactions and responsibilities of the health care worker.

**HEALTH CONTINUING EDUCATION****HCE 112 Drugs and Nursing Implications /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Practical knowledge of drug classifications, a review of physiology, and pathophysiology as bases for therapeutic use of drugs and implications of such use of drugs for nursing.

**HCE 114 Beginning Physical Assessment Skills /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Current employment as an RN.

Basic interviewing and assessment skills as related to the head, chest, abdomen and integumentary, musculoskeletal and nervous systems. Does not cover critical care nursing.

**HCE 120 Alternative Medicine in Today's Society /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

A look at alternatives to traditional medicine with an in-depth evaluation of the scientific validity of these methods and their impact on society.

**HCE 214 Physical Assessment /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Skills development in interviewing, obtaining a health history, developing a problem-oriented medical record and conducting a systematic physical examination for health assessment. Emphasis on physical examination of the adult.

**HEALTH EDUCATION****HED 136 Introduction to Health Science /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Students may select topics such as traumatic injuries, communicable diseases, nutrition, mental health, environmental health problems, or socio-medical problems including venereal diseases, drug use and abuse, alcoholism and abortion. The focus is on preventive health measures and public health services.

**HED 137 Elementary School Health Education /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): HED 136 or consent of instructor.

Course assists the prospective teacher and health worker in developing learning activities, which focus on health information as it pertains to the elementary age student.

**HED 140 First Aid and Cardiopulmonary Resuscitation /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Theory and practice in the following areas: Standard first aid and treatment of cardiopulmonary respiratory emergencies. (Same as HED 140A and B.)

**HED 140A First Aid /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

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.



**HED 140B Cardiopulmonary Resuscitation (CPR) /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Emergency first aid for respiratory failure and cardiac arrest. Includes one and two rescuer techniques for conscious or unconscious adults and children. (Same as COA 140.)

**HISTORY**

**HIS 076 Ghost Towns of the Southwest /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of the social and cultural heritage of the Southwest through its past communities-mining, milling, smelting, lumbering, ranching, farming, railroading and military-between the years of 1854 and 1917.

**HIS 084 Living History of the Western Frontier I /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

A living history approach to the cultural and social experience of the western frontier during its golden age (1820-1920), especially as found in the Southwest. Focuses on the daily life and times of Anglo, Mexican, Chinese, and Black ethnic groups, including such topics as prospecting, soldiering, stage coaching, food, ghost towns, Indian battlefields, cowboys, frontier women and saloons. Emphasis on firsthand participation, utilizing the senses of sight, sound, touch, taste and smell.

**HIS 085 Living History of the Western Frontier II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Continuation of HIS 084. Includes such topics as mining, cavalry, campaigns, Apache wars, clothing, railroading, gunfighters, western trails, frontier tragedy sites, antique bottles and home remedies.

**HIS 101-102 Introduction to Western Civilization I, II /3-3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Surveys the historic development of Western man, going through the pre-historic age, ancient Greece, Rome, early Middle Ages and Renaissance to the Twentieth Century.

**HIS 105 Introduction to Chicano Studies I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The totality of Chicano life since 1848 and the struggle for self-determination.

**HIS 113 Chinese Civilization /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Introductory survey of the civilization of China from its origins to the present. Includes a focus on the historical development of the social, political, religious, military, and intellectual systems of China.

**HIS 114 Japanese Civilization /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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 116 History of Islamic Civilizations: From the Emergence of Islam through the Classical Age /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of the history, religion, and culture of Muslim societies. Includes the emergence of Islam, classical age of the Caliphate, and Islam as a world civilization.

**HIS 117 History of Islamic Civilizations: From the Mongol Conquest to Modern Times /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of the history, religion, and culture of the Islamic world from the thirteenth century through the modern period. Includes the Mongol conquest to the rise of the Ottomans, the Islamic world, and contemporary Islam.

**HIS 122 Tohono O'Odham History and Culture /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Where have the Tohono O'Odham people been, who are they, where are they going? In answering these questions, the class examines the history and culture of the Tohono O'Odham. (Same as ANT 122.)

**HIS 124 History and Culture of the Yaqui People /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of the cultural heritage of the Yaqui people and the history of their struggles to protect Yaqui land and culture.

**HIS 127 History and Culture of the Mexican-American in the Southwest /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Who is the Mexican-American? What is his cultural heritage and what has happened to it in the United States? (Same as ANT 127.)

**HIS 135 Pre-Columbian Art /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as ANT 135 and ART 135. (See ART 135 for course description.)

**HIS 136 Masks /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as ANT 136 and ART 136. (See ART 136 for course description.)

**HIS 141 History of the United States I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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 143 American Civilization I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

A broad look, from an historical perspective, at the American experience with emphasis on the social and cultural aspects before the Civil War.

**HIS 144 American Civilization II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Continuation of HIS 143. Carries the story from the Civil War to the present.

**HIS 147 History of Arizona /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Origin and distribution of native populations of North America and the historical development and interrelations of cultures. (Same as ANT 148.)

**HIS 150 Afro-American History and Peoples /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

A history of Black people in American society. Their past, present and future are explored. Emphasis on their status and special problems as a minority group. (Same as ANT 150.)

**HIS 160 History and Peoples of Latin America I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The history of Latin America from the pre-Columbian period to the present with emphasis on the evolution of nationalism through the struggles of economic, cultural, political and social freedoms. (Same as ANT 160.)

**HIS 161 History and Peoples of Latin America II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The emergence of nationalism and the struggles to achieve economic, social, cultural and political freedoms.

**HIS 165-166 History of Mexico I, II /3-3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The student moves from the pre-Columbian era, through the Spanish conquest and a century of political and social upheaval, to the nation of social and economic stability.

**HIS 170 History and Peoples of Africa /3 cr. hrs./3 periods (3 lec.)**

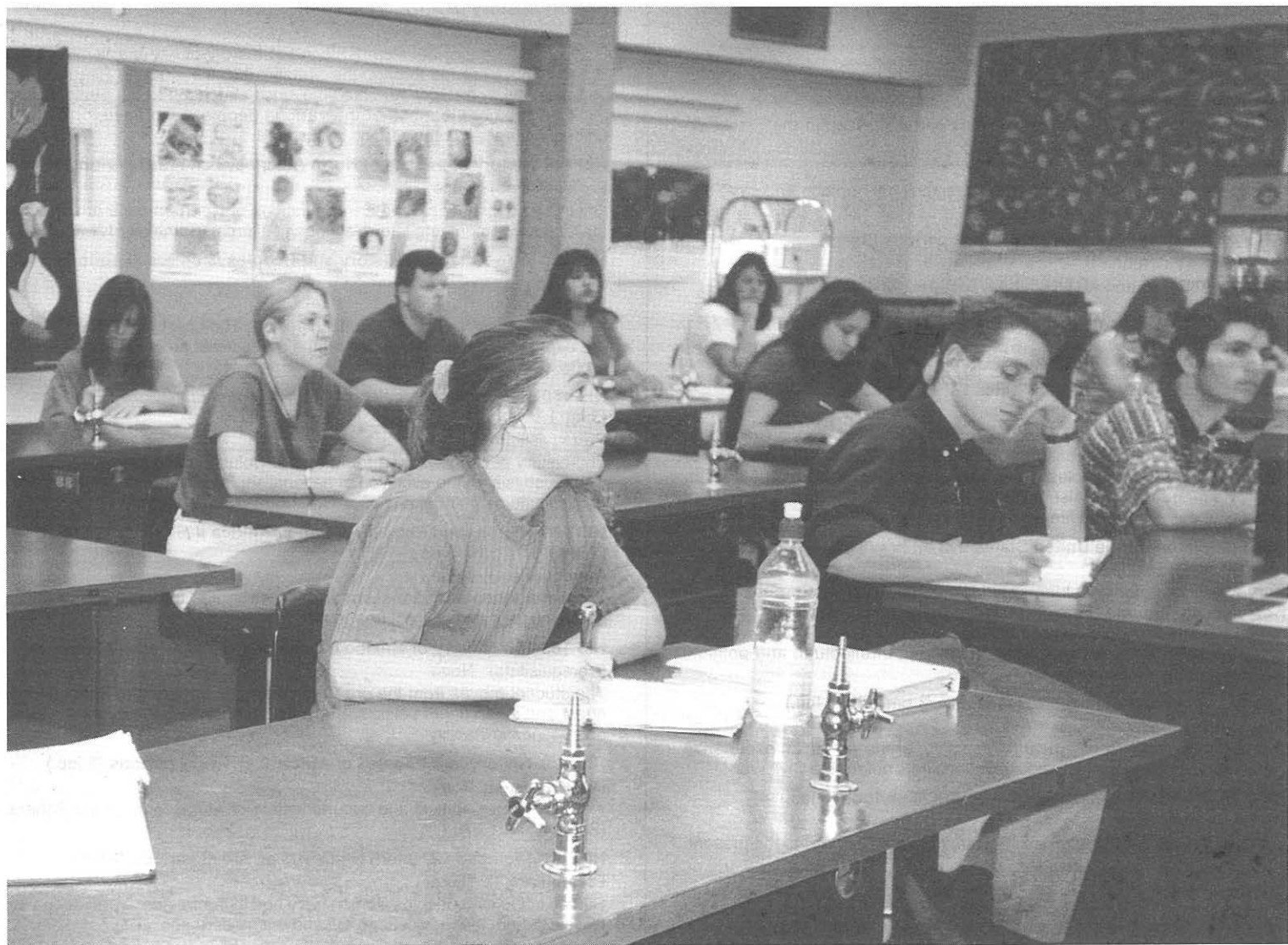
Prerequisite(s): None.

A survey of the political and cultural history of Africa south of the Sahara. (Same as ANT 170.)

**HIS 180 Women in Western History /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of the various roles women have had in the western world during the classic period, the medieval period and the modern age.



**HIS 190 History of the American West /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of events and issues in the history of the American West from its beginnings to the present. Includes topics in social and cultural history.

**HIS 201 Independent Studies in History /2-4 cr. hrs./6-12 periods (6-12 lab)**

Prerequisite(s): Consent of instructor.

Independent history studies or projects arranged by the instructor.

**HIS 205 The Adamsses in U.S. History /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None. (Recommended: a first-year course in U.S. history.)

Social history of the United States from 1750 to 1900 centered around the lives of four generations of the Adams family, showing their role in the major events of the period.

**HIS 227 Mexican-American Culture and Thought /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

A history of ideas of the Mexican-American from Nahua and Europe to the present. Brings out the evolution of the two into present day concepts such as "Raza de Bronce" and "Aztlán."

**HOME ECONOMICS****HEC 127 Marriage and the Family /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Functions of the family. Emphasis on relationships within the family and how they affect the development of individuals in the home and community. Part I-Background: Kinship, family styles and tradition, sexuality, parenthood, working partners and the family today and tomorrow. Part II-The Dialogue: Relationships. (Same as SOC 127.)

**HEC 137 Today's World /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of current issues on the international, national and local levels, and their relationship to the individual. Includes the following research topics: the individual versus the group, the family, the economy, entertainment as an influence and a reflection, housing, clothing, politics, health, food, medicine, employment and the media. Also includes guest speakers on topics to be chosen by class members.

**HEC 197 Independent Studies in Home Economics /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.

**HONORS****HON 200 Honors Independent Study Project /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Acceptance in the Honors Program.

Exploration of special interest areas for Honors students. Content to be determined jointly by student and faculty mentor. May be taken four times for a maximum of twelve credit hours.

**HON 201 Introductory Honors Course /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Acceptance in the Honors Program.

An introduction to the Honors Program with emphasis on the evolution of higher education from Plato's Academy to the modern trade school. Course methodology will include the extensive application of seminar skills, with special emphasis on problem-solving strategies.

**HON 202 Critical Thinking Across the Curriculum /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): Acceptance in the Honors Program.

An interdisciplinary, team-taught course for Honors students, exploring critical thinking skills appropriate to the major areas of academic study: science/mathematics, social sciences, humanities, and technology.

**HON 203 Library Research Techniques /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Acceptance in the Honors Program.

Survey of research materials and methods. Includes techniques for finding information on research papers, reports, speeches, and projects. Also includes locating information in texts, magazines, maps, and through the use of technology. May be taken four times for a maximum of four credit hours.

**HON 204 Occupational Honors Seminar /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Acceptance in 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.

**HON 210 Advisory Student Planning Board /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): HON 201 or 204 and enrollment in at least six additional credit hours at Pima Community College.

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 Honors Program Committee. 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 Chairs. Aides will answer general questions, help plan and organize campus meetings and social events and bring campus student views to the ASPB meetings. May be taken three times for a maximum of three credit hours.

**HON 250 Honors Special Topics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Acceptance in the Honors Program.

Advanced class on a special topic in a particular discipline. Cross listed with courses in specific subject areas. May be taken three times for a maximum of nine credit hours.

**HON 298 Advanced Topics in HON: /1-3 cr. hrs./1-3 periods (1-3 lec.)**

Prerequisite(s): Consent of instructor.

Advanced topics in honors which reflect current issues, trends, and technologies. May be taken four times for a maximum of twelve credit hours.

**HOSPITALITY**

**HOS 100 Introduction to the Hospitality Industry /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Overview of the hospitality industry. Includes history, trends, marketing, front of the house, back of the house, food and beverage, operational analysis and control, and management and communication.

**HOS 101 Front Office Procedures /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Principles and procedures of innkeeping. Includes guest services, creating a pleasant atmosphere, salesmanship, accounting, control, and legal aspects.

**HOS 102 Hospitality Financial Accounting I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 082 or equivalent score on 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.

**HOS 104 Hotel Food and Beverage Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Hotel food and beverage operations and management. Includes purchasing, receiving, issuing supplies, food production, budgeting and cost control, sanitation, and equipment selection and maintenance.

**HOS 110 Restaurant/Banquet Service /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Same as RCF 110.

**HOS 111 Hospitality Management Law /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): HOS 100.

Examination of the legal aspects of hospitality management. Includes contracts, torts, liability and employee law. Also includes hospitality industry-related legislation and landmark cases.

**HOS 112 Hospitality - Alcohol Intervention Procedures /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Procedures by which servers of alcoholic beverages can deal with alcohol abuse in their businesses. Includes effects of alcohol on the body, behavioral cues, effective responses, marketing, profitability, and Arizona liquor laws.

**HOS 120 Meetings and Convention Management I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.

**HOS 130 Meetings and Convention Management II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): HOS 120.

Principles for the professional meeting manager. Includes site selection, convention and visitors bureau, negotiations, contracts and lease agree-



ments, program planning, budgeting and financial management, liability and insurance, housing, facilities, food and beverage arrangements, transportation, audio-visual equipment, and exhibition arrangements.

**HOS 131 Meetings and Convention Management III /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): HOS 130.

Continuation of HOS 130. Includes participant needs, recreation, contracted services, promotion, printing, registration, mailing and shipping, support staff and suppliers, on-site communications, emergencies, evaluation techniques, wrap-up, and alternative meeting environments.

**HOS 150 Executive Housekeeping I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Principles of housekeeping management. Includes planning, organizing, staffing, directing, and controlling housekeeping operations.

**HOS 151 Executive Housekeeping II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): HOS 150.

Continuation of HOS 150. Includes methods for efficient and economical use of the housekeeping staff, and the maximum production of personnel and resources currently available.

**HOS 199 Co-op Related Class in HOS /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Concurrent enrollment in 199 Co-op Work.

See Cooperative Education section for description.

**HOS 199 Co-op Work in HOS /1-8 cr. hrs./5-40 periods (5-40 lab)**

Prerequisite(s): Concurrent enrollment in 199 Co-op Related Class.

See Cooperative Education section for description.

**HOS 201 Catering and Banquet Sales and Management /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): HOS 110 and/or one year's experience in the hospitality-tourism industry.

Same as RCF 201.

**HOS 202 Hospitality Financial Accounting II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): HOS 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.

**HOS 206 Hospitality Human Resource Management /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): HOS 100.

Examination of personnel issues. Includes recruitment, selection, orientation, training, wage and benefit, legal issues, and employee appraisal.

**HOS 211 Hospitality Sales and Marketing Application I /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.

**HOS 212 Hospitality Sales and Marketing Application II /3 cr. hrs./ 4 periods (2 lec., 2 lab)**

Prerequisite(s): HOS 211 or a minimum of one year's experience working in the hospitality industry.

Development of a one-year marketing plan for a full-service property. Includes situation analysis, evaluation, research, revenue and budget projections.

**HOS 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.

**HOS 299 Co-op Related Class in HOS /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Concurrent enrollment in 299 Co-op Work, and a minimum of 12 credit hours of Hospitality prefix courses or one year of related industry work experience.

See Cooperative Education section for description.

**HOS 299 Co-op Work in HOS /1-8 cr. hrs./5-40 periods (5-40 lab)**

Prerequisite(s): Concurrent enrollment in 299 Co-op Related Class, and a minimum of 12 credit hours of Hospitality prefix courses or one year of related industry work experience.

See Cooperative Education section for description.



## HUMAN DEVELOPMENT EDUCATION

### **HDE 050 Approaching Mathematics Positively /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

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. (Same as MAT 050.)

### **HDE 100 College Success Skills /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Development of educational goal setting skills to increase opportunities for success. Includes college and community resources and skill development in problem solving.

### **HDE 100A How To Study /.25 cr. hr./25 period (.25 lec.)**

Prerequisite(s): None.

Instruction and practice in techniques required for being an "efficient" student. Includes time management, goal setting, organizational skills, and specific study techniques.

### **HDE 100B Memory and Concentration /.25 cr. hr./25 period (.25 lec.)**

Prerequisite(s): None.

Strategies for improving memory and concentration. Includes short and long-term memory, principles and characteristics of learning, and application of principles to academics.

### **HDE 100C Notetaking Tips /.25 cr. hr./25 period (.25 lec.)**

Prerequisite(s): None.

Systematic instruction and practice in taking notes from lectures and print material. Includes recognizing and recording main ideas, details, and organization. Also includes specific tips for making notetaking easier and instruction in editing and studying notes.

### **HDE 100D Testing Tips /.25 cr. hr./25 period (.25 lec.)**

Prerequisite(s): None.

Instruction and practice in preparing for and taking tests. Includes types of tests and specific techniques for preparing for each, test anxiety and suggestions for reducing test anxiety.

### **HDE 101 Becoming A Master Student /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Development of personal and academic skills to maximize learning and success in a college setting. Includes personal skills, library skills, learning styles, study skills and critical thinking skills.

### **HDE 104 Career and Self-Management Skills /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Acceptance into the Women in Progress program.

Techniques for developing academic, personal, and professional skills of the single parent/homemaker. 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. (Same as ASC 104.)

### **HDE 105 Transfer Strategies /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

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.

### **HDE 106 Advanced Career and Self-Management Skills /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): HDE 104.

Advanced techniques for developing academic, personal and professional skills of the single parent/homemaker. Includes assessing and setting personal, academic, professional, and financial aid goals, college success skills, co-dependency, self-esteem, communication techniques for positive results, lifestyle wellness, emerging career exploration, job development, personal budgeting, time and stress management, and money management and investments. (Same as ASC 106.)

### **HDE 110 Developing Self-Esteem /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Exploration and assessment of student's current self-esteem level. Includes strategies and tools for developing thoughts, feelings and behaviors that can enhance self-esteem at school, work and in personal life.

### **HDE 120 Personal Development /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Development of self-awareness for students desiring a better understanding of themselves and others. Includes assessment of personal strengths, values, feelings and attitudes and development of skills needed for improving self-confidence, relationships with others, problem solving, decision making and goal setting. Separate sections may be taught for special groups.

### **HDE 125 Overcoming Co-Dependency /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Exploration of behavior patterns associated with co-dependency and their origins. Development of self-awareness in this area and support for initiating change of self-defeating behaviors.

**HDE 130 Stress Management /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Principles and techniques for understanding and dealing with stress in daily life. Includes information and experiential activities applicable to students and the learning process. Emphasis on the interrelation of physical, mental and emotional health.

**HDE 135 Wellness /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Exploration of the concept of wellness and the individual as a holistic system. Includes information and experiential activities to increase understanding of physical, mental, emotional, social and spiritual factors in creating wellness.

**HDE 140 Assertiveness Training /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Development and strengthening of assertive skills, including improving self confidence and ability to relate to others. Emphasis on the integration of these skills into daily life. Separate sections may be taught for special groups.

**HDE 150 La Mujer: The Mexican-American Woman /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Culture and current issues of the Mexican-American woman. Includes history, values, discrimination, family relationships, La Envidia Syndrome, self-esteem, mentoring, and personal success.

**HDE 170 Dynamics of Leadership /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Supervised practical training for advanced students involved in leadership positions. Provides opportunities to strengthen leadership skills developed in previous courses. May be taken two times for a maximum of four credit hours.

**HDE 190 Career Exploration /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Development of skills necessary to make a career choice. Includes identification of personal strengths, values and motives for making career decisions. Also includes exploration of current and future job opportunities.

**HDE 195 Securing a Job /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Development of the skills and confidence necessary to get a job. Includes locating job openings, resume writing, interview techniques, effectiveness on the job and improving employment opportunities.

**HDE 298 Special Topics: /25-3 cr. hrs./25-3 periods**

Prerequisite(s): None.

Customized course designed for special student interests, needs and faculty expertise in human development area. Consult current class schedule for specific content. May be taken two times for a maximum of two credit hours.

**HUMANITIES****HUM 060 Early Chinese Views of Social Change /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

A study of the I Ching and Taoism in early China.

**HUM 110 Humanities I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Introduction to man's expressions in art, architecture, drama, music, literature, religion and philosophy. Man's ideas and art from the rise of civilization through the Renaissance and Reformation.

**HUM 111 Humanities II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Introduction to man's expressions in art, architecture, drama, music, literature, religion and philosophy. Man's ideas and art from the rise of modern science through the present.

**HUM 130 Independent Studies in Humanities /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Reading and research projects to be arranged with instructor.

**HUM 131 Mythology /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 251 Western Humanities I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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. (Same as PSY 270.)

**HUM 298 Advanced Topics in the Humanities: /1-3 cr. hrs./1-3 periods (1-3 lec.)**

Prerequisite(s): Consent of instructor.

Advanced topics in the humanities which reflect current issues and trends. May be taken two times for a maximum of six credit hours.

**INSTITUTIONAL FOODSERVICE**

**IFS 101 Institutional Food Sanitation /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Principles and practices of food safety and sanitation. Includes sanitary food handling, contamination and food-borne illnesses, purchasing and storing food, sanitation of facilities and equipment, and safety.

**IFS 102 Institutional Food Safety /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Principles and practices of food safety and sanitation. Includes employee safety, accident prevention techniques, fire safety, pest control, housekeeping management, and the functions of the local health department and the Center for Disease Control.

**IFS 103 Institutional Foods Preparation: Salad Making /1 cr. hr./1.5 periods (1 lec., .5 lab)**

Prerequisite(s): None.

An introduction to the creation, display and storage of salads. Includes eye appeal, texture, color contrast, artistic touch and harmony of combinations. Also includes the cost-out and preparation of a salad bar.

**IFS 104 Institutional Foods Preparation: Sandwich Making /1 cr. hr./1.5 periods (1 lec., .5 lab)**

Prerequisite(s): None.

An introduction to the creation, display and storage of sandwiches. Includes sandwich fillings, eye appeal, color contrast, artistic touch and harmony of combinations. Also includes the cost-out and preparation of a sandwich buffet.

**IFS 106 Institutional Foods Preparation: Bread Making /1 cr. hr./1.5 periods (1 lec., .5 lab)**

Prerequisite(s): None.

Essentials of bread making. Includes preparation of yeast rolls and breads. Emphasis on use and care of equipment, sanitation, safety and hygiene.

**IFS 107 Institutional Foods Preparation: Dessert Making /1 cr. hr./1.5 periods (1 lec., .5 lab)**

Prerequisite(s): None.

Essentials of dessert making. Includes preparation of cakes, cookies, tarts, doughnuts and pies. Emphasis on use and care of equipment, sanitation, safety and hygiene.

**IFS 110 Basic Nutrition for Foodservice Personnel /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic principles of nutrition and their application to human needs, including the role of normal nutrition throughout the life cycle.

**IFS 125 Special Nutritional Needs /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): IFS 110.

Nutritional requirements for various disease states such as diabetes, obesity, hyperactivity and malnutrition. Also includes feeding problems of the handicapped.

**IFS 180 Menu Planning and Food Purchasing for Institutions / 3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): IFS 110 or concurrent enrollment.

Principles and procedures for menu planning and food purchasing for institutions. Includes basic nutrition review, determining necessary specifications and yields of foodstuffs to be purchased, writing a menu plan and modifying a menu plan for special needs. Also includes budgeting and guidelines for purchasing foodstuffs for therapeutic menus.

**IFS 216 Quantity Food Production /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

Methods of quantity food production in an institutional environment. Includes principles of food preparation, cooking methods, equipment sanitation and safety. Emphasis on techniques for retention of maximum nutrients, flavor, and appearance.

**INTERNATIONAL BUSINESS STUDIES**

**IBS 135 The International Career /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

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 Global Economy /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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 160 Hosting Foreign Business Personnel /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Training in routine hosting considerations with sensitivity to the culture of the visitor. Includes the initial greeting, orientation, assistance with legal documents, locating a support system, housing, and transportation.

**IBS 170 Doing Business with Mexico /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

United States and Mexico conducting business together. Includes current conditions, categories of business, financial arrangements, maquiladoras, the bureaucracy, culture, and communication.

**IBS 298 Advanced Topics in International Business: /.25-4 cr. hrs./ .25-4 periods (.25-4 lec.)**

Prerequisite(s): None.

Advanced topics in international business which reflect current issues, trends, and technologies. May be taken three times for a maximum of eight credit hours.

**INTERPRETER TRAINING**

**ITP 105 Expressive/Receptive Fingerspelling and Numbers /2 cr. hrs./ 2 periods (2 lec.)**

Prerequisite(s): SLG 101.

Same as SLG 105.

**ITP 110 Introduction to Disabilities and Audiology /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SLG 101 or consent of instructor.

Introduction to special populations and hearing. Includes basic audiometry, functional impact of disabilities, deafness, and the community. (Same as SLG 110.)

**ITP 120 History of Deafness /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SLG 101.

Same as SLG 120.

**ITP 180 Psychosocial Aspects of Deafness /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SLG 101.

Focus on the impact of deafness upon individuals. Includes developmental issues examined through psychological and sociocultural perspectives. Also includes an in-depth analysis of Deaf culture and real life needs of the deaf population.

**ITP 201 American Sign Language III /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): SLG 102.

Same as SLG 201.

**ITP 202 American Sign Language IV /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ITP 201.

Same as SLG 202.

**ITP 203 American Sign Language V /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ITP 202 or concurrent enrollment.

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 220 Interpreting I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): ITP 202.

Introduction to theories, principles, and special settings of interpreting. Includes code of ethics, role playing, and simulated interpreting. Students will be required to perform additional lab hours outside of classroom schedule.

**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. Students will be required to perform additional lab hours outside of classroom schedule.

**ITP 270 Sign to Voice /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): ITP 202.

Interpreting sign language into the spoken word. Includes enhancement of vocabulary selection and improvement of technical skills. Students will be required to perform additional lab hours outside of the regular classroom schedule.

**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.

Methods of quantity food production in an institutional environment. Includes principles of food preparation, cooking methods, equipment sanitation and safety. Emphasis on techniques for retention of maximum nutrients, flavor, and appearance.

## ITALIAN

**ITA 110 Elementary Italian I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Introduction to the Italian language. Designed to provide proficiency in basic communication (listening, speaking, reading and writing). Emphasis on Italian cultural traditions.

**ITA 111 Elementary Italian II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): ITA 110.

Continuation of ITA 110. Designed to provide increased proficiency in listening, speaking, reading and writing. Continued emphasis on Italian cultural traditions.

**ITA 210 Intermediate Italian I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): ITA 111.

Continuation of ITA 111. Includes the review of grammar, in addition to reading and writing short compositions, and oral practice in the Italian language. Also includes Italian cultural traditions and customs.

**ITA 211 Intermediate Italian II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): ITA 210.

Continuation of ITA 210. Includes advanced grammar usage, in addition to reading and writing short compositions, and oral practice in the Italian language. Also includes Italian cultural traditions and customs.

## JAPANESE

**JPN 105 Conversational Japanese /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Elementary Japanese conversation. Includes the development of speaking, listening and communication skills needed by business people and travelers in Japan. Also prepares students for JPN 110 and 111.

**JPN 110 Elementary Japanese /5 cr. hrs./5 periods (5 lec.)**

Prerequisite(s): None.

Introduction to the Japanese language. Designed to provide proficiency in basic communication (listening, speaking, reading and writing). Emphasis on Japanese cultural traditions.

**JPN 111 Elementary Japanese II /5 cr. hrs./5 periods (5 lec.)**

Prerequisite(s): JPN 110.

Continuation of JPN 110. Basic listening, speaking, reading and writing skills, using elementary Japanese vocabulary and grammatical structures.



**JPN 210 Intermediate Japanese I /5 cr. hrs./5 periods (5 lec.)**

Prerequisite(s): JPN 111.

Continuation of Japanese 111. Further development of conversational, writing and reading skills. Cultural values and differences form an integral part of discussions in the target language.

**JPN 211 Intermediate Japanese II /5 cr. hrs./5 periods (5 lec.)**

Prerequisite(s): JPN 210.

Continuation of Japanese 210 with emphasis on student development of competencies through oral presentations, journals and continued acquisition of Japanese characters.

**LANDSCAPE TECHNICIAN PROGRAM**

**LTP 100 Landscape Today and Tomorrow /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Overview of the landscape contracting industry: its history, current status and projection for the future. 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)**

Prerequisite(s): None.

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 150 Landscape Equipment Repair and Maintenance /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Introduction to power equipment used in the field of landscaping. Includes small engine repair and maintenance, general repair procedures for equipment using small engines, fleet maintenance, small loader maintenance, troubleshooting techniques and economics of preventive maintenance.

**LTP 160 Plant Usage and Identification /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Principles and techniques of plant usage and identification. Designed to familiarize the student with where and how to use plants, plant identification, and a short history of plant taxonomy. Emphasis on the one hundred and fifty most common landscape plants and interior plants used in the southwest.

**LTP 199 Co-op Related Class in LTP /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**LTP 199 Co-op Work in LTP /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**LTP 200 Landscape Management Systems /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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. Prepares the student to manage all phases of a landscape project.

**LTP 205 Irrigation Design I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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. Intended for students and professionals interested in irrigation systems.

**LTP 206 Irrigation Design II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): LTP 205.

Covers the design of large-scale irrigation systems, such as apartment complexes, parks and roadway projects, using both conventional sprinkler and drip systems. Establishing design criteria, selection and application of system components, preparation of irrigation plans and specifications will be included in the course.

**LTP 210 Irrigation Installation /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

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)**

Prerequisite(s): None.

Design and maintenance of the total interior horticultural environment. Includes principles of design, design procedures, and horticultural and business practices. Also includes working with interior landscapers, interior designers, architects and clients, with an emphasis on the creative aspects of the process. (Same as DES 215.)





**LTP 230 Landscape Maintenance /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Examination of management and technical skills required to operate and maintain southwestern landscapes. Includes water management, pests and disease controls.

**LTP 240 Nursery Operations and Maintenance /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Technical and management factors involved in producing and marketing nursery stock and supplies.

**LTP 260 Basic Landscape Design /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 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. Students should be able to do physical labor under difficult conditions. May be taken two times for a maximum of eight credit hours.

**LTP 294 Current Topics in Landscape Technology /1-4 cr. hrs./1-16 periods (0-4 lec., 0-12 lab)**

Prerequisite(s): Consent of instructor.

Selected topics which reflect the most current trends and concepts in Landscape Technology. May include water management, pest and disease control, regulations, operations, and management. May be taken three times for a maximum of twelve credits.

**LTP 299 Co-op Related Class in LTP /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**LTP 299 Co-op Work in LTP /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**LATIN****LAT 110 Elementary Latin I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Introduction to the Latin language. Designed to develop proficiency in Latin-to-English reading skills and vocabulary building. Also includes background in Roman cultural traditions.

**LAT 111 Elementary Latin II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): LAT 110.

Continuation of LAT 110. Designed to provide increased proficiency in Latin-to-English reading skills and vocabulary building. Continued emphasis on Roman cultural traditions.

**LAW ENFORCEMENT ACADEMY****LEA 102 Peace Officer Certification I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Part A of basic entry level training program for reserve peace officers leading to certification by Arizona Law Enforcement Officers Advisory Council (ALEOAC) Governor's Office as limited reserve officers (LRO). Includes introduction to law enforcement, law and legal matters and police proficiency skills. For admission to program, student must comply with ALEOAC employment standards for peace officers and be sponsored by a law enforcement agency recognized by ALEOAC.

**LEA 103 Peace Officer Certification II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): LEA 102 or concurrent enrollment.

Part B of basic entry level training program for reserve peace officers leading to certification by the Arizona Law Enforcement Officers Advisory Council (ALEOAC) Governor's Office as limited reserve officers (LRO). Includes basic patrol procedures, basic traffic control, basic accident investigation and police proficiency skills. For admission to program, student must comply with ALEOAC employment standards for peace officers and be sponsored by a law enforcement agency recognized by ALEOAC.

**LEA 104 Peace Officer Certification III /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): LEA 103 or concurrent enrollment.

Part C of basic entry level training program for reserve peace officers leading to certification by the Arizona Law Enforcement Officers Advisory Council (ALEOAC) Governor's Office as limited reserve officers (LRO). Includes basic criminal investigation, basic community and police relations, records, reports and police proficiency skills. For admission to program, students must comply with ALEOAC employment standards for peace officers and be sponsored by a law enforcement agency recognized by ALEOAC.

**LEGAL ASSISTANT PROGRAM****LAS 101 Introduction to Legal Assistant Careers /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Role, responsibilities and ethical standards of legal assistant employment and regulation. Includes an overview of: ethical rules, law office administration and systems, communication, interviewing, investigation, evidence, legal research, legal analysis, state and federal judicial systems, 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, witnesses, opinion and expert testimony, hearsay, authentication, and contents of writings, recordings and photographs.

**LAS 197 LAS Seminar: / .25-4 cr. hrs./ .25-4 periods (.25-4 lec.)**

Prerequisite(s): None.

Legal Assistant job-related training. Includes presentations by specialists in a given area and topics of timely or limited interest. May be taken three times for a maximum of twelve credit hours.

**LAS 199 Co-op Related Class in LAS /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**LAS 199 Co-op Work in LAS /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**LAS 201 Consumer Law Procedures /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): LAS 101, BUS 220.

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, and consumer rights under form contracts/contracts of adhesion.

**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, BUS 220.

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 Trial Procedures I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): LAS 101 or employment in a legal related field.

Criminal trial process from first court appearance through pre-trial procedures. Includes plea bargaining, ethical considerations, initial appearance, probable cause, discovery and pre-trial motions.

**LAS 207 Criminal Trial Procedures II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): LAS 206.

Criminal trial process from jury selection through appellate procedures. Includes motions in limine, jury selection, opening statements, direct and cross examinations, objections, closing arguments and post-trial and appellate procedures.

**LAS 208 Domestic Relations and Family Law /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Employment in the legal or a related field or enrollment in the Legal Assistant Program.

Legal procedures related to domestic matters and family relationships. Includes dissolution of marriage, community property, adoption and other family law procedures.

**LAS 209 Bankruptcy Procedures /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): LAS 101 or employment in the legal or a related field.

Procedures for individual and business bankruptcy proceedings. Includes preparation of basic bankruptcy documents and review of creditor and debtor remedies under the bankruptcy laws.

**LAS 210 Administrative Law and Procedures /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): LAS 101 or employment in a legal related field.

Laws and procedures relating to the powers and controls of agencies which administer governmental services. Includes agency purposes, procedures, rights of private parties, legal issues, quasi-judicial decisions and appeals.

**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 writ-

ing 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 CSC 105.

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 concurrent enrollment.

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.

The role and responsibilities of a legal assistant regarding the procedures and document drafting necessary for incorporation and the requirements for maintaining corporate legal status. Includes incorporation and maintenance, corporate power theories and defenses, stocks, voluntary dissolution and takeovers.

**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 250 Legal Assistant Internship /4 cr. hrs./16 periods (1 lec., 15 lab)**

Prerequisite(s): WRT 101, BUS 220, and a minimum of 45 credit hours in the Legal Assistant Program including two specialty elective courses, and LAS 104 and 202. Enrollment and placement contingent upon earned grade point average in LAS courses. 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. Designed for students in their final semester of course work in the Legal Assistant Program.

**LAS 299 Co-op Related Class in LAS /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**LAS 299 Co-op Work in LAS /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

## LIBRARY SKILLS

**LIB 100 Basic Library Skills /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Introduction to basic college-level library skills. Includes defining a topic, designing a search strategy, locating information, developing a thesis and compiling a bibliography. Also includes research process, problem resolution and critical evaluation of information.



**LITERATURE****LIT 085 Reading For Pleasure /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Exploration of a wide variety of popular writing in order to develop the attitudes, habits and skills which make reading enjoyable.

**LIT 120 Literary Visions /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.

**LIT 231 Introduction to Shakespeare /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 102.

Familiarization with a number of Shakespeare's major dramas. Includes relevant history, social conditions and literary background. Some attention is given to plays as stage vehicles.

**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.

Readings in modern fiction, drama and poetry.

**LIT 262 Major Literary Themes: /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 102.

Exploration of a variety of literary treatments of a single theme or literary type. Possible areas of study include women in literature, folklore in literature, death and dying, science fiction and mystery fiction. Emphasis on works of high literary merit.

**LIT 265 Major American Authors /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 102.

Survey of selected works by major American authors from the colonial period to the present.

**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.

Great narrative works of literary tradition with emphasis on form, theme and cultural context.

**LIT 268 Introduction to the Literature of the Americas /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 102.

Major literary works and movements from Pre-Columbian America as well as the English, Spanish, French and Portuguese Americas.

**LIT 275 Ethnic Literature: /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 102.

Exploration of the experience of various ethnic groups as reflected in literature by and about them.

**LIT 286 Themes in American Literature /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 102.

Exploration of a single theme in American literature such as individualism, nature or the outsider. Includes works of major authors plus a variety of genres appropriate to the theme, including novels, drama and poetry.

**LIT 291 Children's Literature /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): College-level reading and writing skills strongly recommended.

Survey of the major genres of children's literature: child lore, fables, folk tales, poetry, tall tales, the picture book, the adolescent novel and fictional, historical and non-fictional prose.

**LIT 296 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****MAC 103 Machine Shop Mathematics I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 082 or equivalent.

Practical mathematics as applied to machine tool technology problems.

**MAC 104 Machine Shop Mathematics II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAC 103.

Continuation of MAC 103. Practical mathematics as applied to advanced problems in machine tool technology.

**MAC 110 Machine Shop for Technicians I /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): Equivalent or concurrent enrollment in both MAC 103 and DFT 101.

Introduction to basic machine shop practices. Includes safety, general shop practice, hand and layout tools, measuring tools, basic machines, lathes, and milling machines.

**MAC 120 Machine Shop for Technicians II /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): MAC 103, 110, DFT 101.

Continuation of MAC 110. Includes additional applications of safety, dimensional measurement, lathe operation, milling machine operation, and grinding machine operation.

**MAC 130 Fundamentals of Metallurgy /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic principles of metallurgy. Includes steel classifications, heat treatment procedures, properties of ferrous and nonferrous metals and nondestructive testing.

**MAC 199 Co-op Related Class in MAC /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**MAC 199 Co-op Work in MAC /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**MAC 210 Jig and Fixture Designing I /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): MAC 120, DFT 150.

Design and application of tools, jigs and fixtures for basic metalworking. Includes application of fixture components and electrical discharge processes.

**MAC 250 Computer Numerical Control I /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): MAC 104 or MAT 111, MAC 120, ASC 111A or equivalent or concurrent enrollment.

Numerical control and computer numerical control machining systems. Includes positioning, coordinate systems and part programming.

**MAC 255 Computer Numerical Control II /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): MAC 250.

Continuation of MAC 250. Includes diagnosis and correction of programming errors, advanced programming techniques used in production and prototype machining, lathe and macro programming and computer aided machining.

**MAC 257 Computer Aided Machining I /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): DFT 180, MAC 255.

Operation and programming of an automated machine tool. Includes safety, creating a Computer Aided Machine (CAM) program, CAM programming systems, and RS-232 communications.

**MAC 258 Computer Aided Machining II /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): MAC 257.

Continuation of MAC 257. Includes safety, advanced features of a Computer Aided Machining (CAM) programming system, and creation and set-up of a CAD/CAM programming center.

**MAC 260 Computer Numerical Control III: Lathe /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): MAC 255.

Continuation of MAC 255. Includes Computer Numerical Control (CNC) lathe applications, programming geometry, programming techniques, and production machining techniques.

**MAC 265 Computer Numerical Control IV: Production Techniques /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): MAC 260.

Continuation of MAC 260. Includes production machining techniques for mills and other Computer Numerical Control (CNC) equipment, four and five axis programming, and computer integrated machining and flexible machining systems.

**MAC 270 Robotics and Automated Systems: Mechanical /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): PHY 101, 102 or 115.

Classification and overview of hardware found in robotic workcells and material handling systems. Includes hydraulic systems, pneumatic systems, electrical motors, digital logic, switches and relays, converters, memories and microprocessors, servo systems and industrial robots. (Same as ROB 270.)



**MAC 271 Programmable Logic Controllers /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): MAC 270 or ROB 270.

Concepts and applications of programmable controllers. Includes number systems, logic concepts, central processors, input/output system, peripheral services and programming languages. (Same as ROB 271.)

**MAC 275 Applied Metallurgy /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): None.

Procedures and practice for metallurgical testing. Includes structural materials, alloy classification systems, industrial and manufacturing concepts, processes and applications, properties and testing, and structure of metals and alloys.

**MAC 280 Machine Shop for Technicians III /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): MAC 120, 104, DFT 150.

Continuation of MAC 120. Includes advanced applications of safety, dimensional measurement, lathe operation, milling machine operation, and grinding machine operation.

**MAC 285 Physical Metallurgy /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): MAC 130.

The behavior of metals as used in industry during heating, cooling, shaping, forming and stress. Includes mechanical properties and tests to determine values, heat treatment of steel, pure metals and manner of crystallization, theory of alloys, nonferrous metals and quality control procedures involving magnaflux, magnaglow, dye penetrants and x-ray techniques.

**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. May be taken 16 times for a maximum of 16 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.

**MAC 299 Co-op Related Class in MAC /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**MAC 299 Co-op Work in MAC /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**MANAGEMENT**

**MAN 110 Human Relations in Business and Industry /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Organizational structure and how its functioning is affected by many human factors. Includes motivation, problem solving techniques, group process and organization environment.

**MAN 122 Supervision /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Principles of personnel supervision. Historical development; recruitment, training and evaluation of employees; decision making; and the role of labor unions.

**MAN 124 Small Business Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Analysis of the practical problems of organizing and managing a successful small business. Includes practical problems in quantitative analysis, causes of business failure, record keeping, sales promotion, marketing, budgeting, employee relations and small business case studies. Emphasis on the managerial activities of the entrepreneur and their application to good business practice.

**MAN 130 Quality Systems Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 092.

Contemporary quality-system philosophies. Includes methods and technical operations for quality management in product and service organizations.

**MAN 270 Computer Applications for Managers /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): BUS 105 or consent of instructor.

Development of management skills in computer applications for business. Includes maximizing computer services, history of data processing as viewed by management, advancement in reporting tools, efficient computer utilization via corporate management direction and related concerns.

**MAN 276 Human Resources /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): BUS 100.

Practical aspects of personnel management and support. Includes recruiting, selection, testing, rating systems, promotion, discipline, training, labor relations, job evaluation, and manpower planning.

**MAN 278 Labor/Management Relations /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): BUS 100.

Examination of basic principles and current status of labor/management relations in the United States. History, development of American unionism, government of trade unions, collective bargaining, public policy and bar-

gaining power. Reviews legal framework regulating labor/management relations. Emphasis on contemporary issues and problems involved in building a sound relationship between management and labor.

**MAN 280 Business Organization and Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): BUS 100 and any other MAN course.

Nature and functions of business organization and management. The role of management in business and other human endeavors; management as a total system within constraints imposed by society, government, technology and ideology; management as a practical integration of diverse philosophies.

**MAN 298 Advanced Topics in Management: /5-3 cr. hrs./5-3 periods (5-3 lec.)**

Prerequisite(s): Consent of instructor.

Advanced topics in management which reflect current issues, trends, and technologies. May be taken four times for a maximum of twelve credit hours.

**MAN 299 Co-op Related Class in MAN /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**MAN 299 Co-op Work in MAN /3-6 cr. hrs./15-30 periods (15-30 lab)**

See Cooperative Education section for description.

## MARKETING

**MKT 111 Marketing /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic principles of moving goods and services from producer to consumer. Includes functions of marketing in relation to manufacturing, wholesaling and retailing. (Same as DES 110.)

**MKT 113 Professional Sales /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic principles and techniques of selling and their practical application. Includes types of customers, products, presentation of information, determination of customer's wants and needs, meeting customer objections, and opportunities in selling.

**MKT 125 Advertising /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic principles of the various aspects of advertising including its planning and creation.

**MKT 130 Direct Response Marketing /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Principles of developing and implementing a targeted direct response program. Includes selection of appropriate products/services, one-step versus two-step marketing, elements of costing and pricing, effective creative designs, and methods for evaluation and measurement.

**MKT 139 Retailing /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The organization and operation of a retail store. Includes trends in the field and problems involved in the retailing of goods and services.

**MKT 150 Physical Distribution Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

In-depth study of methods of distributing goods. Physical warehousing, inventory control, materials handling, industrial packaging, order processing and location analysis. Includes managerial responsibilities and recent transportation regulation actions. (Same as PIM 150.)

**MKT 160 Marketing for Nonprofit Organizations /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Applies marketing principles to agencies other than for profit business and industry. Use of case studies and discussions. Each student will prepare an integrated marketing plan for a nonprofit organization.

**MKT 299 Co-op Related Class in MKT /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**MKT 299 Co-op Work in MKT /3-6 cr. hrs./15-30 periods (15-30 lab)**

See Cooperative Education section for description.

## MATHEMATICS

All students enrolling in their first mathematics course with the college and all new, full-time students are required to take the mathematics assessment tests. A satisfactory assessment test score may be requested in lieu of, or in addition to, the listed prerequisites for any course.

Students who have earned credit in any college mathematics course equivalent to or above MAT 082 will not receive credit for MAT 082 or any of its components without permission of a mathematics Department Chair.

### **MAT 050 Approaching Mathematics Positively /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Same as HDE 050.

### **MAT 065 Health Careers Mathematics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Mathematical skills for nursing and chemistry. Includes fractions, decimals, scientific notation, dosages, concentrations, logarithms and conversions in apothecary, metric and household measures.

### **MAT 082 Basic Mathematics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Introduction to whole numbers, decimals, fractions, percent, ratio, measurement and signed numbers. Includes basic arithmetic operations, principles of place value, order of operations, divisibility, prime factorization, and least common multiple. Also includes using decimals and fractions, the principles of proportion, measures (including the metric system) and their applications, and signed numbers. MAT 082A, 082B, and 082C together constitute MAT 082.

#### **MAT 082A Basic Mathematics - Module A /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Module A constitutes approximately the first one-third of 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.

#### **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.

### **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 basic operations on fractions, decimals, signed numbers, percents, ratio, and applications. Also includes order of operations, solving linear equations, and inequalities in one variable. MAT 086A, 086B, and 086C together constitute MAT 086.

### **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.

### **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.

### **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.

### **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, 092B, and 092C together constitute MAT 092.

#### **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.

#### **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.

#### **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.

### **MAT 094 Elementary Geometry /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): MAT 092.

Introduction to geometry. Includes angles, parallel and perpendicular lines, triangles, quadrilaterals, circles, congruence, similar figures, geometric constructions, and deductive proofs.

### **MAT 110 Technical Mathematics I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 082 or satisfactory score on mathematics assessment test.

Technical arithmetic and geometry. Includes a review of arithmetic operations, percent, measurements, basic geometry involving perimeters, areas and volumes, basic algebraic operations, linear equations and factoring, algebraic fractions, graphs of equations, and systems of linear equations. MAT 110A, 110B, and 110C together constitute MAT 110.

**MAT 110A Technical Mathematics I - Module A /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): MAT 082 or concurrent enrollment in MAT 082C or satisfactory score on mathematics assessment test.

Module A constitutes approximately the first one-third of MAT 110.

**MAT 110B Technical Mathematics I - Module B /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): MAT 110A or concurrent enrollment.

Module B constitutes approximately the second one-third of MAT 110.

**MAT 110C Technical Mathematics I - Module C /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): MAT 110B or concurrent enrollment.

Module C constitutes approximately the third one-third of MAT 110.

**MAT 111 Technical Mathematics II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 110.

Continuation of MAT 110. Includes a review of graphing, scientific notation, roots, radicals and quadratic equations. Also includes trigonometric functions, vectors, and solutions of right and oblique triangle problems. MAT 111A, 111B, and 111C together constitute MAT 111.

**MAT 111A Technical Mathematics II - Module A /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): MAT 110 or concurrent enrollment in MAT 110C.

Module A constitutes approximately the first one-third of MAT 111.

**MAT 111B Technical Mathematics II - Module B /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): MAT 111A or concurrent enrollment.

Module B constitutes approximately the second one-third of MAT 111.

**MAT 111C Technical Mathematics II - Module C /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): MAT 111B or concurrent enrollment.

Module C constitutes approximately the third one-third of MAT 111.

**MAT 113 Mathematics with Trigonometry and Statistics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 122 or TEC 112 or satisfactory score on the mathematics assessment test.

Non-linear and simultaneous equations used in network analysis. Includes basic trigonometry and complex numbers used in AC circuit theory and optics, waveforms and methods of description, basic probability and statistics used in statistical process control and metrology, introductory periodic waveform analysis, and graphical presentations of special sums and rates of change in linear circuit applications. (Same as TEC 113.)

**MAT 115 Electronics Mathematics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 092.

Intermediate algebra as applied to electronic circuits. Includes solving systems of linear equations, rational and irrational equations, exponents, quadratics equations, and an introduction to logarithms. (Same as TEC 115.)

**MAT 116 Electronics Mathematics Applications /3 cr. hr./3 periods (3 lec.)**

Prerequisite(s): MAT 115.

College level algebra applications to solve sinusoidal AC circuit and DC transient response parameters. Includes the use of right triangle trigonometry, elementary plane vectors, phasor algebra, logarithmic and exponential equations. Also includes the mathematics of binary, octal, and the hexadecimal numbering systems. (Same as TEC 116.)

**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, 122B, and 122C together constitute MAT 122.

**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.

**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.

**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.

**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 152 College Algebra /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 122 or satisfactory score on the mathematics assessment test.

Introduction to college-level algebra. Includes equations, functions, systems of equations and inequalities, exponential and logarithmic functions, graphing of higher order polynomial and rational functions, and sequences and series. MAT 152A, 152B, and 152C together constitute MAT 152.

**MAT 152A College Algebra - Module A /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): MAT 122 or concurrent enrollment in MAT 122C or satisfactory score on the mathematics assessment test.

Module A constitutes approximately the first one-third of MAT 152.

**MAT 152B College Algebra - Module B /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): MAT 152A or concurrent enrollment.

Module B constitutes approximately the second one-third of MAT 152.

**MAT 152C College Algebra - Module C /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): MAT 152B or concurrent enrollment.

Module C constitutes approximately the third one-third of MAT 152.

**MAT 167 Introductory Statistics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 152 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 152.

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 182 Trigonometry /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 152 or concurrent enrollment.

Introduction to trigonometric functions. Includes graphs, identities, angle measure, vectors, polar coordinates, and conic sections. MAT 182A, 182B, and 182C together constitute MAT 182.

**MAT 182A Trigonometry - Module A /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): MAT 152 or concurrent enrollment.

Module A constitutes approximately the first one-third of 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.

**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.

**MAT 187 Precalculus /5 cr. hrs./5 periods (5 lec.)**

Prerequisite(s): MAT 122 or satisfactory score on the mathematics assessment test.

College-level algebra and trigonometry. Includes topics covered in MAT 152 and 182. Recommended for students planning to take analytic geometry and calculus. For P.C.C. degree, credit is allowed for MAT 152 and 182, or MAT 187, but not for all three.

**MAT 198 Special Topics in Mathematics: /1-4 cr. hrs./1-10 periods (1-4 lec., 0-9 lab)**

Prerequisite(s): Consent of instructor.

Introduction to the techniques of research in mathematics. Includes topics concerned with procedures, experimental design, and current research.

**MAT 212 Topics in Calculus /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 152.

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 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 /3-4 cr. hrs./3-4 periods (3-4 lec.)**

Prerequisite(s): MAT 152.

Mathematical concepts applicable to course work in computer science. Includes logic, sets, proof techniques, induction, graphs, formal languages, and basic application of discrete mathematics to computer science. Basic applications of discrete mathematics are omitted for the three-credit class.

**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 297 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. May be taken three times for a maximum of twelve credit hours.

**MEDIA COMMUNICATION**

**MEC 101 Introduction to Reporting and Media Writing /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): Writing 100 recommended.

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.

**MEC 102 Survey of Media Communications /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.

**MEC 124 Writing for Film and Television /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MEC 102 or concurrent enrollment.

Screenwriting for students who are interested in writing a screenplay. Includes screenplay narrative, plots, story structure, conflict, writing dialogue, techniques of developing a character, purpose of script form, and relationships between the writer and director. Also includes writing a feature script, potential markets, and the realities of selling your script.

**MEC 125 Beginning Video Production /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): MEC 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.

**MEC 145 Equipment Repair and Maintenance /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Electrical and mechanical repair and maintenance of instructional media technology equipment, including tape recorders, projectors and mechanical graphic arts devices.

**MEC 155 Instructional Media I /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): MEC 125.

Functions and responsibilities of the media specialist in education or industry. Includes ordering, inventory, maintenance, budgeting, equipment evaluation, facilities design, copyright law, and career opportunities.

**MEC 170 Journalism Workshop /3 cr. hrs./9 periods (9 lab)**

Prerequisite(s): MEC 101.

Laboratory course in which students produce the college's weekly student newspaper. Includes news gathering, writing, editing, photography, advertising and other publication activities.

**MEC 175 Cinematography /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): MEC 124 or concurrent enrollment.

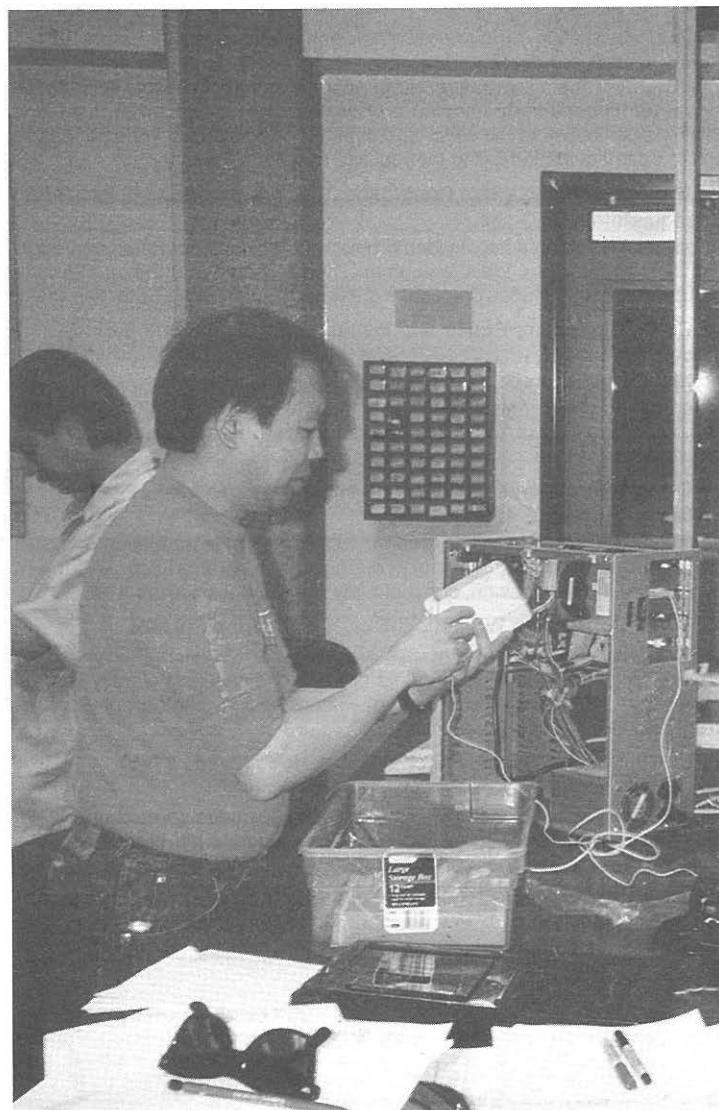
Basic techniques of motion picture production. Includes camera operation, animation application, film editing, and motion picture lab processes. Also includes the creation and production of super 8 films.

**MEC 180 Newspaper Business Procedures /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Principles and practice of newspaper advertising, sales, circulation, record keeping and accounting.





**MEC 188 Desktop Publishing for Journalism and Media Communication /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): Word processing or keyboard skills recommended.

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, storyboards, slide presentations, and transparencies.

**MEC 190 Newspaper Graphics /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Principles and techniques of basic newspaper art work, typography and photography.

**MEC 196 Independent Studies in Media /1-4 cr. hrs./3-12 periods (6 lec., 6 lab)**

Prerequisite(s): 6 credit hours of MEC classes and consent of instructor. Students independently continue their development in media communications with the help of a faculty member. May be taken three times for a maximum of twelve credit hours.

**MEC 198 Special Topics in Media: /1-4 cr. hrs./1-4 periods (1-4 lec.)**

Prerequisite(s): Consent of instructor.

Selected topics in media which reflect current issues, trends, and technologies.

**MEC 199 Co-op Related Class in MEC /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**MEC 199 Co-op Work in MEC /1-3 cr. hrs./5-15 periods (5-15 lab)**

See Cooperative Education section for description.

**MEC 211 Lighting for Film and Video /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): MEC 124, and MEC 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.

**MEC 215 Advanced Cinematography /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): MEC 175.

Tools, techniques, and procedures involved in professional film production. Includes the film proposal, script breakdown, pre-production and post-production of one 16mm film, and laboratory experience with film production equipment.

**MEC 225 Advanced Video Production /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): MEC 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.

**MEC 230 Advanced Reporting /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MEC 101.

Advanced news writing and related activities. Includes investigative reporting, feature and editorial writing, copy-editing, headline writing, make-up and advertising. A required course for journalism majors.

**MEC 235 Broadcast Journalism /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MEC 101.

Survey of radio and television journalism. Includes broadcast news media, electronic journalism and the broadcast news process.

**MEC 240 Editing, Layout, and Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): MEC 101.

Principles and techniques of publication editing, layout, and design. Includes newsroom and other settings, copy and electronic editing, proof-reading, headline writing, electronic page layout, typography and design, copyflow, and problems and responsibilities of editors. Also involves the extensive use of computers in the editing process.

**MEC 255 Instructional Media II /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): MEC 155.

Principles and techniques of instructional media technology. Includes still projection, motion picture projection, graphic arts, record players, tape recorders, broadcast sound systems, educational TV, programmed instruction, supporting equipment for instructional media, and non-projected instructional media materials.

**MEC 260 Magazine and Feature Writing /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MEC 101.

Writing magazine and newspaper feature articles for publication. Each student is required to research, write and attempt to market an article or series of features.

**MEC 265 Implications of Media Technology /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The effects of media technology on the individual and his society. Includes multimedia systems, computer managed instruction, computer assisted instruction, audio-tutorial systems, television, radio, film, programmed instruction, dial-access systems and man-machine relationships in learning systems.

**MEC 270 Media Advertising and Public Relations /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): MEC 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.

**MEC 271 Film/Video Production Financing /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MEC 124.

Strategies of 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.

**MEC 275 Basic Audio Production /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MEC 124.

Fundamental tools, techniques, and procedures for multitrack 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.

**MEC 276 Advanced Audio Production /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): MEC 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.

**MEC 280 Photojournalism /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): MEC 101.

Reporting and interpreting news through pictures. Includes application of basic photography techniques to mass media, analysis of photographs, some layout, and writing outlines and captions.

**MEC 281 News and Feature Program Production /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): MEC 225.

Techniques and procedures involved in producing television news feature programs for cablecasting or broadcasting. Includes procedures, cameras, lenses, audio, and graphics for in-field productions. Also includes lighting, visual expression, producing, directing, interviewing techniques, and the completion of three, thirty-minute news/feature video programs for cablecasting.

**MEC 285 Documentary Television and Film Production /4 cr. hrs./ 6 periods (2 lec., 4 lab)**

Prerequisite(s): MEC 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.

**MEC 290 Applied Photojournalism /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Practical application of photojournalistic techniques. Includes news value, pictorial quality, handling assignments and the picture story.

**MEC 296 Advanced Independent Studies in Media /1-4 cr. hrs./ 3-12 periods (6 lec., 6 lab)**

Prerequisite(s): 12 credit hours of MEC courses, completion of MEC 196 and consent of instructor.

Students independently continue their development in media communications with the help of a faculty member. May be taken three times for a maximum of twelve credit hours.

**MEC 299 Co-op Related Class in MEC /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**MEC 299 Co-op Work in MEC /1-3 cr. hrs./5-15 periods (5-15 lab)**

See Cooperative Education section for description.

## MICROCOMPUTER APPLICATIONS

**MAP 106 Introduction to Microcomputers /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Microcomputer uses with emphasis on hardware, specific microcomputer uses and evaluation of application software.

**MAP 207 Developing Microcomputer Applications /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): MAP 106 or equivalent experience.

Principles and techniques of developing microcomputer applications. Includes software review and evaluation, authoring systems, introduction to popular programming languages (e.g., PILOT and LOGO) and production of software.

**MAP 267 Microcomputer Center Operations /3 cr. hrs./15 periods (15 lab)**

Prerequisite(s): MAP 207 or equivalent experience.

In-depth microcomputer applications experience. Intended for those whose major responsibility will be maintenance of a microcomputer laboratory.

## MUSIC

**MUS 027 Introduction to Ear Training /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): It is recommended that students who are thinking of pursuing music as a major take MUS 027 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 041 Piano Class I-Non-Music Major /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Basic principles and techniques of piano playing in a group situation. Designed for non-music majors.

**MUS 042 Piano Class II-Non-Music Major /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Continuation of MUS 041. Expansion and refinement of piano playing techniques. Designed for non-music majors.

**MUS 043 Piano Class III-Non-Music Major /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): MUS 042.

Continuation of MUS 042. Group piano for non-music majors.

**MUS 045 Applied Music-Private Instruction /2 cr. hrs./5 periods (.5 lec.)**

Prerequisite(s): None.

Private weekly lessons in the sections listed below. Course of study jointly determined by the instructor and student. Development of performance skills is stressed. May be taken four times for a maximum of eight credit hours. Section 1-Brass; Section 2-Guitar; Section 3-Organ; Section 4-Percussion; Section 5-Piano; Section 6-Strings; Section 7-Voice; Section 8-Woodwinds. May be taken four times for a maximum of eight credit hours.

**MUS 050 Rhythmic Performance /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Analysis and performance of rhythmic notation. Emphasis on rhythmic reading skills, terminology, group performance and notation.

**MUS 054 Jazz Improvisation /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): MUS 102.

Techniques of jazz improvisation on various instruments. Includes rhythmic, melodic and harmonic aspects of jazz styles. Emphasis on progressive development of musical skills through interpretation of musical literature. Enrollment determined by audition with instructor. May be taken two times for a maximum of two credit hours.

**MUS 095 Contemporary Guitar Styles /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Basic training in the essential elements of a variety of popular American guitar styles. Includes folk, country/western, blues, rock, and jazz. Also includes rhythm accompaniment, improvising solos, fretboard theory/harmony, memorization, and tablature reading.

**MUS 100 Guitar I /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Development of the principles of guitar playing with emphasis on a variety of styles and guitar repertoire.

**MUS 101 Guitar II /1 cr. hr./2 periods (1 lec., 1 lab)**

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 Introduction to Music Theory /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): It is recommended that students who are thinking of pursuing music as a major take MUS 027 and 102 concurrently.

Introduction to fundamentals of music designed to develop basic literacy in music for non-majors. Includes study of notation, melody, harmony, rhythm and musical terminology.

**MUS 105 Jazz Band II /1 cr. hr./3 periods (1 lec., 2 lab)**

Prerequisite(s): Students chosen by audition.

Membership selected primarily from southern Arizona high schools. Rehearsal and performance of many styles of music in the jazz idiom. Continued emphasis on progressive development of musical skills through interpretation of advanced literature. May be taken four times for a maximum of four credit hours.

**MUS 108 Pima 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. Emphasis on progressive development of musical skills through interpretation of literature. 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): Students chosen by audition.

Rehearsal and performance of many styles of music in the jazz idiom. Continued emphasis on progressive development of musical skills through interpretation of literature. 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.)**

Prerequisite(s): None.

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.

Membership selected primarily from Tucson's adult community. Rehearsal and performance of many styles of music in the jazz idiom. Emphasis on progressive development of musical skills through interpretation of professional literature. 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.

Membership selected primarily from Tucson's adult community. Rehearsal and performance of many styles of music in the jazz idiom. Continued emphasis on progressive development of musical skills through interpretation of professional literature. May be taken four times for a maximum of four credit hours.

**MUS 116 Philharmonia Orchestra I /1 cr. hr./3 periods (1 lec., 2 lab)**

Prerequisite(s): Students chosen by audition.

Participation in regular rehearsals and performances. Emphasis on progressive development of musical skills through interpretation of orchestral literature. May be taken four times for a maximum of four credit hours.

**MUS 117 Philharmonia Orchestra II /1 cr. hr./3 periods (1 lec., 2 lab)**

Prerequisite(s): Students chosen by audition.

Participation in regular rehearsals and performances. Continued emphasis on progressive development of musical skills through interpretation of orchestral literature. May be taken four times for a maximum of four credit hours.

**MUS 120 Concert Band I /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Students chosen by audition.

Participation in regular rehearsals and performances. Emphasis on progressive development of musical skills through interpretation of literature. May be taken four times for a maximum of twelve credit hours.

**MUS 121 Concert Band II /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Students chosen by audition.

Participation in regular rehearsals and performances. Continued emphasis on progressive development of musical skills through interpretation of literature. May be taken four times for a maximum of twelve credit hours.

**MUS 125 The Structure of Music I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): It is recommended that students who are music majors take MUS 125 and 127 concurrently.

Basic structures of music and fundamental musical terminology. Includes scales, intervals, keys, chords, notation, tonality, form and part writing.

**MUS 126 The Structure of Music II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MUS 125.

Structure and terminology of modal and contrapuntal music. Includes modal harmony, non-western music, analysis and 18th century counterpoint.

**MUS 127 Aural Perception I /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): It is recommended that students who are music majors take MUS 125 and 127 concurrently.

Development of aural techniques through dictation and performance of intervals and melodic and simple rhythmic structures. Also includes general techniques of listening to music.

**MUS 128 Aural Perception II /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): MUS 127.

Continuation of MUS 127. Development of aural techniques through dictation and performance of intervals, chord progressions and melodic and rhythmic structures. Includes general techniques of listening to music. Required of all music majors.

**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. Emphasis on progressive development of musical skills through interpretation of literature. May be taken four times for a maximum of twelve credit hours.

**MUS 131 College Singers (SATB) /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Students chosen by audition.

Small choral ensemble. Repertory and performance throughout the academic year includes best literature from all styles and periods. Emphasis on progressive development of musical skills through interpretation of literature. May be taken four times for a maximum of twelve 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. May be taken four times for a maximum of four credit hours.

**MUS 136 Voice Class I /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Practical training in basic skills and singing without specialization. Includes breathing, diction, tone, rhythm and sight singing.

**MUS 137 Voice Class II /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): MUS 136.

Continuation of MUS 136. Practical training in basic skills and singing without specialization. Includes breathing, diction and interpretation of song literature.

**MUS 141 Piano Class I-Music Majors /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): None.

Beginning piano instruction and techniques employing group and individual practice in an electronic lab. For music majors. Includes development of keyboard technique, musical notation, key signatures and other basic theoretical concepts.

**MUS 142 Piano Class II-Music Majors /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): MUS 141.

Continuation of MUS 141. Intermediate piano instruction utilizing group and individual practice in an electronic lab. For music majors. Focus on more advanced theoretical and technical applications to the piano.

**MUS 143 Piano Class III-Music Majors /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): MUS 142.

Continuation of MUS 142. Advanced intermediate piano instruction utilizing group and individual practice in an electronic lab. For music majors. Focus on further study of theoretical and applied techniques at the piano.

**MUS 144 Piano Class IV-Music Majors /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): MUS 143.

Continuation of MUS 143. Advanced piano instruction utilizing group and individual practice in an electronic lab. For music majors. Advanced application of theory and technique, including scales, arpeggios, harmonizations, transpositions and an in-depth study of repertoire and style.



**IUS 145 Applied Music-Private Instruction /2 cr. hrs./1.5 period (.5 lec.)**

Prerequisite(s): None.

Private weekly lessons in the sections listed below. Includes participation in student recitals and jury exams. Students chosen by audition. Section 1-Brass; Section 2-Guitar; Section 3-Percussion; Section 4-Piano; Section 5-Strings; Section 6-Voice; Section 7-Woodwinds.

**MUS 146 Applied Music-Private Instruction /2 cr. hrs. /1.5 period (.5 lec.)**

Prerequisite(s): MUS 145.

Continuation of MUS 145. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams. (See MUS 145 for sections offered.)

**MUS 147 Singing/Movement for the Stage /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): None.

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. Singing skill is required. May be taken four times for a maximum of eight credit hours.

**MUS 148 Musical Theater Workshop /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Movement and singing to enhance projection and communication capabilities. Includes auditioning techniques, live accompaniment, and exploring the musical theater as a way to communicate. 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. May be taken four times for a maximum of twelve credit hours.

**MUS 151 Exploring Music /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 160 Popular Music in America /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Study of the history of popular music culture in America beginning with the music in colonial America through current trends in today's so-called country, Broadway musical, folk, and rock.

**MUS 201 History and Literature of Music I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MUS 102.

Music literature from the ancient Greek period through the Baroque with emphasis on specific works as representative of musical evolution.

**MUS 202 History and Literature of Music II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MUS 102.

Music literature from the end of the Baroque period through the present day with emphasis on specific works as representative of musical evolution.

**MUS 207 Music Composition /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): MUS 125.

Study of compositional techniques, notation, and twentieth-century models. Development of compositional skills. Problems in performance and the practice of writing music.

**MUS 225 The Structure of Music III /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MUS 125.

Chromatic harmony, melody and associated contrapuntal and rhythmic structure. Includes Schenkerian analysis, advanced tertian harmonies, chromatic modulation and in-depth analysis of selected works.

**MUS 226 The Structure of Music IV /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MUS 125.

Twentieth century musical structure. Includes analysis of and composition with atonality, serialism, polymodality, polymeter, microtones, improvisation, chance, instrument exploration, new harmonic structures, new scales and new aesthetics.

**MUS 227 Aural Perception III /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): MUS 127.

Continuation of MUS 128. Development of aural techniques through dictation and performance of tonal and atonal melodies, chord progressions and rhythmic structures. Includes general techniques of listening to music. Required of all music majors.

**MUS 228 Aural Perception IV /1 cr. hr./2 periods (1 lec., 1 lab)**

Prerequisite(s): MUS 127.

Continuation of MUS 227. Development of aural techniques through dictation and performance of tonal and atonal melodies, chord progressions and rhythmic structures. Emphasis on 20th century musical contexts. Required of all music majors.

**MUS 247 Applied Music-Private Instruction /2 cr. hrs./1.5 period (.5 lec.)**

Prerequisite(s): MUS 146.

Continuation of MUS 146. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams. (See MUS 145 for sections offered.)



## MUSIC—NURSING

### **MUS 248 Applied Music-Private Instruction /2 cr. hrs./5 period (5 lec.)**

Prerequisite(s): MUS 247.

Continuation of MUS 247. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams. (See MUS 145 for sections offered.)

### **MUS 290A-C 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. Each course may be taken four times for a maximum of four credit hours.

## **NURSING**

### **NRS 101 Nursing Process I for PN /8 cr. hrs./16 periods (4 lec., 12 lab)**

Prerequisite(s): Admission granted by the Allied Health Services Selection Committee.

Introduces the nursing process as a systematic approach to decision making in nursing. Includes content related to maintenance of homeostasis and role of adaptation through meeting basic needs. Introduces concepts of communication, pharmacology, growth and development with emphasis on aging. Presents laboratory and clinical application of selected nursing skills to adults. Emphasis is on the role of the practical nurse in relationship to the nursing process.

### **NRS 102 Nursing Process II for PN /9 cr. hrs./19 periods (4 lec., 15 lab)**

Prerequisite(s): NRS 101.

Continues the application of the nursing process to basic care of medical/surgical clients and families in the maternity cycle and health of children. Includes emphasis on growth and development through the life cycle. Presents laboratory and clinical application of selected nursing skills to the care of adults and children. Emphasis is on the role of the practical nurse in relationship to the nursing process.

### **NRS 103 Trends and Issues I /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): NRS 101 or 104. Concurrent enrollment in NRS 102 or 105.

A nonclinical course that introduces the nursing role with emphasis on beginning legal and ethical concerns. Explores the rights of individuals in all aspects of life.

### **NRS 104 Nursing Process I for ADN /8 cr. hrs./16 periods (4 lec., 12 lab)**

Prerequisite(s): Acceptance into the Associate Degree Nursing program.

Introduction to the application of the nursing process and to the concepts of nurse, health, person and environment. Includes communications, growth and development, basic human needs and pharmacology. Also includes laboratory and clinical skills and knowledge related to adult and elderly clients.

### **NRS 105 Nursing Process II for ADN /9 cr. hrs./19 periods (4 lec., 15 lab)**

Prerequisite(s): NRS 104, BIO 202, WRT 101.

Continuation of NRS 104. Application of the nursing process and expansion on the concepts of nurse, health, person, and environment. Includes the application of the nursing process in caring for clients with simple to complex alterations in physiological; and psychoemotional health throughout the life span. Also includes laboratory and clinical skills and knowledge related to adult and elderly clients.

### **NRS 106 Pharmacology for Associate Degree Nursing /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): NRS 104 and concurrent enrollment in NRS 105.

Application of the nursing process to medication categories, uses, and effects for Associate Degree Nursing students. Includes classifications, actions, uses, contraindications, doses, routes of administration, side effects, interactions, and incompatibilities. Also includes application of the nursing process to the study of medications and their safe administration.

### **NRS 190 Transition to the Associate Degree Nursing Program /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. Students graduating from an open entry/open exit Practical Nursing (PN) program will be individually evaluated.

Facilitate the transition of Practical Nurse (PN) graduates from Pima Community College (PCC) and Licensed Practical Nurses (LPN's) in the PCC Associate Degree Nursing (ADN) program. Includes an assessment of basic nursing care, stresses role transition through the application of nursing process and orientates the student to the philosophy and organizing framework of the ADN Program. Also includes 1) nursing communication process and 2) demonstration of selected competencies and skills.

**NRS 201 Nursing Process III for ADN /11 cr. hrs./23 periods (5 lec., 18 lab)**

Prerequisite(s): NRS 105, 106, BIO 205, WRT 102.

Continuation of NRS 105. Application of the nursing process and expansion on the concepts of nurse, health, person, and environment with an emphasis on family development throughout the life span. Includes growth and development of the childbearing and child rearing family encompassing increasingly complex health alterations. Also includes additional laboratory and clinical application of selected nursing skills and knowledge to the family.

**NRS 202 Nursing Process IV for ADN /11 cr. hrs./23 periods (5 lec., 18 lab)**

Prerequisite(s): NRS 201, PSY 101.

Continuation of NRS 201. Application of the nursing process and concepts of nurse, health, person and environment in the care of clients experiencing multiple and complex alterations in psychological or physiological health. Includes the roles of the nurse in caring for clients with multiple needs. Also includes laboratory and clinical application of complex skills and knowledge in the care of clients throughout the life span.

**NRS 203 Trends and Issues II /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): NRS 201. Concurrent enrollment in NRS 202.

Exploration of the nursing role. Includes current issues and trends in nursing and health care delivery and the role of the nurse as a member of the profession.

**NURSING ASSISTANT****NRA 101 Nursing Assistant I /5 cr. hrs./11 periods (2 lec., 9 lab)**

Prerequisite(s): Acceptance into the nursing assistant program.

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 Nursing Assistant II /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): BIO 160, HCA 154 or concurrent enrollment, and NRA 101, and reading assessment at 10th grade level. Certified Nurse Aides who have not taken NRA 101 must pass an assessment test.

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****NCE 101 Review for NCLEXPN /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Completion of Practical Nursing Program.

Licensure exam preparation. Includes test taking techniques specific to NCLEX format, mock licensure examination and question analysis.

**NCE 111 LPN Update: Nursing Process /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Current LPN License.

Care of medical surgical clients. Includes the nursing process application, homeostasis, pharmacology, nutrition, and the care plan.

**NCE 112 LPN Update: Maternal/Child Nursing /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Current LPN License.

Care of clients in the maternity cycle. Includes normal growth and development, medications, nutritional considerations, common complications, treatment modalities, and the care plan.

**NCE 113 LPN Update: Pediatric Nursing /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Current LPN License.

Care of children and adolescents. Includes normal growth and development, common medications, common complications, pathological conditions, treatment modalities, and the care plan.

**NCE 114 LPN Update: Mental Health Nursing /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Current LPN License.

Care of clients experiencing alterations in mental health. Includes normal stages of psychosocial development, coping mechanisms, management techniques, selective pathological conditions, treatment modalities, and the care plan.

**NCE 160 Intravenous Therapy for Licensed Practical Nurses / 3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): Licensed Practical Nurse and one year current work experience.

Theory and practice needed to administer intravenous fluids and selected premixed medications. Includes assessment of client, pharmacological actions of drugs and fluids, effects on body systems, calculations, prevention and treatment of complications, psychological preparation, alterations to the nursing care plan, and skills acquisition.

**NCE 217 Fundamental Hemodialysis /6 cr. hrs./10 periods (2 lec., 8 lab)**

Prerequisite(s): LPN or RN license.

Principles and purpose of hemodialysis related to vascular access, initiation and termination of hemodialysis. Includes the administration of intravenous solutions.

**NCE 280 The Nurse As Manager I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): RN or consent of instructor.

Transition between nurse clinician and nurse manager. Includes managing change in health care, problem solving and decision making in health care, motivation, communication, quality standards, staffing, budgeting, interviewing, planning and current issues in health care.

**PHARMACY TECHNOLOGY**

**PHT 170 Introduction to Pharmacy Technology /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Overview of the allied health professions including the role of pharmacy support personnel, pharmacy law, medical terminology and pharmaceutical abbreviations. Emphasis on the roots, prefixes and suffixes needed to build a medical vocabulary.

**PHT 171 Pharmaceutical Calculations /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Mathematical computations needed in the practice of pharmacy technology.

**PHT 172 Drug Therapy I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

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 central nervous system, and the autonomic nervous system.

**PHT 174 Pharmacy Operations /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): PHT 171 or concurrent enrollment.

Technical aspects of drug distribution in both inpatient and outpatient settings, including bulk compounding, packaging, quality control, inventory control, drug storage and drug distribution systems.

**PHT 178 Pharmacy Microcomputers /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Basic concepts of computer operation. Emphasis on software designed for use in pharmacy.

**PHT 180 Sterile Products /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): PHT 174.

Application of aseptic techniques and use of the laminar flow hood in the preparation of sterile products.

**PHT 181 Interprofessional Relations in Pharmacy /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): PHT 170, 174.

Skills necessary for the pharmacy technician to communicate effectively in the following ways: 1) as a representative of the profession of pharmacy, 2) as an intermediary between the pharmacist and the patient, and 3) as an intermediary between the pharmacist and other health care professionals.

**PHT 182 Drug Therapy II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

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 190 Pharmacy Technician Internship /4 cr. hrs./16 periods (16 lab)**

Prerequisite(s): Completion of the core curriculum for the basic certificate program.

On-site training in outpatient and inpatient pharmacy services under direct supervision of a designated pharmacist.

**PHT 191 Pharmacy Technician Administration /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Completion of the basic certificate program or consent of instructor.

A comprehensive presentation of practical management techniques for pharmacy technician supervisors and managers. Focus on administration skills in both the hospital and retail pharmacy settings.

**PHT 193 Clinical Seminar /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(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

### **PHI 101 Introduction to Philosophy I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Principles of abstract reasoning and their application to life. Provides a thorough foundation through some of the main themes and figures in the history of Western philosophy.

### **PHI 102 Introduction to Philosophy II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Course seeks to provide the student with a sound grasp of the principles of abstract reasoning and instances of their application to life. For the prospective philosophy major, it offers a thorough foundation through some of the main themes and figures in the history of Western philosophy.

### **PHI 120 An Introduction to Logic /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The basic requirements and processes of valid thinking, decision making and communication. Emphasis on "informal" logic (i.e., the fallacious reasoning encountered in daily life). Includes recognizing and countering logical fallacies. Also includes use of Venn diagrams and truth tables. Real-life arguments are analyzed so the tools of logic can be better understood.

### **PHI 123 Philosophical Foundations of Science /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

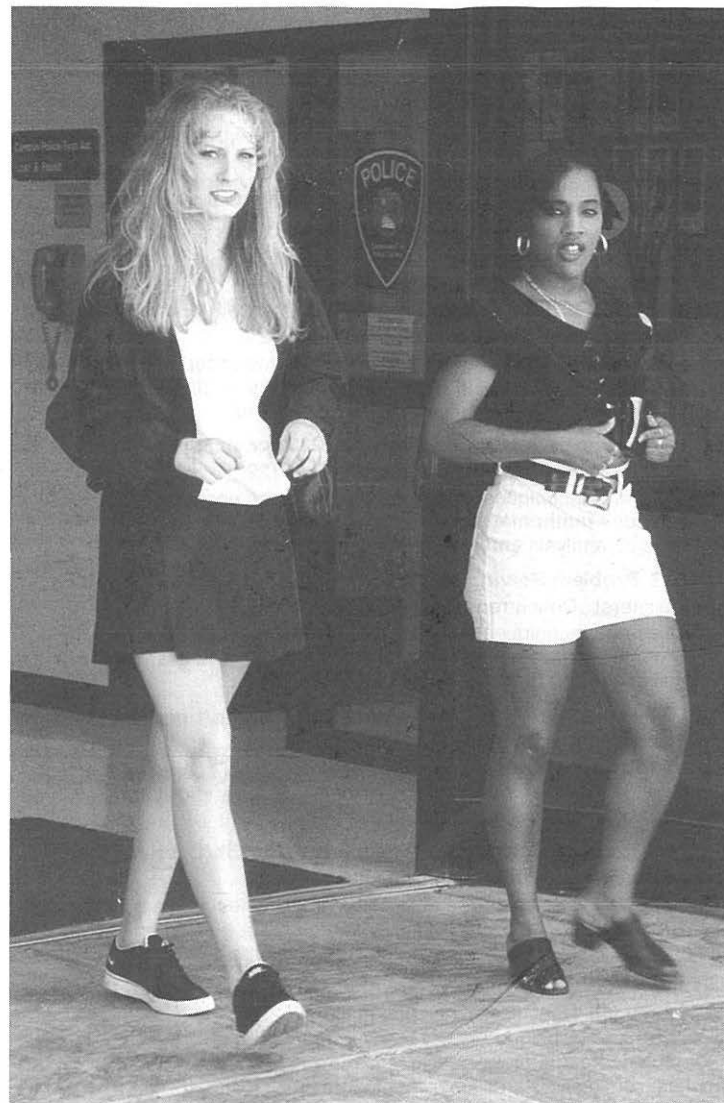
Prerequisite(s): None.

Introduction to the study of principles and standards of conduct and morality. Includes such matters as judgments of approval and disapproval, the rightness and wrongness of our acts and the desirability or wisdom of our actions. Emphasis on classical and contemporary meanings of ethical statements, their truth and falsity, their objectivity and subjectivity.

### **PHI 140 Philosophy of Religion /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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. This is not a world religions class. (Same as REL 140.)



**PHI 294 Special Topics in Philosophy: /1-4 cr. hrs./1-4 periods (1-4 lec.)**

Prerequisite(s): None.

Variable content designed to study specific topics in philosophy. Consult current class schedule for semester offerings.

**PHYSICS**

**PHY 061 Problem Solving for Physics 121 /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Concurrent enrollment in PHY 121.

Strategies and techniques used to solve problems encountered in Physics 121. 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.)**

Prerequisite(s): Concurrent enrollment in PHY 122.

Strategies and techniques used to solve problems encountered in Physics 122. 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.)**

Prerequisite(s): Concurrent enrollment in PHY 210.

Strategies and techniques used to solve problems encountered in Physics 210. 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.)**

Prerequisite(s): Concurrent enrollment in PHY 216.

Strategies and techniques used to solve problems encountered in Physics 216. 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.)**

Prerequisite(s): Concurrent enrollment in PHY 221.

Strategies and techniques used to solve problems encountered in Physics 221. 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.)**

Prerequisite(s): Concurrent enrollment in PHY 230.

Strategies and techniques used to solve problems encountered in Physics 230. Includes mathematical skills, error analysis, and graphing, with an emphasis on analysis and solution of word problems.

**PHY 101 Technical Physics I /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): MAT 082 or concurrent enrollment is suggested.

Designed for the technician. Covers the application, to the various technology fields, of forces in liquids, gases and the equilibrium of bodies; concepts of motion, work and machines; heat energy, and weather and climate. The math used is briefly explained.

**PHY 102 Technical Physics II /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): MAT 092 or concurrent enrollment is suggested.

Designed for the technician. Covers the application, to the various technology fields, of acoustics, electricity, light, optics, and electronics. The math used is briefly explained.

**PHY 105 Introduction to Optics /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): High school algebra.

Introduction to optics and light. Intended for students of ophthalmic dispensing and others interested in light and its physical properties.

**PHY 115 Physical Science /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

Prerequisite(s): MAT 122 or equivalent.

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 Introductory Physics I /5 cr. hrs./7 periods (5 lec., 2 lab)**

Prerequisite(s): MAT 092 or satisfactory score on the mathematics assessment test.

Introduction to general physics for programs requiring a one-year, non-calculus based physics course. Includes mechanics and heat.

**PHY 121 Introductory Physics I: Recitation /0 cr. hrs./1 period (1 lec.)**

Prerequisite(s): Concurrent enrollment in PHY 121.

Small-group quiz and/or discussion class for PHY 121.

**PHY 122 Introductory Physics II /5 cr. hrs./7 periods (5 lec., 2 lab)**

Prerequisite(s): PHY 121.

Continuation of PHY 121. Includes waves, electricity, magnetism, optics, relativity, and modern physics.

**PHY 122 Introductory Physics II: Recitation /0 cr. hrs./1 period (1 lec.)**

Prerequisite(s): Concurrent enrollment in PHY 122.

Small-group quiz and/or discussion class for PHY 122.

**PHY 197 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 198 Special Topics in Physics: /1-4 cr. hrs./1-10 periods (1-4 lec., 0-9 lab)**

Prerequisite(s): Consent of instructor.

Introduction to the techniques of laboratory research in physics. Includes topics concerned with scientific laboratory procedures, experimental design, ethics, and current research in working laboratories.

**PHY 210 Introductory Mechanics /5 cr. hrs./7 periods (5 lec., 2 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.

**PHY 210 Introductory Mechanics: Recitation /0 cr. hrs./1 period (1 lec.)**

Prerequisite(s): Concurrent enrollment in PHY 210.

Small-group quiz and/or discussion class for PHY 210.

**PHY 216 Introductory Electricity and Magnetism /5 cr. hrs./7 periods (5 lec., 2 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.

**PHY 216 Introduction to Electricity and Magnetism: Recitation /0 cr. hrs./1 period (1 lec.)**

Prerequisite(s): Concurrent enrollment in PHY 216.

Small-group quiz and/or discussion class for PHY 216.

**PHY 221 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 221A Introduction to Waves and Heat /3 cr. hrs./3 periods (3 lec.)**

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 221A and 221B together constitute PHY 221.

**PHY 221B Introduction to Waves and Heat Laboratory /1 cr. hr./3 periods (1 lec., 2 lab)**

Prerequisite(s): PHY 221A or concurrent enrollment.

Laboratory for calculus-based introduction to waves and heat for physics, mathematics, and engineering majors. Includes laboratory experiments in fluid statics and dynamics, heat and thermodynamics, simple harmonic motion, wave theory, physical and geometric optics. PHY 221A and 221B together constitute PHY 221.

**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 297 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. May be taken three times for a maximum of twelve credit hours.

**POLITICAL SCIENCE****POS 100 Introduction to Politics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic issues, principles, and methods of contemporary political science. Includes the nature of politics and political science, the role of ideas and goals in creating political change, the different forms of government and political behaviors, and modes of international influence and control.

**POS 105 Fundamentals of Arizona Government /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Study of the government of Arizona. Includes its history and politics, the Constitution, the legislature, the executive branch, fiscal and personnel, the judiciary system, trial rights, elections and voting, local governments, urbanization, and intergovernmental relations.



**POS 110 American National Government and Politics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of the institutions of American government and the evolution of our political system. Includes the nature of politics and power, constitutional democracy, federal systems, public opinion, political parties and interest groups, electoral system, congress, the presidency, federal bureaucracy, judiciary, civil liberties, and civil rights. Also includes the positions of economic, ethnic, and religious minorities in American society.

**POS 120 Introduction to International Relations /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Examination of contemporary international relations. Includes an overview of various frameworks for the analysis of international relations, the concept of power, formation of foreign policy, international law, international and regional organizations, and the economic, social and political determinants of global political behavior.

**POS 130 American State and Local Governments and Politics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Examination of state and local government and politics. Includes a survey of state constitutions, political parties, interest groups, elections, major institutions of state and local government, and policy making.

**POS 140 Introduction to Comparative Politics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic concepts and methods of comparative political analysis. Includes the study of both specific countries and of general concepts used to interpret the key political relationships found in virtually all national politics.

**POS 149 Independent Study in Political Science /2-4 cr. hrs./2-4 periods (2-4 lec.)**

Prerequisite(s): None.

Independent readings or special projects in political science. Content to be determined by conference between student and instructor.

**POS 160 Introduction to Political Ideas /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic concepts in political theory. Includes historical and contemporary views on justice and the good society, authority and obligations of political leaders and citizens, the tension between liberty and equality, and tenets of feminism and cultural criticism.

**POS 220 National and State Constitutions /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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. Satisfies the requirements for teacher certification.

**POS 230 Minority Groups and the Political Process /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Investigation of the position of various minority groups in the American political system. Includes general political attitudes, voting behavior, and patterns of political organization. Also includes party activity and the minority role in the formation of public policy.

**POS 250 Political Science Internship /3 cr. hrs./15 periods (15 lab)**

Prerequisite(s): WRT 101 and 6 credit hours in political science.

Internship with the City of Tucson or other local governmental unit, designed to give students practical experience in government.

**PORTUGUESE**

**POR 110 Elementary Portuguese I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Basic linguistic skills of the Portuguese language. Designed to provide proficiency in speaking, reading, writing and understanding Portuguese. Emphasis on Portuguese cultural traditions.

**POR 111 Elementary Portuguese II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): POR 110 or equivalent.

Continuation of POR 110. Designed to provide increased proficiency in listening, speaking, reading and writing. Includes continued study of cultural traditions of Portugal and Brazil.

## POSTAL SERVICE MANAGEMENT

### PSM 100 Postal History and Organization /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): None.

Examination of postal history and organization. Includes delivery of written communication and merchandise from earlier eras to the present; comparison of private, corporate and governmental agencies responsible for mail service; and postal organization, philosophies, policies, procedures, rules and regulations.

### PSM 120 Postal Service Labor-Management /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): None.

Overview of laws and practices related to Postal Service management of labor. Includes development and current status of the postal labor union, problems and issues, national and local agreements, bargaining units and associations, grievance and disciplinary procedures, and the National Labor Relations Board.

### PSM 130 Postal Employee Services /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): None.

Survey of postal personnel office services, policies and practices. Includes selection, placement, training, promotion, self-development, equal employment, insurance and retirement benefits, salary schedules, awards, and safety and health programs.

### PSM 140 Mail Processing I /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): None.

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 200 Postal Service Finance /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): None.

Principles of Postal Service finance. Includes sources, receipt and control of postal revenue; procedures of the Board of Governors and the Postal Rate Commission; budgeting; financial accounting and reporting; time keeping; travel regulations; the Postmaster General's annual report; and Administrative Services.

### PSM 210 Mailroom Procedures and Mailing Techniques /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): None.

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. Prepares student for employment in a business mailroom.

### PSM 240 Mail Processing II /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): PSM 140.

Continuation of PSM 140. Survey of mail processing. Includes postal mechanization, machine distribution, human resources management, reporting systems, data analysis, operational planning, scheduling, staffing, budgeting and functional coordination with customer services.

### PSM 250 Postal Service Delivery and Collection /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): None.

Functional study of mail delivery and collection systems within the U.S. Postal Service. Includes duties, responsibilities and skills needed in carrier crafts; management of rural delivery service; and Fair Labor Standards Act requirements. Emphasis on methods of improvement, standard operating procedures, and route inspections and evaluations.

### PSM 260 Postal Problems Analysis /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): None.

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.

### PSM 270 Postal Customer Services /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): None.

In-depth study of all services for postal customers. Includes customer relations, retailing postal products, non-postal services and duties of customer service representatives. Emphasis on means to achieve and manage a professional window service operation.

### PSM 280 Management of Small Post Offices /3 cr. hrs./3 periods (3 lec.)

Prerequisite(s): None.

In-depth study of the management of small post offices within the U.S. Postal Service. Includes duties, responsibilities and skills necessary to manage these offices in a productive and responsive manner.

## PRODUCTION INVENTORY MANAGEMENT

### **PIM 100 Master Planning for Manufacturing /1 cr. hr./ 1 period (1 lec.)**

Prerequisite(s): None.

Survey of master planning for manufacturing. Includes business planning, product forecasting and master production scheduling.

### **PIM 105 Inventory Planning Control for Manufacturing /1 cr. hr./ 1 period (1 lec.)**

Prerequisite(s): None.

Management techniques for inventory levels. Includes reorder point systems, economic order quantity, physical inventory control and aggregate inventory management.

### **PIM 110 Production Activity Control for Manufacturing /1 cr. hr./ 1 period (1 lec.)**

Prerequisite(s): None.

Techniques used in manufacturing for Production Activity Control (PAC) of the shop floor. Includes concepts of shop orders, detailed scheduling, data collection and monitoring, control and feedback and order disposition. Candidates for APICS Production Activity Control certification examination will find this course valuable.

### **PIM 115 Material and Capacity Requirements Planning for Manufacturing /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Techniques and concepts used in Material and Capacity Requirements Planning (M&CRP) for manufacturing planning control systems. Includes concepts of M&CRP and their relationship to the total field of production and inventory control, inputs and outputs to the system, and system selection and design. Candidates for APICS Material and Capacity Requirements Planning certification examination will find this course valuable.

### **PIM 120 Just-In-Time for Manufacturing /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Techniques used in manufacturing for Just-In-Time (JIT) inventory control. Includes concepts of JIT for manufacturing, total quality, setup in a JIT equipment/inventory/lead time setting, pull systems, cellular manufacturing, supplier/transportation networks, implementation and measurement of JIT.

### **PIM 125 Systems and Technologies for Manufacturing /1 cr. hr./ 1 period (1 lec.)**

Prerequisite(s): None.

Techniques for establishing planning and control systems in manufacturing. Includes concepts of appropriate technologies, the relationship of systems and technologies to the functions of production and inventory management. Candidates for the APICS Systems and Technologies certification examination will find this course valuable.

### **PIM 150 Physical Distribution Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as and MKT 150.

### **PIM 200 Production Planning /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Master planning techniques used for production management and inventory. Includes business planning, production forecasting, master production scheduling, and techniques in materials management. Candidates for APICS Master Planning certification examination will find this course valuable.

### **PIM 203 Purchasing for Production/Inventory Management /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): None.

Techniques for purchasing and inventory management. Includes the purchasing function, department organizations, order control, and the integration of purchasing with a closed-loop Material Requirements Planning (MRP) system.

### **PIM 205 Inventory Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Techniques used for the management of inventory levels within a manufacturing environment. Includes reorder point and reorder/quantity systems, economic order quantity, physical inventory control and aggregate inventory management. Candidates for the APICS Inventory Management certification examination will find this course valuable.

### **PIM 210 Production Control /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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). 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.)**

Prerequisite(s): None.

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. Candidates for APICS Material and Capacity Requirements Planning certification examination will find this course valuable.

**PIM 225 Systems and Technologies /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Techniques and concepts used in manufacturing planning and control systems. Includes a focus on the relationship of systems and technologies to the strategic environment for manufacturing and to the functions of production and inventory management. Candidates for the APICS Systems and Technologies certification examination will find this course valuable.

**PROFESSIONAL FIRE SCIENCE**

**PFS 191 Fire Chief Training /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Preparation for professional fire personnel to become chief officers. Includes incident command, communications and disaster management.

**PSYCHOLOGY**

**PSY 095 Understanding Human Behavior /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The scientific approach to the study of psychology, surveying the physiological, intrapsychic and social-behavioral views of human thought and behavior. Includes sensation and perception, motivation, learning and memory, maturation and development, personality theory and psychotherapy.

**PSY 100A Psychology I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of psychology. Growth of the individual, behavior disorders, social psychology, learning and history of the field.

**PSY 100B Psychology II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of psychology. Biological bases of behavior, sensation, perception, motivation, emotion and stress.

**PSY 101 Introduction to Psychology /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Survey of general psychology, including history and systems, physiology, sensation and perception, learning, motivation, cognition, development, personality, social and psychopathology. Content is a combination of elements of PSY 100A and 100B. Twelfth grade reading level or above is strongly recommended.

**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 210 The Brain /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): PSY 100B or 101.

The study of the anatomy and functioning of the brain and its relationship to thought and behavior. Includes sensing and moving, rhythms and drives, stress and learning and other related topics.

**PSY 211 The Mind /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The nature of the mind and its relation to the human body. Includes development of the mind, addictions, healing, depression, language processing, thinking and the violent mind.

**PSY 214 Abnormal Psychology /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): PSY 100A or 101, or consent of instructor.

Examination of primary patterns of behavior disorders, including different perspectives on the causes and treatment approaches.

**PSY 215 Human Sexuality /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Examination of human sexual experience throughout the life cycle, viewed from sociological and psychological perspectives. (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.

An overview of the area of health psychology, including mind-body relationships, behavioral 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. Current social and attitudinal considerations are reviewed.

**PSY 228 Introduction to Psychodrama /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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, 100B, MAT 122.

Measurement, quantitative description and statistical inference as applied to psychological variables. Designed for students planning to major or minor in psychology.

**PSY 231 Introduction to Individual Differences and Testing /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): PSY 100A or 101 or consent of instructor.

Survey of individual differences and related assessment techniques (how to interpret test results and what they reveal and don't reveal).

**PSY 242 Futures: A Psychological Perspective /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): PSY 100A or 101 or consent of instructor.

Psychological processes of designing, planning, and thinking about the future. Includes mind/brain in worldmaking, evolution of socio/cultural systems, theories of change, and action and organization. Also includes the tools for personal futures thinking with an emphasis on the exploration of alternative futures.

**PSY 250 Introduction to Social Psychology /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): PSY 100A or 101 or consent of instructor.

Basic theories and concepts of social psychology and the individual's experience in group situations.

**PSY 265 Normal Personality I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): PSY 100A or 101 or consent of instructor.

Psychological functioning and coping behaviors for normal personality development.

**PSY 266 Normal Personality II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): PSY 265.

Continuation of PSY 265. Further study of normal personality through participation in groups. A variety of approaches for self-understanding and personal growth are available, depending on the instructor and the class. For further information regarding specific semester offerings, contact the behavioral sciences area.

**PSY 270 Meditation /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as HUM 270.

**PSY 271 Social Psychology of Sport /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as SOC 271.

**PSY 290 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 290A 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. Designed for students planning to major or minor in psychology.

**PSY 290B Laboratory for Research Methods /1 cr. hr./3 periods (3 lab)**

Prerequisite(s): PSY 290A or concurrent enrollment.

Laboratory on experimental research and report writing for PSY 290A. Includes conducting, analyzing and writing reports on original research.

**PSY 294 Special Topics in Psychology: /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): PSY 100A and 100B, or 101, or consent of instructor.

Variable content designed to respond to advances in psychology, relationships between psychology and other areas, special student interests and needs and faculty expertise in special topics. (Consult current class schedule for specific content.)

**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. May be taken two times for a maximum of six credit hours.



**PSY 298 Social Psychology Practicum /1-6 cr. hrs./3-18 periods (3-18 lab)**

Prerequisite(s): PSY 100A or 101 or consent of instructor.

Familiarization with specific areas of social psychology. Includes pertinent research, directed observation, and personal participation in relevant experimental or natural settings. May be taken two times for a maximum of six credit hours.

**PUBLIC ADMINISTRATION**

**PAD 105 Introduction to Public Administration /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Major issues, problems and options facing public sector policy-makers and administrators.

**PAD 204 Introduction to the Analysis of Data for Decision Making / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Informal and exploratory approaches to the analysis of empirical data in a managerial decision making context.

**QUALITY CONTROL TECHNOLOGY**

**QCT 101 Quality Control I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 092 or satisfactory score on 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): DFT 101, 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.

**QCT 230 Machine Shop Inspector Skills /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Application of inspection techniques in the machine shop. Includes inspection requirements, measurement principles, mathematics, inspection equipment, threads and special applications of inspection.

**QCT 235 Quality Control Certification Refresher /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Background and experience in quality control engineering. Refresher course in preparation for the Quality Control Engineer certification offered through the American Society for Quality Control.

**QCT 250 Introduction to Statistical Quality Control /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 167.

Overview of quality assurance in the modern business and manufacturing environments. Emphasizes statistical methods used in quality assurance, statistical process control, reliability, simple experimental design and sampling methods of acceptance.



## RADIOLOGIC TECHNOLOGY

### **RAD 171 Medical Imaging Fundamentals /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

Prerequisite(s): Admission into program.

Principles of radiographic imaging. Includes medical imaging equipment, positioning the upper extremities, abdomen, and chest, image formation, patient care, and radiation protection.

### **RAD 172 Medical Imaging Technology I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): RAD 171 and consent of department chairperson.

Radiographic image production and evaluation. Includes image quality, quality assurance, radiation protection, and film processing.

### **RAD 173 Radiographic Positioning I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): RAD 171 and consent of department chairperson.

Routine and special radiographic positioning of the skeletal system, exclusive of the skull. Includes anatomy, pathology, and radiographic evaluation.

### **RAD 174 Clinical Education I /4 cr. hrs./16 periods (16 lab)**

Prerequisite(s): RAD 171 and consent of department chairperson.

Application of general radiographic procedures in a clinical education center under the supervision of a certified radiographer.

### **RAD 175 Clinical Education II /6 cr. hrs./24 periods (24 lab)**

Prerequisite(s): RAD 172, 173, 174.

Continuation of RAD 174. Includes mobile and emergency radiographic procedures.

### **RAD 181 Medical Imaging Technology II /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): RAD 175.

Principles of x-ray production. Includes radiation physics, radiographic equipment, and radiation safety.

### **RAD 182 Radiographic Positioning II /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): RAD 175.

Routine radiographic positioning for mammography and fluoroscopic procedures. Includes upper/lower gastrointestinal tract, biliary, genitourinary systems. Also includes anatomy and contrast media, patient care and management.

### **RAD 183 Clinical Education III /6 cr. hrs./24 periods (24 lab)**

Prerequisite(s): RAD 175.

Continuation of RAD 175. Includes fluoroscopic and surgical radiographic procedures.

### **RAD 184 Medical Imaging Technology III /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): RAD 181, 182, 183.

Specialized and advanced medical imaging systems. Includes mobile radiography, tomography, image intensification, special procedures, Nuclear Medicine, Ultrasound, CT Scanning, and Magnetic Resonance Imaging.

### **RAD 185 Radiographic Positioning III /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): RAD 181, 182, 183.

Routine and specialized radiographic positioning for examination of the skull. Includes radiographic critique, vascular imaging, radiation biology, aseptic technique, and management of acute situations.

### **RAD 186 Clinical Education IV /6 cr. hrs./24 periods (24 lab)**

Prerequisite(s): RAD 181, 182, 183.

Continuation of RAD 183. Includes special radiographic procedures and skull radiography.

### **RAD 188 Clinical Education V /6 cr. hrs./24 periods (24 lab)**

Prerequisite(s): RAD 184, 185, 186.

Continuation of RAD 186. Includes procedures in Computerized Tomographic Scanning, and Magnetic Resonance Imaging.

### **RAD 191 Clinical Education VI /6 cr. hrs./24 periods (24 lab)**

Prerequisite(s): RAD 188 and concurrent enrollment in RAD 192.

Continuation of RAD 188. Includes general, surgical, special and advanced medical imaging procedures.

### **RAD 192 Clinical Seminar /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): RAD 188 and concurrent enrollment in RAD 191.

Presentations on radiographic procedures. Includes patient care, radiation protection, equipment operation, and image production.

### **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.

**READING****REA 040 Basic Reading /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Development of skills necessary to prepare for and pass the General Education Development (GED) test.

**REA 068 Techniques of Vocabulary /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Vocabulary improvement through a variety of methods such as structural analysis and context clues. Emphasis on understanding word roots and derivatives to enable students to expand their existing vocabularies and use words correctly. May be taken four times for a maximum of four 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. 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.)**

Prerequisite(s): None.

Methods and techniques for reading with greater understanding. Various levels of comprehension are explained and applied to diverse reading materials. Emphasis on following directions, recognizing main ideas and supporting details, recognizing sequence, making inferences, drawing conclusions and differentiating between fact and opinion. May be taken four times for a maximum of eight credit hours.

**REA 075 Spelling /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

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. May be taken two times for a maximum of two credit hours.

**REA 077 Study Skills /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Development of skills in listening, remembering, note taking, outlining, applying study methods and interpreting pictorial aids. May be taken four times for a maximum of eight credit hours.

**REA 078 Test-Taking Techniques /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Techniques of preparing for and taking various types of tests as found in a college setting. May be taken four times for a maximum of four 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. Designed for persons who need to improve reading strategies in order to increase their success in college. 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. Designed for persons who need to improve reading strategies in order to increase their success in college. May be taken two times for a maximum of eight credit hours.

**REA 112 College Reading I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): Successful completion of REA 091 with grade of "C" or better, satisfactory score on reading assessment test or instructor recommendation.

Development of college reading strategies. Includes emphasis on mastering and applying college reading strategies and developing sophistication in applying critical thinking and study strategies in order to help the student succeed in college or other occupational environments. Designed for persons near or at college level. May be taken two times for a maximum of eight credit hours.



**REA 120 College Reading II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): Successful completion of REA 112 with grade of "C" or better, satisfactory score on reading assessment test or instructor recommendation.

Refinement of college reading. Includes emphasis on refining and applying college reading strategies and on applying critical thinking and study strategies. Designed for persons at college reading level who want additional instruction in reading, critical thinking and study strategies. May be taken two times for a maximum of eight credit hours.

**REA 125 Speed Reading /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): Comprehension score of 12.0 on the college reading assessment test.

Improvement of reading rate. Emphasis on comprehension and analysis of written passages using various visual perception techniques.

**REAL ESTATE**

**RLS 101 Introduction to Real Estate Principles /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Introduction to real estate, including associated rules and regulations. 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 102 Real Estate Practices /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): RLS 101 or Arizona Real Estate Salesman's License.

Real estate practices and government involvement as they affect individuals and business firms. Includes urban redevelopment, urban planning, property rights, ownership, financing, brokerage and evaluation.

**RLS 105 Principles of Real Estate/License Preparation /6 cr. hrs./6 periods (6 lec.)**

Prerequisite(s): None.

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. RLS 105 covers the same material as RLS 101, but more in-depth.

**RLS 120 Real Estate Escrow Principles /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The concept and fundamental principles of real estate escrow. Includes opening, processing and closing escrow accounts.

**RLS 133 Property Management / .25 cr. hr./ .25 period (.25 lec.)**

Prerequisite(s): None.

Property management for the real estate professional. Topics covered include leases, types of property management, income property investments, overview of the National Institute of Real Estate Management and types of certifications available to property managers.

**RLS 201 Real Estate Law /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic principles and application of real estate law. Includes freehold estates, landlord and tenant, concurrent ownership, easements, profits, licensing, deeds and conveyances, and recording.

**RLS 202 Real Estate Appraisals /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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. (Same as FIN 205.)

**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**

**RIM 121 Introduction to Health Information Management /2 cr. hrs./ 2 periods (2 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Principles and procedures of filing and practice in the basic filing systems. Includes filing rules, filing systems, and file maintenance and management.

**RIM 132A Records Management: Filing Systems A /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

The indexing, coding, cross-referencing and alphabetizing of personal and business, government agency and other names.

**RIM 132B Records Management: Filing Systems B /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): RIM 132A.

Alphabetical rules of filing applied to geographic, subject and numeric filing. Also deals with methods of storing and retrieving information and plans for retention, transfer and disposal of records.

**RIM 132C Records Management: Filing Systems C /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): RIM 132B.

Filing procedures used in subject, numeric and/or geographic filing.

**RIM 133 Records Management: Development of a Program /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): None.

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): ASC 262, BIO 204, RIM 121.

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 231A Records Management: Forms Management /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): RIM 131.

Analysis of current forms, design of new forms, and the establishment of a forms management program.

**RIM 231B Records Management: Micrographics /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): RIM 131.

The photographic process, selection and operation of equipment, selection of supplies, use of indexing systems, design of micrographic systems and standards, legality, trends and integration of micrographics in records management.

**RIM 231C Records Management: Automated Retrieval /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): RIM 131.

Non-computerized information management systems. Includes practice in using the computer to create, maintain and report information.

**RIM 232 Records Management: Supervision /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): RIM 131.

A practical approach to office organization and administrative management. Emphasizes management of administrative services, physical resources, human resources, systems and procedures.

**RIM 233 Supervision and Administration of Records /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): RIM 133.

Theory and practice of administrative record keeping. Includes supervision of records, forms management, and records management technology.

**RECREATION****REC 225 Fieldwork /4-8 cr. hrs./20-40 periods (20-40 lab)**

Prerequisite(s): Completion of coursework in program.

Field experience providing the opportunity to apply coursework in a planned and supervised recreational setting. May be taken two times for a maximum of eight credit hours.

**RELIGION****REL 119 Western Religions /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 120 Old Testament /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Major books of the Old Testament. Includes literary forms, historical context, moral implications of the literature, and religious significance.

**REL 121 New Testament /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Major books of the New Testament. Includes literary forms, historical context, moral implications of the literature, and religious significance.

**REL 130 Asian Religions /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Same as PHI 140.

**REL 234 Islam /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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 294 Special Topics in Religious Studies: /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Variable content designed to study specific topics in religious studies. Consult current class schedule for semester offerings.

**RESERVE OFFICERS TRAINING CORPS-ROTC-AIR FORCE****MLA 100A Air Force Today I /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

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. (Course offered in cooperation with the University of Arizona.)

**MLA 100B Air Force Today II /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

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. (Course offered in cooperation with the University of Arizona.)

**MLA 200A History of Air Power I /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

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. (Course offered in cooperation with the University of Arizona.)

**MLA 200B History of Air Power II /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

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. (Course offered in cooperation with the University of Arizona.)

**RESERVE OFFICERS TRAINING CORPS-ROTC-ARMY****MLS 100 Introduction to Leadership /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Organization of the Army. Includes principles and techniques of applied leadership, customs, traditions and military courtesy. (Course offered in cooperation with the University of Arizona.)

**MLS 101 Leadership Principles /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Principles and techniques of military leadership. Includes customs, basic marksmanship, first aid, land navigation, small-unit tactics and practicum. (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.)**

Prerequisite(s): None.

Military staff organization and operation. Includes procedures and conduct of military briefings and benefits. (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.)**

Prerequisite(s): None.

Responsibilities and obligations of a commissioned officer. Includes small unit leadership, motivation and practicum. (Course offered in cooperation with the University of Arizona.)

**RESERVE OFFICERS TRAINING CORPS-ROTC-NAVY****NSP 100 Naval Laboratory I /1 cr. hr./2 periods (2 lab)**

Prerequisite(s): None.

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. 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.)**

Prerequisite(s): None.

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. (Course offered in cooperation with the University of Arizona.)

**NSP 102 Naval Ship Systems I: Engineering /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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. (Course offered in cooperation with the University of Arizona.)

**NSP 200 Naval Laboratory II /1 cr. hr./2 periods (2 lab)**

Prerequisite(s): None.

Continuation of NSP 100. For sophomore NROTC students at the University of Arizona. 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.)**

Prerequisite(s): None.

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. Field trip. (Course offered in cooperation with the University of Arizona.)

**NSP 202 Sea Power and Maritime Affairs /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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. Field trip. (Course offered in cooperation with the University of Arizona.)

**RESPIRATORY THERAPY****RTH 171 Introduction to Respiratory Care /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): Admission to the RTH program or consent of instructor.

An overview of respiratory therapy as it is currently practiced. A brief history of medicine as it relates to respiratory therapy and concepts in respiratory physiology. Included is an introduction to basic nursing arts, medical terminology and utilization of the medical record. Students will learn and demonstrate interpersonal skills, discuss aspects of death and dying as well as legal and ethical aspects of delivering health care. Students will also learn CPR techniques and may receive AHA basic CPR certification.

**RTH 173 Pharmacology for Respiratory Therapists /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): RTH 171, CHM 130.

General principles of pharmacology, drug dose calculations and methods of administration. Specific emphasis on drugs used by respiratory therapists as well as discussion of other drugs used in the treatment of cardiopulmonary disorders.

**RTH 180 Microbiology for Respiratory Therapists /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Acceptance into RTH program and BIO 160.

Principles of microbial systems. Includes microorganisms, microbial disease process, control of infectious agents and infection control procedures specific for respiratory care.

**RTH 181 Infection Control for Respiratory Care /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): BIO 205.

Principles of infection control employed in the hospital's respiratory care department. Includes discussion of organisms responsible for contamination in respiratory care and techniques for preventing contamination.

**RTH 182 Respiratory Physiology /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): BIO 160, RTH 171.

In-depth study of the cardiopulmonary system, associated structures and principles involved in ventilation and gas transport.

**RTH 183 Basic Therapeutics in Respiratory Care /5 cr. hrs./7 periods (4 lec., 3 lab)**

Prerequisite(s): RTH 171.

Basic respiratory care therapeutics, equipment used and their clinical indication to include medical gas administration, humidity and aerosol therapy, IPPB therapy and its alternatives, chest physiotherapy, advanced life support techniques, blood sampling and gas analysis.

**RTH 184 Critical Care Therapeutics /5 cr. hrs./7 periods (4 lec., 3 lab)**

Prerequisite(s): RTH 173, 182, 183.

Principles of critical care procedures to include airway management, continuous mechanical ventilation of the adult, monitoring techniques and associated equipment used for ventilation and monitoring.

**RTH 185 Diagnostic Studies /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): RTH 182.

Diagnostic procedures and testing techniques employed in the detection, monitoring and treatment of adult and pediatric cardiorespiratory disorders.

**RTH 186 Cardiorespiratory Disorders I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): RTH 173, 182, 183.

A study of commonly encountered respiratory disorders in the adult patient. Case studies of specific disorders will be presented by students.

**RTH 187 Advanced and Specialty Therapeutics /5 cr. hrs./7 periods (4 lec., 3 lab)**

Prerequisite(s): RTH 184 and concurrent enrollment in RTH 189 and 193.

Basic and advanced respiratory care for the pediatric and neonatal patient, pulmonary rehabilitation and home care procedures, practical aspects of respiratory therapy department function and recent advances in respiratory therapy equipment.

**RTH 189 Cardiorespiratory Disorders II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): RTH 186 and concurrent enrollment in RTH 187 and 193.

A continuation of the study of pathophysiology of cardiorespiratory disorders and treatment. Case studies of specific disorders will be presented by students.

**RTH 191 Clinical Procedures I /4 cr. hrs./16 periods (16 lab)**

Prerequisite(s): RTH 173, 182, 183.

Clinical application of all prerequisite respiratory care course work with emphasis on basic respiratory care therapeutics.

**RTH 192 Clinical Procedures II /4 cr. hrs./16 periods (16 lab)**

Prerequisite(s): RTH 191 and concurrent enrollment in RTH 184, 185 and 186.

Clinical application of all prerequisite respiratory care course work with emphasis on adult critical care therapeutics.

**RTH 193 Clinical Procedures III /6 cr. hrs./24 periods (24 lab)**

Prerequisite(s): RTH 192 and concurrent enrollment in RTH 187 and 189.

Clinical practice in hospitals and selected health related agencies with emphasis on adult and pediatric critical care therapeutics and monitoring; specialty therapeutics to include rehabilitation, home care and management techniques.

**RESTAURANT, CULINARY AND FOODSERVICE MANAGEMENT****RCF 100 Basic Foodservice Skills /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Kitchen and dining room preparation skills. Includes foodservice sanitation and hygiene, safety, kitchen equipment and knives, food storage, inventory control, recipe usage, dining room service and skills, and dish room and kitchen preparation skills.

**RCF 101 Principles of Restaurant Operations /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Fundamentals of operating and managing small and large restaurants. Includes work stations, food preparation equipment, personnel, sanitation, safety, costs, and food and beverage service.

**RCF 102 Foodservice Specialties I/Culinary Preparation /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Preparation of cuisine specialties. Includes meat, fish, seafood, poultry, vegetables, soups, sauces and gravies. Also includes organizing, planning and writing menus.

**RCF 103 Foodservice Specialties II/Baking /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): None.

Essentials of baking. Includes preparation of yeast rolls, breads, cakes, cookies, tarts, doughnuts, and desserts. Emphasis on use and care of equipment, sanitation, safety and hygiene.

**RCF 104 Foodservice Specialties III/Garde-Manger /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): RCF 102.

Creation and storage of salads, sandwiches, and appetizers. Includes eye appeal, texture, color contrast, artistic touch and harmony of combinations.

**RCF 105 Advanced Techniques in Garde-Manger /3 cr. hrs./4 periods (2 lec., 2 lab)**

Prerequisite(s): RCF 104.

Techniques for preparing aspics, pates, terrines, gelatins, chaudfroids and carvings. Includes the use of tallow, salt and sugar. Manipulation of garde-manger tools is stressed.

**RCF 106 Advanced Techniques in Gourmet Food Preparation /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): RCF 105 or concurrent enrollment.

Preparation of haute cuisine. Includes proper flavorings, spirits, garnishes and flambe in gourmet food preparation.

**RCF 107 Restaurant Sanitation /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Examination of techniques for controlling sanitation in the foodservice operation. Includes product quality, and time and cost management. Pima County Food Sanitation Certification test given at midterm.

**RCF 109 Food and Beverage Control /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): BUS 151, HOS 102.

Principles and procedures for food and beverage systems. Includes planning, control systems design, cost analysis and control of sales income and labor costs.

**RCF 110 Restaurant/Banquet Service /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): None.

Concepts and duties of a table server. Includes creative selling, basic etiquette and styles of service, electronic service, teamwork, basics of generic and varietal wines, wine and food affinities, bar service, sanitation and safety, and review/performance appraisals. (Same as HOS 110.)

**RCF 115 Meat Cutting for the Foodservice Industry /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Butchering of meat for quantity food preparation. Includes history, purchasing guidelines, government regulations, cuts, and usage for pork, lamb/veal, and beef.

**RCF 120 Nutrition in Foodservice /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Principles of culinary nutrition. Includes scientific aspects, life-style impact on food consumption and production, and nutrition applications in foodservice.

**RCF 201 Catering and Banquet Sales and Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): RCF 101 and/or one year's experience working in the hospitality-tourism industry.

Techniques of food and beverage sales and service operation. Includes functions of marketing, marketing plan, operations, menu planning, and advertising and promotion. (Same as HOS 201.)

**RCF 297 Restaurant, Culinary, and Foodservice Seminar: / .25-4 cr. hrs./25-16 periods (.25-4 lec., .25-12 lab)**

Prerequisite(s): Consent of instructor.

Restaurant, culinary, and foodservice job-related training. Includes presentations and development of skills in a given area and topics of timely or limited interest.

**ROBOTICS**
**ROB 270 Robotics and Automated Systems: Mechanical /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): PHY 101, 102, or 115.

Same as MAC 270.

**ROB 271 Programmable Logic Controllers /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): MAC 270 or ROB 270.

Same as MAC 271.

**RUSSIAN**
**RUS 110 Elementary Russian I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Introduction to the Russian language. Designed to provide proficiency in basic communication (listening, speaking, reading and writing). Emphasis on Russian cultural traditions.

**RUS 111 Elementary Russian II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): RUS 110.

Continuation of RUS 110. Designed to provide increased proficiency in listening, speaking, reading, and writing. Continued emphasis on Russian cultural traditions.

**SAFETY EDUCATION**
**SED 101 Lift Truck Operations /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): Valid Arizona driver license.

Principles and procedures for operating lift trucks. Includes electric, diesel and gasoline lift trucks, pre-operational checks, starting, operating and safety.

**SED 110 Sit-down Lift Truck Operations /3 cr. hrs./7 periods (1 lec., 6 lab)**

Prerequisite(s): Current Arizona driver license.

Principles and procedures for sit-down lift truck operations. Includes pre-operational safety check, starting, driving, and safety techniques.

**SED 115 Stand-Up, Narrow-Aisle Lift Truck Operations /2 cr. hrs./ 4 periods (1 lec., 3 lab)**

Prerequisite(s): Current Arizona driver license.

Principles and procedures for stand-up, narrow-aisle lift truck operations. Includes pre-operational safety check, starting, driving, and safety techniques.

**SHEET METAL****SML 101 Sheet Metal and Pattern Layout I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): None.

Basic sheet metal and pattern layout techniques. Includes safe use of sheet metal hand tools and machines, soldering, riveting, spot welding, parallel-line development and geometric construction.

**SML 102 Sheet Metal and Pattern Layout II /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): SML 101.

Continuation of SML 101. Sheet metal practices and radial-line development. Includes duct fabrication and duct connections, pattern layout of such forms as cones, pyramids and transition pieces. Also includes triangulation methods.

**SML 103 Precision Sheet Metal I /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): SML 102 or MAC 110.

Precision sheet metal layout and construction. Includes precision layout tools and construction of precision parts holding close tolerances.

**SIGN LANGUAGE****SLG 050 Conversational Sign Language I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Conversational sign language skills. Includes intermediate vocabulary, deaf culture, and other signing modes of communicating with the deaf.

**SLG 055 Conversational Sign Language II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SLG 050.

Conversational sign language skills. Includes intermediate vocabulary, deaf culture, and other signing modes of communicating with the deaf.

**SLG 101 American Sign Language I /4 cr. hrs./6 periods (3 lec., 3 lab.)**

Prerequisite(s): None.

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. Students will be required to spend a minimum of ten hours per semester in the sign language laboratory outside of regularly scheduled classroom hours. 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. Students will be required to spend a minimum of ten hours per semester in the sign language laboratory outside of regularly scheduled classroom hours. This class is conducted primarily without voice.

**SLG 105 Expressive/Receptive Fingerspelling and Numbers /2 cr. hrs./ 2 periods (2 lec.)**

Prerequisite(s): SLG 101.

Refinement of receptive and expressive sign language skills with the manual alphabet and numbers. Includes methodology, theory, and application. Students will be required to spend a minimum of five hours per semester in the sign language laboratory outside of regularly scheduled classroom hours. (Same as ITP 105.)

**SLG 110 Introduction to Disabilities and Audiology /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SLG 101 or consent of instructor.

Same as ITP 110.

**SLG 120 History of Deafness /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SLG 101.

Status of deaf individuals in Western cultures from early civilizations to the present. Includes treatment, education, legal status, and political and philosophical stances supporting each. (Same as ITP 120.)

**SLG 199 Co-op Related Class in SLG /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): SLG 201 or consent of instructor.

See Cooperative Education section for description.

**SLG 199 Co-op Work in SLG /1-8 cr. hrs./5-40 periods (5-40 lab)**

Prerequisite(s): SLG 201 or consent of instructor.

See Cooperative Education section for description.

**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. Students will be required to spend a minimum of ten hours per semester in the sign language laboratory outside of regularly scheduled classroom hours. This class is conducted primarily without voice. (Same as ITP 201.)

**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. Students will be required to spend a minimum of ten hours per semester in the sign language laboratory outside of regularly scheduled classroom hours. This class is conducted primarily without voice. (Same as ITP 202.)

**SOCIAL SERVICES****SSE 110 Introduction to Social Welfare /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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 112 Casework Methods I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 examination of case examples from various social service settings.

**SSE 120 Drugs in American Society /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Introduction to the drug problem in the United States. Includes classification of drugs, historical review of drug law, theories of addiction, treatment strategies, cultural perspectives, and treatment interventions. Also includes an examination of drug use from the philosophical and social viewpoints.

**SSE 122 Introduction to Alcohol Abuse /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Introduction to the historical use and abuse of alcohol. Includes identification and treatment, treatment alternatives, ethical issues, special populations, education, and resources available to abusers, alcoholics, and their families.

**SSE 130 Gerontology: Casework Practice /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SSE 112 recommended.

Development of casework management skills specializing on the elderly. Includes intake, assessment, referral, care planning, communication within a professional team setting, and the wellness of elders living in the community.

**SSE 132 Aging: Health and Physiology /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SSE 130 recommended.

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.

**SSE 140 Domestic Violence: Causes and Cures /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Same as AJS 146.

**SSE 150 Introduction to Eating Disorders /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

History, dynamics, prevalence, and treatment approaches to eating disorders. Includes anorexia nervosa, bulimia, and obesity. Also includes the history and background of attitudes toward these disorders and biological, psychoanalytic, behavioral, and other theoretical perspectives.



**SSE 151 Treatment Modalities for Eating Disorders /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Dynamics and approaches to the treatment of eating disorders. Includes diagnosis, psychological assessment, forms of intervention including psychotherapeutic, and clinical issues encountered in treatment.

**SSE 152 Medical Aspects of Eating Disorders /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Introduction to the classification, epidemiology, and physiology of obesity, anorexia, compulsive overeating, and bulimia. Includes weight control and fad diets, endocrinology, psychopharmacology, and nutritional assessment. Also includes treatment and recovery.

**SSE 154 Nutrition /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as FSN 114.

**SSE 191 Field Placement Gerontology I /4 cr. hrs./16 periods (1 lec., 15 lab)**

Prerequisite(s): SSE 110, 130.

Supervised placement in a gerontologic social service setting.

**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 112.

Advanced techniques in interviewing, recording, client evaluation, case management, strategies for intervention, and special populations. Also includes the application of advanced skills through a variety of interviewing settings.

**SSE 214 Human Behavior in the Social Environment /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Consent of instructor, or PSY 101, SOC 101, and BIO 156 or 160.

Introduction to the interrelation of biological, psychological, sociological, and cultural systems and their effects on behavior as the basis for social work practice. Includes a focus on the development of children and youth in ethnic minority families of the southwest, and influences of the family, group, and culture in shaping human behavior.

**SSE 216 Social Policy and Services /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Consent of instructor, or ECN 202, POS 110, SSE 110, SSE 210.

History, philosophy, and values of social welfare policy as it interacts with social problems. Includes function and role of social welfare in society and development of the social work profession and practice.

**SSE 220 Treatment of the Substance Abuser /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SSE 120. SSE 122 recommended.

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. SSE 122 recommended.

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.

Principles and practice of crisis intervention. Includes techniques of intervention, referrals, and diagnosis utilized in resolving crisis situations encountered in social service settings.

**SSE 290 Social Services Field Experience /4 cr. hrs./16 periods (1 lec., 15 lab)**

Prerequisite(s): SSE 112 and consent of instructor.

Supervised placement in community social services agencies. Includes classroom seminars which discuss pertinent theory and issues raised through the field experience. May be taken two times for a maximum of eight credit hours.





**SSE 291 Field Placement Gerontology II /3 cr. hrs./15 periods (15 lab)**

Prerequisite(s): SSE 191.

Continuation of SSE 191. Includes in-depth working relations with the elderly within a supervised placement.

**SSE 298 Topics in Community Involvement /1-6 cr. hrs./1-6 periods (1-6 lec.)**

Prerequisite(s): Consent of instructor.

Same as SOC 298.

**SOCIOLOGY**

**SOC 101 Introduction to Sociology /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Introduction to the basic concepts of sociology and sociological analysis with emphasis on group, status, personality, role, socialization, social processes, institutions, social organization, and social change.

**SOC 103 Explorations in Prejudice /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SOC 101.

Why we hate each other. What we, as participants in this course, do about our own prejudice and prejudice in the community.

**SOC 110 Introduction to Cities and Community Planning /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SOC 101.

Introduction to the study of the urban environment, including its history, structure and dynamics. Special emphasis on understanding the function of cities on the local level.

**SOC 120 Current United States Social Problems /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SOC 101.

Analysis of such forms of social disorganization as crime, mental illness and urban problems as they relate to modern American society. Problems are studied within the context of the international community.

**SOC 127 Marriage and the Family /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as HEC 127.

**SOC 166 Social Gerontology I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Introduction to the bio-cultural and holistic study of aging, dying and death. 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.)**

Prerequisite(s): None.

Analysis of minority relations and urban society. Emphasis on minority socialization, social order and conflict and current social trends.

**SOC 203 Sociology of Utopia /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

An exploration of life in the ideal society. Includes "alternative lifestyles" and the history of the communal movement in America with special emphasis on the literature of Utopia and modern communal experimentation.

**SOC 204 Women in Society /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Examination of the status of women in society. Includes the legal, social, economic, religious and psychological factors affecting their status.

**SOC 215 Human Sexuality /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Same as PSY 215.

**SOC 271 Social Psychology of Sport /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Analysis of the relationship of sport to the social psychological principles of socialization, values, concentration, anxiety, aggression, motivation, team interactions, and peak performance. (Same as PSY 271.)

**SOC 273 Sociology of Sport /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 Individual Studies in Sociology /1-6 cr. hrs./1-6 periods (1-6 lec.)**

Prerequisite(s): Consent of instructor.

Exploration of special interest areas. Content to be determined by conference between student and instructor.

**SOC 298 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 working individually or in small teams through guidance and periodic consultations with faculty advisors. Also includes special activities to be determined by the advisors. Students employed or working as volunteers with agencies or groups may get credit for those activities under this course. (Same as SSE 298.)

**SOLAR ENERGY TECHNOLOGY****SET 101 Solar Energy Fundamentals /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Basic solar collector systems. Includes residential heating and cooling systems, refrigeration and evaporative cooling systems, solar system sizing and energy costs.

**SPANISH****SPA 050 Conversation for Beginners I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Listening to and speaking elementary Spanish, emphasizing prevailing local and regional terminologies. Designed for persons with no previous knowledge of Spanish.

**SPA 050A Conversation for Beginners-Pronunciation /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Listening to and speaking elementary Spanish, emphasizing pronunciation, cognates and proper grammar. Includes greetings, enquiries, numbers up to 100, dates and telling time.

**SPA 050B Conversation for Beginners-Directions, Weather, Numbers /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): SPA 050A.

Listening to and speaking elementary Spanish, emphasizing grammatical patterns, directions, weather terms and regular verbs. Includes using numbers up to 1,000 to express distance and prices.

**SPA 050C Conversation for Beginners-Numbers, Colors, Clothing / 1 cr. hr./1 period (1 lec.)**

Prerequisite(s): SPA 050B.

Listening to and speaking elementary Spanish, emphasizing irregular verbs in the present tense, command forms of verbs, colors and clothing. Includes using numbers greater than 1,000 for prices and distance.

**SPA 050D Conversation for Beginners-People, Things, Dining, Furniture, Body /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): SPA 050C.

Listening to and speaking elementary Spanish, emphasizing vocabulary describing people, things, food, the body and furniture. Includes common expressions related to the above.

**SPA 051 Conversation for Beginners II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): SPA 050 or equivalent.

Designed for persons able to ask and respond to simple questions relevant to self and to the environment.

**SPA 052 Advanced Conversational Spanish /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): SPA 051 or 111.

Continued practice in listening to and speaking Spanish. Designed for persons with essential knowledge of Spanish. Classes are conducted in Spanish.

**SPA 070 Spanish for Medical Personnel /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 110 Elementary Spanish I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Skill development to provide proficiency in basic communication (listening, speaking, reading and writing), emphasizing an examination of Spanish cultural traditions.

**SPA 111 Elementary Spanish II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): SPA 110 or equivalent.

Continuation of SPA 110. Designed to provide increased proficiency in listening, speaking, reading and writing. Includes continued study of Spanish cultural traditions.

**SPA 201 Spanish for Native Speakers I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): Ability to speak Spanish.

Skill development designed to prepare native speakers for composition and Spanish literature courses through grammatical review, and comprehensive reading and writing in Spanish.

**SPA 202 Spanish for Native Speakers II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): SPA 201.

Intensified continuation of SPA 201. Major emphasis on literature and grammar.

**SPA 205 Creative Literature I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Principles and practice of creative writing. Includes study and application of literary techniques used in works of local and other authors. Also includes the oral tradition of local legends. Students' best works are published in Lluve Tlaloc, the bilingual literary magazine.

**SPA 206 Creative Literature II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SPA 205.

Continuation of SPA 205. Further study of literary techniques and development of students' writing abilities. The best writings are published at the end of the school year in Lluve Tlaloc, the bilingual literary magazine.

**SPA 210 Intermediate Spanish I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): SPA 111 or two years of high school Spanish.

Continuation of SPA 111. Intensive review of grammar in addition to reading selected authors and writing short compositions. Emphasis on continued practice in speaking Spanish.

**SPA 211 Intermediate Spanish II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): SPA 210.

Continuation of SPA 210. Intensive review of grammar in addition to reading selected authors and writing short compositions. Emphasis on efficient and contemporary language usage.

**SPA 217 Spanish for Business Communications /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): SPA 210 or equivalent and BUS 100 or equivalent, or consent of instructor.

Spanish for general use in business. Business terminology, situations and correspondence in Spanish, including cultural differences that can affect business transactions. Provides contact with bilingual business people who lecture throughout the semester in Spanish in their area of expertise.

**SPA 230 Introduction to Literature in Spanish /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): SPA 102, 211.

Survey of literature written in Spanish. Designed to give students a broader knowledge of the language through literature selected from representative Spanish, Latin American and Chicano writers.

**SPA 240 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. May be taken two times for a maximum of eight credit hours.

**SPA 249 Chicano Literature /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): SPA 211.

Focus on contemporary Chicano authors. Includes a literary analysis of their writings and takes into account the Chicano experience as well as the historical context in which these works were produced.

**SPA 297 Spanish Language Seminar: /1.25-4 cr. hrs./1.25-4 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****SPE 102 Introduction to Oral Communication /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 105 Voice and Diction /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Study and training in basic voice production. Includes proper breathing techniques, sound production, kinesics, general speech standards, common voice problems, and methods to overcome problems.

**SPE 110 Public Speaking /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Principles and practice of argumentation. Includes basic forms of analysis, evidence, proof, reasoning, and refutation.

**SPE 125 Forensics /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Individualized instruction and practice in speech competition/public performance skills. Includes oral interpretation, readers' theatre, and informative, persuasive, extemporaneous, and impromptu speaking. Student must participate in at least one intercollegiate speech tournament/public performance. May be taken four times for a maximum of four credit hours.

**SPE 130 Small Group Discussion /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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 Independent Study in Speech /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.

**TECHNOLOGY****TEC 098 Topics in TEC: /1.25-4 cr. hrs./1.25-13 periods (.25-4 lec., 0-9 lab)**

Prerequisite(s): None.

Topics in technology which reflect current issues and trends.

**TEC 101 Principles of Technology I /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): None.

Introductory experimentation and study of applied mechanical, fluid, electrical, and thermal systems. Includes the physical constructs of force, work, rate, resistance, energy, power, and force transformation.

**TEC 101A Principles of Technology IA /2 cr. hrs./4 periods (1 lec., 3 lab.)**

Prerequisite(s): None.

Introductory experimentation and study of applied mechanical, fluid, electrical, and thermal systems. Includes the physical constructs of force, work, rate, and resistance.

**TEC 101B Principles of Technology IB /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): TEC 101A or consent of instructor.

Continuation of TEC 101A. Includes experimentation and study of applied mechanical, fluid, electrical, and thermal systems within the physical constructs of energy, power, and force transformation.

**TEC 102 Principles of Technology II /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): TEC 101 and 111, 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): MAT 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.)**

Prerequisite(s): None.

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 hand-held calculator.

**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 113 Mathematics with Trigonometry and Statistics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 122 or TEC 112 or satisfactory score on the mathematics assessment test.

Same as MAT 113.

**TEC 115 Electronics Mathematics /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 092.

Intermediate algebra as applied to electronic circuits. Includes solving systems of linear equations, rational and irrational equations, exponents, quadratic equations, and an introduction to logarithms. (Same as MAT 115.)

**TEC 116 Electronics Mathematics Applications /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): MAT 115.

College level algebra applications to solve sinusoidal AC circuit and DC transient response parameters. Includes the use of right triangle trigonometry, elementary plane vectors, phasor algebra, logarithmic and exponential equations. Also includes the mathematics of binary, octal, and the hexadecimal numbering systems. (Same as MAT 116.)

**TEC 121 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 122 Applied Semiconductor Devices /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): MAT 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 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): MAT 113, TEC 121 and 151, or consent of instructor.  
Concurrent enrollment in TEC 122 recommended.

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 AC Networks with Phasors /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): MAT 113, TEC 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 130 Microcomputer Assembly and Testing /4 cr. hrs./5 periods (3 lec., 2 lab)**

Prerequisite(s): TEC 101B or 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. (Same as ETR 130.)

**TEC 132 Microcomputer Systems Servicing /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): ETR 130 or TEC 130.

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 151 Information Transfer in Technology /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

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 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): MAT 113, TEC 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.)**

Prerequisite(s): None.

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 198 Special Topics in Technology: /1-4 cr. hrs./1-16 periods (1-4 lec., 3-12 lab)**

Prerequisite(s): Consent of instructor.

Selected topics in technology which reflect current issues and trends. May be taken four times for a maximum of sixteen credit hours.

**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 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 223 Power RF /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): TEC 122, 125.

Applications of power RF in the manufacturing industries, particularly semiconductor manufacturing. Includes safety, measurements, troubleshooting, RF generation and transmission, plasmas, and plasma etching systems.

**TEC 225 Fluid Devices and Automated Systems /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): ETR 160, TEC 123.

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, 223, 225, 272, 273, 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 Communication and Information Transmission Systems / 4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): TEC 122, 124, 125, 171. TEC 123 recommended.

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 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 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 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 Microcomputer Repair /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): ETR 250 or TEC 124, and ETR 132 or TEC 132.

Repair and replacement of microcomputer components. Includes microprocessors and system architecture. Also includes tools, test equipment, handshaking, and troubleshooting. (Same as ETR 252.)

**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): ETR 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 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 topics on client/server models, operating systems, network operating systems (NOS), and middleware, database servers, and groupware.

**TEC 238 Information Acquisition and Professional Advancement / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): TEC 232, 235, 236, 237 or concurrent enrollment.

Locating information pertaining to systems networking standards and protocols. Includes costs, information technologies, operating systems, transmission methods, networking equipment, and management. Also includes methods of storing, retrieving, archiving, disseminating, and destroying unnecessary or obsolete information.

**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 Vacuum Systems /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): TEC 182, 225.

Basic gas laws, theory, and definitions. Includes pumps, vacuum gauges, measurement, leak detection, and safety in high vacuum environments used in semiconductor manufacturing. Also includes materials and components, cleaning, and other vacuum lab procedures.

**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. May be taken two times for a maximum of six credit hours.

**TEC 298 Advanced Topics in Technology: /1-4 cr. hrs./1-10 periods (1-4 lec., 0-9 lab)**

Prerequisite(s): None.

Advanced topics in technology which reflect current issues and trends.

**TELESERVICES****TES 101 Introduction to Teleservices /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ASC 111A or 35 words per minute keyboard proficiency.

Overview of the teleservices industry. Includes teleservices industry customer service, teleservices operator's domain, and attitudes, traits, and work ethics in teleservices.

**TES 102 Teleservices Communication /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): TES 101.

Development of verbal and written communication techniques for the teleservices industry. Includes verbal communication development, active listening, documenting customer information, and telephone procedures.

**TES 103 Call Center Environments /4 cr. hrs./8 periods (2 lec., 6 lab)**

Prerequisite(s): TES 102.

Introduction to the hardware, software, office equipment, and reference materials used in a call center environment. Includes computer skills and applications, teleservices tools and equipment, teleservices references, voice development, and call ownership and telephone etiquette.

**TES 120 Call Management - Technical Support /4 cr. hrs./6 periods (3 lec., 3 lab)**

Prerequisite(s): TES 103.

Overview of technical support for the teleservices industry. Includes product knowledge, organization and time management, problem solving techniques, and conducting research on product information.

**TES 130 Teleselling Techniques - Customer Service /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

Prerequisite(s): TES 103.

Selling concepts and procedures for the teleservices industry. Includes tele-selling techniques, telephone effectiveness, development of professional traits, and teleservices communication and documentation.

**TES 150 Teleservices Internship /2 cr. hrs./6 periods (1 lec., 5 lab)**

Prerequisite(s): TES 103, 120, or 130.

Goal setting, critical thinking, ethics, job search preparation, and work place learning components for the teleservices industry. Includes job related topics (related class) and work-site environment.

**TOHONO O'ODHAM****THO 050 Conversational Tohono O'Odham I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Designed for persons with no previous knowledge of Tohono O'Odham. Primary focus on listening to and speaking elementary Tohono O'Odham.

**THO 051 Conversational Tohono O'Odham II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): THO 050 or equivalent.

Designed for persons able to ask and respond to simple questions relevant to self and to the environment.

**THO 110 Elementary Tohono O'Odham I /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

Skill development to provide proficiency in basic communication (listening, speaking, reading, and writing), emphasizing an examination of Tohono O'Odham cultural traditions.

**THO 111 Elementary Tohono O'Odham II /4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): THO 110.

Continuation of THO 110. Designed to provide increased proficiency in listening, speaking, reading, and writing. Includes continued study of Tohono O'Odham cultural traditions.

**TOTAL QUALITY MANAGEMENT****TQM 100 Introduction to Total Quality Management /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): None.

Fundamental concepts of Total Quality Management (TQM). Includes required operations in mathematics; the use of symbols to represent abstract quantities; graphical representation of quantitative information; fundamental notions of probability; and the use of statistical tables.

**TQM 101 Basic Statistics and Methods of Process Control /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): MAT 092 or consent of instructor.

Introduction to the techniques and tools of statistical process control in Total Quality Management (TQM). Includes basic statistical methods of collecting and describing data, control charting, capability analyses, acceptance sampling and the utilization of software for quality.

**TQM 102 Experimental Design: Classical Techniques /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): TQM 101 or consent of instructor.

Basic assumptions and approaches that underlie statistical experimental design in Total Quality Management (TQM). Includes review of basic statistical concepts, construction of simple experimental designs and the interpretation of analytical results, one-way Analysis of Variance (ANOVA), full factorial designs, fractional factorial designs, and the application of computers in experimental designs.

**TQM 106 Reliability, Maintainability, and Safety of Products and Services /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): TQM 101 or consent of instructor.

Reliability, Maintainability, and Safety (RMS) in the Total Quality Management of products and services. Includes quantitative methods and concepts of RMS, methods of experimental design and basic statistical calculations used in RMS, the reliability "bathtub" curve, Failure Mode Effects and Criticality Analysis (FMECA), fault tree analysis, testing, and the application of computer software to RMS.

**TQM 200 Experimental Design: Recent Trends /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): TQM 102 or consent of instructor.

Recent trends in statistical experimental design for Total Quality Management (TQM). Includes an introduction to pre-experimental design techniques, Taguchi and Shainin concepts and methods of experimental design, response methodology, and the application of computers in experimental design.

**TQM 210 Total Quality Management: Tools and Methodology /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): TQM 102 or consent of instructor.

Tools, techniques, and methods essential for an effective Total Quality Management (TQM) program. Includes planning and organizing for customer satisfaction, selection, evaluation and management of quality improvement projects, human factors, and auditing of the results achieved.

**TQM 220 Total Quality Management: Implementation /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): TQM 210 or consent of instructor.

Implementing Total Quality Management (TQM) in the manufacturing and service environments. Includes planning and preparing for implementation, training of the participants, motivating and measuring TQM activities and the use of improvement teams.

**TQM 298 Special Topics: /1-3 cr. hrs./1-3 periods (1-3 lec.)**

Prerequisite(s): Consent of instructor.

Customized credit course for current quality management topics in manufacturing, services and the health related industries.

**TRAINING FOR SPECIAL EDUCATION****TSE 101 Orientation to the Exceptional Child /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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)**

Prerequisite(s): None.

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 110 Management Skills for Habilitation Supervisors /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): None.

Management principles for first line supervisors of residential and vocational environments for persons with developmental disabilities. Includes quality assurance, service planning, and staff training and development.

**TSE 115 Positive Behavior Management for Developmentally-Disabled People /2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Techniques for program development for adult home and foster care providers. Includes designing teaching environments, teaching techniques, positive behavior management strategies, and client instruction techniques.

**TSE 120 Home and Community Based Services for the Handicapped Person /2 cr. hrs./3 periods (1 lec., 2 lab)**

Prerequisite(s): None.

Process and procedures for delivering services to families and individuals needing assistance in their homes or community. Includes developing effective relationships with families, teaching techniques, assessment tools, client intervention techniques, personal care and hygiene, assisting the physically handicapped, and provider information.

**TSE 130 Techniques for Teaching Students with Multiple Disabilities / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Techniques for designing and implementing functional programs for students with multiple disabilities. Includes appropriate tasks and materials, behavior control, adaptive equipment, and therapeutic motor training.

**TSE 132 Behavior Modification Techniques for Special Education I / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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 142 Special Speech and Language Techniques /3 cr. hrs./ 3 periods (3 lec.)**

Prerequisite(s): None.

Overview of speech and language disorders and their remediation. Includes components involved in normal speech and language development.



**TSE 150 Behavior Modification Techniques for Special Education II / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): TSE 132.

Continuation of TSE 132. Methods of changing inappropriate behavior through the use of behavior modification techniques, including positive, extinction and aversive contingency systems.

**TSE 198 Current Topics in Special Education: /5-4 cr. hrs./ .5-12 periods (0-4 lec., 0-12 lab)**

Prerequisite(s): None.

Selected topics in special education for classroom instruction. Includes current specialized materials to meet classroom needs for local educators and classroom aides.

**TSE 238 Characteristics of Learning Disabilities /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Principles of learning as related to learning disabilities. Includes definition of learning disabilities, characteristics of specific learning disabilities, and diagnostic procedures for remediation of learning disabilities.

**TSE 240 Techniques for Teaching Students with Mental Retardation / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Overview of techniques and procedures for teaching students who display behavioral disorders. Includes evaluation strategies and intervention models for managing behaviors.



**TSE 260 Issues and Trends in Special Education /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Exploration of current issues and trends in special education which impact the education of special needs students. Includes laws that impact special education, least restrictive environment, disciplinary measures, court cases, categorical issues, graduation, extended school year, school health concerns, preschool requirements, transition services, and community trends.

**TSE 265 Adaptive Technology in Special Education /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Overview of mechanical and electrical adaptive devices and their application with special needs students. Teaches and facilitates communication, self-help skills and environmental control independence.

**TRAVEL INDUSTRY OPERATIONS**

**TVL 101 Introduction to the Travel Industry /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

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)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

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.)**

Prerequisite(s): None.

Examination of major tourist destinations. Includes physical geography, Europe, Africa, Asia and Oceania.

**TRAINING FOR SPECIAL EDUCATION—TRAVEL INDUSTRY OPERATIONS**

**TVL 109 Survey of Leisure Products /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): None.

Leisure travel components. Includes hotels, rental cars, AMTRAK, tours, and cruise accommodations.

**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 199 Co-op Related Class in TVL /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): Concurrent enrollment in 199 Co-op Work, and a minimum of 12 credit hours of Travel Industry (TVL) courses or one year of related work experience.

See Cooperative Education section for description.

**TVL 199 Co-op Work in TVL /1-8 cr. hrs./5-40 periods (5-40 lab)**

Prerequisite(s): Concurrent enrollment in 199 Co-op Related Class, and a minimum of 12 credit hours of Travel Industry (TVL) courses or one year of related work experience.

See Cooperative Education section for description.

**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 Leadership and Professional Skills in Tourism /3 cr. hrs./4 periods (3 lec., 1 lab)**

Prerequisite(s): TVL 102, 203.

Dynamics of personal and ethical management skills. Includes self management skills, customer service skills, and the interview process.

**TVL 211 Tour Group Development, Sales and Management /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): TVL 101 and/or one year of experience working in the hospitality-tourism industry.

Development, management and marketing of tours. Includes sales techniques, packaging, tour-guide skills and relationships with other destination services.



**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 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.)**

Prerequisite(s): Concurrent enrollment in 299 Co-op Work, and a minimum of 15 credit hours of Travel Industry (TVL) courses or one year of related work experience.

See Cooperative Education section for description.

**TVL 299 Co-op Work in TVL /1-8 cr. hrs./5-40 periods (5-40 lab)**

Prerequisite(s): Concurrent enrollment in 299 Co-op Related Class, and a minimum of 15 credit hours of Travel Industry (TVL) courses or one year of related work experience.

See Cooperative Education section for description.

## WELDING

**WLD 115 Blueprint Reading /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Interpretation of welding drawings as applied to metal fabrication. Includes purpose and makeup of blueprints, sketching, specifications, dimensions, structural shapes, views, sections, abbreviations and symbols, and fillet and groove welds.

**WLD 118 Welding and Fabrication Estimating /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WLD 115, and MAT 082 or concurrent enrollment.

Steel fabrication bidding and contracts. Includes general and subcontractor estimating procedures, types of bids, the contract documents, types of agreements, bonds and insurance, material specifications, estimate process, subcontracting, labor, structural steel systems, and steel fabrication checklist.

**WLD 119 Pattern Layout for Metal Fabrication /3 cr. hrs./5 periods (2 lec., 3 lab)**

Prerequisite(s): MAT 082 or satisfactory score on math assessment.

Pattern layout techniques for welding. Includes drawing equipment, basic mathematic concepts, parallel, radial, and triangulation line development, and special problems.

**WLD 150 Oxyacetylene Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): None.

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)**

Prerequisite(s): None.

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 Plate Certification Welding /2 cr. hrs./4 periods (1 lec., 3 lab)**

Prerequisite(s): WLD 150 and 160, or two years of equivalent experience in all-position welding.

Advanced procedures in test plate welding certification using the American Welding Society Code D1.1. Includes preparation, assembly, defects and limitations of test plates. Also includes types of tests given and their period of effectiveness.

**WLD 199 Co-op Related Class in WLD /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**WLD 199 Co-op Work in WLD /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**WLD 250 Pipe Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): WLD 119, 150, 160.

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)**

Prerequisite(s): WLD 150, 160.

Principles and techniques of metal inert gas (GMAW) welding and flux-core arc welding. Includes procedures, safety, wire selection, and control settings for MIG and flux-core welding.

**WLD 262 Gas Tungsten Arc Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**

Prerequisite(s): WLD 150, 160.

Principles and techniques of the Gas Tungsten Arc Welding (GTAW) process. Includes safety, equipment, tooling, setup and procedures for different types of metals.

**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.

**WLD 299 Co-op Related Class in WLD /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**WLD 299 Co-op Work in WLD /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**WRITING****WRT 040 Basic English /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Development of skills necessary to prepare for and pass the General Education Development (GED) writing test, which is a part of the High School Equivalency Examination.

**WRT 070 Developmental Writing /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Training in the fundamental skills, including grammar, usage, organization and development. Includes practice in writing sentences and short paragraphs.

**WRT 070A Developmental Writing: Basic Skills /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

Basic skills in use of sentences, paragraphs, grammar, punctuation and spelling, including writing simple and compound sentences and simple paragraphs.

**WRT 070B Developmental Writing: Intermediate Skills /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): WRT 070A or concurrent enrollment.

Intermediate skills in use of sentences, paragraphs, grammar, punctuation and spelling, including topic sentences, paragraph structure and practice in correcting common sentence errors.

**WRT 070C Developmental Writing: Advanced Skills /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): WRT 070B or concurrent enrollment.

Advanced skills in use of sentences, paragraphs, grammar, punctuation and spelling, including paragraph development, coherence and usage.

**WRT 072 Sentence Patterns /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

A mini-course in identifying various types of sentence structure and writing various types of sentences. Includes training in distinguishing between dependent and independent clauses, identifying essential sentence elements and correcting common sentence errors.

**WRT 073 Punctuation /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

A mini-course in the mechanics of writing, including punctuation, capitalization, numbers and abbreviations.

**WRT 075 Developmental Writing for International Students /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): ESL 084 or satisfactory score on the writing assessment test.

Training in the fundamental skills, including grammar, usage, organization and development. Includes methodologies appropriate for international students. Also includes idiomatic expressions and problems common to non-native speakers of English. (Equivalent to WRT 070.)

**WRT 077 Paragraphs /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): None.

A mini-course providing practice in planning and writing effective paragraphs as basic units for essays. Emphasis on topic sentences, patterns of development and clear transitions.

**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 paragraph development and short essay organization.

**WRT 100A Sentence Development /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): WRT 070 or satisfactory score on writing assessment test.

Review of sentence structure and mechanics and usage with practice in writing and punctuating various sentence patterns.

**WRT 100B Paragraph Development /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): WRT 100A.

Improvement of skills in writing various types of paragraphs. Includes practice in developing appropriate topic sentences, supporting ideas, clear transitions and coherence.

## WRITING

### **WRT 100C Essay Development /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): WRT 100B.

Practice in writing short, well-organized essays on a variety of subjects.

### **WRT 101 Writing I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 100 or satisfactory score on writing assessment test.

Principles of good writing with emphasis on the technique and practice of description, explanation and argumentation.

### **WRT 101A Writing IA /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.

### **WRT 101B Writing IB /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.

### **WRT 101C Writing IC /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.

### **WRT 102 Writing II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 101.

Practice in writing analytical compositions, including a research paper or annotated papers. Includes readings in fiction, poetry, drama or non-fiction as a basis for writing.

### **WRT 106 Writing Fundamentals for International Students /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 075 or satisfactory score on the writing assessment test.

Review of sentence structure, mechanics and usage. Includes paragraph development, short essay organization, and revising for clarity, coherence and organization. Also includes methodologies appropriate for international students. (Equivalent to WRT 100.)

### **WRT 107 Writing I for International Students /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 106 or satisfactory score on the writing assessment test.

Introduction to the principles of good writing with emphasis on the techniques and practice of narration, description, explanation and argumentation. Includes the writing process, paragraph and essay writing, and reading and analysis of prose models. Also includes methodologies appropriate for international students. (Equivalent to WRT 101.)

### **WRT 108 Writing II for International Students /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 107.

Practice in writing analytical compositions, including a research paper or annotated papers. Includes readings in fiction, nonfiction, drama and poetry as a basis for writing. Also includes methodologies appropriate for international students. (Equivalent to WRT 102.)

### **WRT 109 Analyzing Syntax /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): WRT 101 or consent of instructor.

Analysis of sentence structure and the relationship between sentence parts. Includes parts of speech, diagraming, sentence structure, and composing sentences.

### **WRT 125 Poetry Writing /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 101.

Techniques of poetry writing. May be taken three times for a maximum of nine credit hours.

### **WRT 126 Short Story Writing /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Techniques of writing short fiction. 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): None.

Practice in effective everyday communication. Emphasis on writing and speaking skills necessary in specific career fields.

### **WRT 154 Technical Communications I /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 100 or 101.

Practice in writing and speaking skills needed in technical fields. Includes writing formal and informal reports, form completion, letters, abstracts and reviews. Also includes presentation of oral reports and other communication skills as prescribed by vocational areas.

### **WRT 154A Technical Communications I: Technical Writing Principles /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): WRT 100 or 101.

Basic technical writing skills, including the writing process, basic writing strategies and technical writing style.

### **WRT 154B Technical Communications I: Technical Correspondence /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): WRT 154A.

Writing of memos, letters and resumes. Also includes form completion and technical illustrations.

**WRT 154C Technical Communications I: Basic Technical Reports / 1 cr. hr./1 period (1 lec.)**

Prerequisite(s): WRT 154B.

Writing of informal reports and other applications, including activity reports and technical descriptions, instructions and processes.

**WRT 162 Literary Magazine Workshop /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Literary magazine publication. Includes application of editing, design, layout and production techniques. Laboratory work includes at least one literary publication of student work in each semester. It is recommended that this course be taken for credit for two consecutive semesters. May be taken two times for a maximum of six credit hours.

**WRT 180 The Story of English /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

The history of the English language from its Germanic origins to its present position of global importance. Includes current English usage worldwide with special emphasis on American English. Provides students with an understanding of concepts and tools for the study of language; overall structure of modern English; earlier forms of the English language; ways language changes in response to new social, political and cultural influences; and techniques for writing the language.

**WRT 196 Independent Studies in Writing /1-4 cr. hrs./3-12 periods (3-12 lab)**

Prerequisite(s): None.

Independent projects in writing to be arranged with the instructor. May be taken four times for a maximum of sixteen credit hours.

**WRT 198 Selected Topics in WRT: /1-4 cr. hrs./1-4 periods (1-4 lec.)**

Prerequisite(s): Consent of instructor.

Selected topics in writing which include specific styles, techniques, skills, and processes.

**WRT 205 Poetry Writing /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 101, 102.

Introduction to the techniques used in contemporary poetry. Includes study of selected poems as examples and practice in applying techniques by writing and discussing original poetry. May be taken three times for a maximum of nine credit hours.

**WRT 206 Short Story Writing /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 101, 102.

Introduction to the techniques used in contemporary short fiction. Includes study of selected short fiction as examples and practice in separate elements of technique through short exercises as well as writing and discussion of original manuscripts. May be taken three times for a maximum of nine credit hours.

**WRT 207 Sophomore Composition /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 102, consent of instructor.

Practice in exposition and some narrative. Includes study of satire, the personal essay, introduction to the use of fiction techniques in nonfiction, and class discussion of original manuscripts. 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.

Continuation of poetry writing with increased emphasis on craft. Candid peer and instructor criticism of both published models and student poems.

**WRT 216 Advanced Fiction Writing /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): Consent of instructor.

Advanced techniques of fiction writing. Includes writing, critiquing and revising original fiction and preparing manuscripts for publication. May be taken four times for a maximum of twelve credit hours.

**WRT 217 Creative Nonfiction /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 207 or consent of instructor.

Nonfiction writing with an emphasis on using narrative elements and devices. Includes writing, critiquing, and revising original manuscripts as well as the preparation of manuscripts for publication. Also includes the personal essay and memoir as literary forms. 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. May be taken four times for a maximum of twelve credit hours.

**WRT 254 Technical Communications II /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): WRT 154 or 102.

Techniques of writing long and short reports, proposals and other forms required in scientific and technical occupations. Designed to allow students to work on writing required in courses and in future occupations. WRT 154 is recommended as preparation.

**WRT 254A Technical Communications II: Brief Technical Reports / 1 cr. hr./1 period (1 lec.)**

Prerequisite(s): WRT 154 or 102.

Advanced technical writing skills, including writing various types of brief formal reports.

**WRT 254B Technical Communications II: Formal Technical Reports / 1 cr. hr./1 period (1 lec.)**

Prerequisite(s): WRT 254A.

Writing of longer advanced technical reports, including evaluation reports, feasibility studies and technical proposals.

**WRT 254C Technical Communications II: Technical Research / 1 cr. hr./ 1 period (1 lec.)**

Prerequisite(s): WRT 254B.

Technical research techniques and the writing of a formal research report.

**WRT 280A Beginning Workshop in Tutoring Composition / 1 cr. hr./ 3 periods (3 lab)**

Prerequisite(s): WRT 101, 102.

Introductory workshop in tutoring composition. Instruction and practice in tutoring techniques.

**WRT 280B Intermediate Workshop in Tutoring Composition / 1 cr. hr./ 3 periods (3 lab)**

Prerequisite(s): WRT 280A.

Continued improvement of tutoring skills acquired in WRT 280A. Additional instruction and practice in tutoring techniques.

**WRT 285 Pima Writers' Workshop / 2 cr. hrs./2 periods (2 lec.)**

Prerequisite(s): None.

Writing of fiction and poetry. Includes presentations by professional authors on plot and character development, writing techniques, and marketing. Also includes the opportunity for participants to have their writing critiqued by professional writers. May be taken three times for a maximum of six credit hours.

**WRT 298 Advanced Topics in WRT: / 1-4 cr. hrs./1-4 periods (1-4 lec.)**

Prerequisite(s): Consent of instructor.

Advanced topics in writing which include specific styles, techniques, skills, and processes.

**YAQUI**

**YAQ 110 Elementary Yaqui I / 4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): None.

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 111 Elementary Yaqui II / 4 cr. hrs./4 periods (4 lec.)**

Prerequisite(s): YAQ 110.

Continuation of YAQ 110. 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.

**YOUTH CARE**

**YCA 163 Introduction to Youth Care / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): None.

Survey of the rights, roles and responsibilities of a youth care specialist in the supervision and treatment of children in 24-hour care outside the home, e.g., in detention, residential facilities for youth and foster care. Includes the concept of youth care work, understanding the child's behavior, communication skills, problem solving, effective discipline, interviewing and counseling skills, and structuring recreation and creative programs. (Same as AJS 163.)

**YCA 263 Youth Care Methods / 3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): YCA 163.

Specific methods of youth care. Includes building positive relationships, problem solving, and observing and recording behavior. Also available in modularized format.

**YCA 263A Building Youth Care Relationships: Methods / 1 cr. hr./ 1 period (1 lec.)**

Prerequisite(s): YCA 163.

Building positive relationships with youth in alternative care settings.

**YCA 263B Problem-Solving Methods / 1 cr. hr./1 period (1 lec.)**

Prerequisite(s): YCA 163.

Problem-solving methods applicable to youth care situations.



**YCA 263C Observing and Recording Methods /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): YCA 163.

Methods of observing and recording the behavior of youth in a youth care setting.

**YCA 264 Issues in Youth Care /3 cr. hrs./3 periods (3 lec.)**

Prerequisite(s): YCA 163.

Issues commonly experienced in the youth care field. Includes health and safety, stress, and the special needs child. Also available in a modularized format.

**YCA 264A Health and Safety Issues /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): YCA 163.

Health and safety issues in youth care work. Includes health awareness, daily development and behavior, signs of illness, medication, record keeping, and environmental and legal safety issues.

**YCA 264B Stress Issues in Youth Care Work /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): YCA 163.

Stress in youth care and its impact on the worker, the youth and the setting.

**YCA 264C The Special Needs Child /1 cr. hr./1 period (1 lec.)**

Prerequisite(s): YCA 163.

The special needs child in a youth care setting. Includes the following special needs categories: learning disabled, physically disabled, emotionally disabled, mentally retarded, dangerous delinquent, autistic and others. One topic will be chosen for emphasis in a given session.

**YCA 290 Field Experience /3 cr. hrs./16 periods (1 lec., 15 lab)**

Prerequisite(s): Consent of instructor.

Participation in community administration of justice and youth care agencies to provide experience in the practical application of classroom instruction. Biweekly seminars are conducted to discuss theory and practice pertinent to the agency experience. May be taken two times for a maximum of six credit hours.

**YCA 299 Co-op Related Class in YCA /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**YCA 299 Co-op Work in YCA /1-3 cr. hrs./5-15 periods (5-15 lab)**

See Cooperative Education section for description.

## Apprentice Related Instruction

Before students may enroll for apprentice related instruction, they must be tested, selected, signed up (indentured) and registered with the U.S. Department of Labor's Bureau of Apprenticeship and Training, and the organization operating a specific training program. Apprentice related instruction at Pima Community College is presently offered in these areas:

### 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.)



## APPRENTICE RELATED INSTRUCTION

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. hrs./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 I: Chemicals and Equipment Used in Cleaning /1 cr. hr./1 period (1 lec.)
CUA	102	Custodial Development I: Area Cleaning Techniques /1 cr. hr./1 period (1 lec.)
CUA	103	Custodial Development I: 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.)
CUA	203	Custodial Development II: Employee Relations /1 cr. hr./1 period (1 lec.)
CUA	204	Custodial Development II: Custodial Scheduling /1 cr. hr./1 period (1 lec.)
CUA	205	Custodial Development II: Supervisory Skills /1 cr. hr./1 period (1 lec.)
CUA	206	Custodial Development II: Housekeeping Standards and Audit Procedures /1 cr. hr./1 period (1 lec.)

## ELECTRICAL APPRENTICESHIP TRAINING

ELT	101	Apprentice Inside Wireman I /6 cr. hrs./6 periods (6 lec.)
ELT	102	Apprentice Inside Wireman II /6 cr. hrs./6 periods (6 lec.)
ELT	103	Residential Wireman Trainee I /4 cr. hrs./4 periods (4 lec.)
ELT	104	Residential Wireman Trainee II /4 cr. hrs./4 periods (4 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	203	Residential Wireman Trainee III /4 cr. hrs./4 periods (4 lec.)
ELT	204	Residential Wireman Trainee IV /4 cr. hrs./4 periods (4 lec.)
ELT	205	Journeyman-Wireman Advancement Course I /6 cr. hrs./6 periods (6 lec.)
ELT	206	Journeyman-Wireman Advancement Course II /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	150	Introduction to Trade Science /3 cr. hrs./4 periods (3 lec., 1 lab)
IWA	151	Reinforcing Blueprint Reading /3 cr. hrs./4 periods (3 lec., 1 lab)
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	154	Rigging and Safety /3 cr. hrs./4 periods (3 lec., 1 lab)
IWA	155	Structural Blueprint Reading I /3 cr. hrs./4 periods (3 lec., 1 lab)
IWA	156	Structural Blueprint Reading II /3 cr. hrs./4 periods (3 lec., 1 lab)
IWA	157	Ornamental Iron I /3 cr. hrs./4 periods (3 lec., 1 lab)
IWA	158	Steel Detailing and Fabrication /3 cr. hrs./4 periods (3 lec., 1 lab)
IWA	159	Ornamental Iron II /3 cr. hrs./4 periods (3 lec., 1 lab)
IWA	160	Post Tensioning /3 cr. hrs./4 periods (3 lec., 1 lab)
IWA	161	Light Industrial Construction Methods and Materials /3 cr. hrs./4 periods (3 lec., 1 lab)
IWA	164	Intermediate Combination Welding /3 cr. hrs./5 periods (2 lec., 3 lab)
IWA	166	Advanced Combination Welding /3 cr. hrs./5 periods (2 lec., 3 lab)

# MACHINE TOOL APPRENTICE

MTA	101	Shop Theory I: Safety/Chip Formation/Cutting Fluids /5 cr. hr./5 period (.5 lec.)
MTA	102	Shop Theory I: Saws and Sawing /5 cr. hr./5 period (.5 lec.)
MTA	103	Shop Theory I: Drill Presses /1 cr. hr./1 period (1 lec.)
MTA	104	Shop Theory I: Milling Machines /1 cr. hr./1 period (1 lec.)
MTA	111	Blueprint Reading I /1 cr. hr./1 period (1 lec.)
MTA	113	Machine Tool Mathematics I: Basic Math/Algebra /1 cr. hr./1 period (1 lec.)
MTA	114	Machine Tool Mathematics I: Geometry/Trigonometry /1 cr. hr./1 period (1 lec.)

# PAINTING AND DECORATING

PNA	101	Spray Painting /6 cr. hrs./6 periods (6 lec.)
PNA	102	Wood Finishing /6 cr. hrs./6 periods (6 lec.)
PNA	103	Drywall Taping /6 cr. hrs./6 periods (6 lec.)
PNA	104	Color Mixing and Matching /6 cr. hrs./6 periods (6 lec.)
PNA	105	Special Decorative Finishes /6 cr. hrs./6 periods (6 lec.)
PNA	106	Wallcovering /6 cr. hrs./6 periods (6 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.)

## APPRENTICE RELATED INSTRUCTION

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.)

### ROOFING

ROF	101	Built-up Roofing I /5 cr. hrs./5 periods (5 lec.)
ROF	102	Built-up Roofing II /5 cr. hrs./5 periods (5 lec.)
ROF	103	Elasto-Plastic Roof Systems /5 cr. hrs./5 periods (5 lec.)
ROF	104	Steep Roofing /5 cr. hrs./5 periods (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.)

## THEORY AND PRACTICE OF ELECTRICITY APPRENTICESHIP

TEA	150	Electrical Theory I /6 cr. hrs./6 periods (6 lec.)
TEA	151	Electrical Theory II /6 cr. hrs./6 periods (6 lec.)
TEA	152	Electrical Theory III /6 cr. hrs./6 periods (6 lec.)
TEA	153	Advanced Apprenticeship Training I /1 cr. hr./1 period (1 lec.)
TEA	154	Advanced Apprenticeship Training II /1 cr. hr./1 period (1 lec.)
TEA	155	Advanced Apprenticeship Training III /1 cr. hr./1 period (1 lec.)
TEA	156	Advanced Apprenticeship Training IV /2 cr. hrs./2 periods (2 lec.)
TEA	157	Advanced Apprenticeship Training V /1 cr. hr./1 period (1 lec.)
TEA	158	Advanced Apprenticeship Training VI /6 cr. hrs./6 periods (6 lec.)
TEA	159	Advanced Apprenticeship Training VII /6 cr. hrs./6 periods (6 lec.)
TEA	160	Advanced Apprenticeship Training VIII /6 cr. hrs./6 periods (6 lec.)
TEA	161	Advanced Apprenticeship Training IX /2 cr. hrs./2 periods (2 lec.)
TEA	162	Advanced Apprenticeship Training X /3 cr. hrs./3 periods (3 lec.)
TEA	163	Advanced Apprenticeship Training XI /1 cr. hr./1 period (1 lec.)
TEA	164	Advanced Apprenticeship Training XII /1 cr. hr./1 period (1 lec.)
TEA	165	Advanced Apprenticeship Training XIII /2 cr. hrs./2 periods (2 lec.)
TEA	166	Advanced Apprenticeship Training XIV /6 cr. hrs./6 periods (6 lec.)
TEA	167	Advanced Apprenticeship Training XV /6 cr. hrs./6 periods (6 lec.)
TEA	168	Advanced Apprenticeship Training XVI /6 cr. hrs./6 periods (6 lec.)

## WHEELS OF LEARNING

### CARPENTRY

WOL	101	Carpentry I /6 cr. hrs./6 periods (6 lec.)
WOL	102	Carpentry II /6 cr. hrs./6 periods (6 lec.)
WOL	103	Carpentry III /6 cr. hrs./6 periods (6 lec.)
WOL	104	Carpentry IV /6 cr. hrs./6 periods (6 lec.)
WOL	105	Carpentry V /6 cr. hrs./6 periods (6 lec.)
WOL	106	Carpentry VI /6 cr. hrs./6 periods (6 lec.)
WOL	107	Carpentry VII /6 cr. hrs./6 periods (6 lec.)
WOL	108	Carpentry VIII /6 cr. hrs./6 periods (6 lec.)

### HVAC

WOL	111	HVAC I /6 cr. hrs./6 periods (6 lec.)
WOL	112	HVAC II /6 cr. hrs./6 periods (6 lec.)
WOL	113	HVAC III /6 cr. hrs./6 periods (6 lec.)
WOL	114	HVAC IV /6 cr. hrs./6 periods (6 lec.)
WOL	115	HVAC V /6 cr. hrs./6 periods (6 lec.)

WOL 116	HVAC VI /6 cr. hrs./6 periods (6 lec.)
WOL 117	HVAC VII /6 cr. hrs./6 periods (6 lec.)
WOL 118	HVAC VIII /6 cr. hrs./6 periods (6 lec.)

## MASONRY

WOL 121	Masonry I /6 cr. hrs./6 periods (6 lec.)
WOL 122	Masonry II /6 cr. hrs./6 periods (6 lec.)
WOL 123	Masonry III /6 cr. hrs./6 periods (6 lec.)
WOL 124	Masonry IV /6 cr. hrs./6 periods (6 lec.)
WOL 125	Masonry V /6 cr. hrs./6 periods (6 lec.)
WOL 126	Masonry VI /6 cr. hrs./6 periods (6 lec.)

## SHEET METAL

WOL 131	Sheet Metal I /6 cr. hrs./6 periods (6 lec.)
WOL 132	Sheet Metal II /6 cr. hrs./6 periods (6 lec.)
WOL 133	Sheet Metal III /6 cr. hrs./6 periods (6 lec.)
WOL 134	Sheet Metal IV /6 cr. hrs./6 periods (6 lec.)
WOL 135	Sheet Metal V /6 cr. hrs./6 periods (6 lec.)
WOL 136	Sheet Metal VI /6 cr. hrs./6 periods (6 lec.)
WOL 137	Sheet Metal VII /6 cr. hrs./6 periods (6 lec.)
WOL 138	Sheet Metal VIII /6 cr. hrs./6 periods (6 lec.)

## PLUMBING

WOL 141	Plumbing I /6 cr. hrs./6 periods (6 lec.)
WOL 142	Plumbing II /6 cr. hrs./6 periods (6 lec.)
WOL 143	Plumbing III /6 cr. hrs./6 periods (6 lec.)
WOL 144	Plumbing IV /6 cr. hrs./6 periods (6 lec.)
WOL 145	Plumbing V /6 cr. hrs./6 periods (6 lec.)
WOL 146	Plumbing VI /6 cr. hrs./6 periods (6 lec.)
WOL 147	Plumbing VII /6 cr. hrs./6 periods (6 lec.)
WOL 148	Plumbing VIII /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.)

# Industrial Continuing Education Training

Pima Community College strives to meet training needs and requirements requested by local companies. The following courses have been made available to meet specific company training needs. In most cases when the courses are offered, they are open to any students who meet prerequisite requirements. Consult the Schedule of Classes for availability. The industrial training courses are not a part of any specific certificate or degree requirements.

## ASSEMBLY PRODUCTION

ASP 101	Assembly Production Processing /4 cr. hrs./6 periods (2 lec., 4 lab)
ASP 103	Hydraulic Systems /4 cr. hrs./6 periods (2 lec., 4 lab)
ASP 105	Pneumatic Systems /4 cr. hrs./6 periods (2 lec., 4 lab)
ASP 107	Vacuum Systems /4 cr. hrs./6 periods (2 lec., 4 lab)
ASP 109	Mechanical Assembly Tools and Machines /3 cr. hrs./5 periods (2 lec., 3 lab)
ASP 110	Assembly Tools and Instruments /2 cr. hrs./3 periods (1 lec., 2 lab)
ASP 112	Manufacturing Electronic Assemblies /3 cr. hrs./4 periods (2 lec., 2 lab)
ASP 114	Prototype and Electronic Test Equipment Construction / 3 cr. hrs./5 periods (2 lec., 3 lab)
ASP 116	Electronic Component Preparation and Insertion Equipment / 3 cr. hrs./5 periods (2 lec., 3 lab)
ASP 118	Physical Metrology /3 cr. hrs./5 periods (2 lec., 3 lab)
ASP 120	Metrology Measurement /3 cr. hrs./4 periods (2 lec., 2 lab)
ASP 123	Electrical Measurement /4 cr. hrs./6 periods (3 lec., 3 lab)
ASP 126	Waveform Generation /3 cr. hrs./4 periods (2 lec., 2 lab)
ASP 130	Waveform Analysis /3 cr. hrs./4 periods (2 lec., 2 lab)
ASP 140	Surface Mount Assembly /3 cr. hrs./4 periods (2 lec., 2 lab)

## FABRICATION

FAB 101	Mechanical Calibration Inspection Techniques /4 cr. hrs./ 6 periods (2 lec., 4 lab)
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**MACHINE TOOL TECHNOLOGY**

MAC	102	Deburring and Parts Finishing /1.5 cr. hrs./2 periods (1 lec., 1 lab)
MAC	125	Tool and Cutter Grinding /4 cr. hrs./8 periods (2 lec., 6 lab)
MAC	127	Ultra Precision Production Grinding /4 cr. hrs./8 periods (2 lec., 6 lab)
MAC	251	Numerical Control Troubleshooting /4 cr. hrs./5 periods (3 lec., 2 lab)
MAC	281	Machine Shop for Technicians IV /4 cr. hrs./8 periods (2 lec., 6 lab)
MAC	282	Gage and Fixture Construction /4 cr. hrs./8 periods (2 lec., 6 lab)

**MAINTENANCE TECHNOLOGY**

MNT	101	Custodial Procedures /4 cr. hrs./6 periods (3 lec., 3 lab)
MNT	104	Lubrication of Industrial Equipment /3 cr. hrs./4 periods (2 lec., 2 lab)
MNT	106	Heavy Equipment Operations /2 cr. hrs./4 periods (1 lec., 3 lab)
MNT	108	Water Treatment for HVAC Systems /1 cr. hr./2 periods (1 lec., 1 lab)
MNT	110	Industrial Air Compressors /3 cr. hrs./7 periods (1 lec., 6 lab)
MNT	112	Industrial Pumps /3 cr. hrs./5 periods (2 lec., 3 lab)
MNT	114	Chillers and Cascade Systems /4 cr. hrs./6 periods (3 lec., 3 lab)
MNT	116	Industrial Boilers /5 cr. hrs./7 periods (4 lec., 3 lab)
MNT	118	Industrial Air Treatment /3 cr. hrs./5 periods (2 lec., 3 lab)
MNT	120	Fundamentals of Carpentry /3 cr. hrs./3 periods (3 lec.)
MNT	122	Tools and Equipment for Carpentry /3 cr. hrs./5 periods (2 lec., 3 lab)
MNT	124	Industrial Carpentry: Foundations /3 cr. hrs./5 periods (2 lec., 3 lab)
MNT	126	Industrial Carpentry: Framing I /3 cr. hrs./5 periods (2 lec., 3 lab)
MNT	128	Industrial Carpentry: Finishing I /3 cr. hrs./5 periods (2 lec., 3 lab)
MNT	130	Industrial Carpentry: Framing II /3 cr. hrs./5 periods (2 lec., 3 lab)
MNT	132	Industrial Carpentry: Finishing II /3 cr. hrs./4 periods (2 lec., 2 lab)
MNT	140	Tools and Equipment for Industrial Painting /3 cr. hrs./5 periods (2 lec., 3 lab)

MNT	141	Industrial Painting Applications I /3 cr. hrs./5 periods (2 lec., 3 lab)
MNT	142	Industrial Painting Applications II /3 cr. hrs./5 periods (2 lec., 3 lab)
MNT	150	Rigging and Load Lifting /3 cr. hrs./5 periods (2 lec., 3 lab)
MNT	152	Industrial Bearings /2 cr. hrs./3 periods (2 lec., 1 lab)
MNT	154	Industrial Couplings, Clutches, and Brakes /2 cr. hrs./4 periods (1 lec., 3 lab)
MNT	155	Industrial Mechanical Drives /3 cr. hrs./4 periods (3 lec., 1 lab)
MNT	156	Fiberglass, Thermoplastic, and Metal Forming /3 cr. hrs./4 periods (2 lec., 2 lab)
MNT	160	Industrial Diesel Engine Maintenance and Repair /4 cr. hrs./6 periods (3 lec., 3 lab)
MNT	170	Industrial Plumbing and Piping Systems I /2 cr. hrs./3 periods (2 lec., 1 lab)
MNT	171	Industrial Plumbing and Piping Systems II /4 cr. hrs./6 periods (3 lec., 3 lab)
MNT	172	Industrial Plumbing and Piping Systems III /4 cr. hrs./6 periods (3 lec., 3 lab)
MNT	201	Direct Digital Controllers /3 cr. hrs./5 periods (2 lec., 3 lab)
MNT	210	Air Logic Control Systems /2 cr. hrs./4 periods (1 lec., 3 lab)
MNT	220	Scraping and Flaking of Metals /2 cr. hrs./4 periods (1 lec., 3 lab)
MNT	230	Electrical Storage Batteries /2 cr. hrs./3 periods (2 lec., 1 lab)
MNT	231	Industrial Fire Alarm Systems /5 cr. hrs./8 periods (4 lec., 4 lab)
MNT	232	Master Clock Control and Public Address Systems /3 cr. hrs./5 periods (2 lec., 3 lab)
MNT	234	Industrial Emergency Generators /2 cr. hrs./4 periods (1 lec., 3 lab)
MNT	238	Electrical Transformers I /4 cr. hrs./6 periods (3 lec., 3 lab)
MNT	239	Electrical Transformers II /3 cr. hrs./3 periods (3 lec.)
MNT	242	High Voltage Electrical Switchgear /4 cr. hrs./6 periods (3 lec., 3 lab)
MNT	244	Conduit Systems and Hardware /3 cr. hrs./5 periods (2 lec., 3 lab)

**MATERIAL RECLAMATION**

MRD	101	Material Reclamation and Disposal /1 cr. hr./1.5 periods (.5 lec., 1 lab)
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**MICROELECTRONICS**

- MRE 104 Introduction to Microelectronics /3 cr. hrs./3 periods (3 lec.)
- MRE 112 Electronics for Technical Careers /3 cr. hrs./5 periods (2 lec., 3 lab)
- MRE 115 Thick Film Screen Printing /4 cr. hrs./6 periods (3 lec., 3 lab)
- MRE 116 Microelectronic Assembly: Wire Bond /3 cr. hrs./4 periods (2 lec., 2 lab)
- MRE 117 Microelectronics Assembly: Die and Header Attach /3 cr. hrs./4 periods (2 lec., 2 lab)
- MRE 119 Microelectronic Assembly: Inspection /3 cr. hrs./5 periods (2 lec., 3 lab)
- MRE 120 Microelectronics Device Screening Tests /3 cr. hrs./5 periods (2 lec., 3 lab.)
- MRE 121 Electronic Solder Assembly /2 cr. hrs./3 periods (1 lec., 2 lab)
- MRE 122 Automated Factory Test Procedures /3 cr. hrs./4 periods (3 lec., 1 lab)
- MRE 123 Electronic Fabrication and Processing /2 cr. hrs./3 periods (1 lec., 2 lab)
- MRE 125 Printed Circuit Board Solder Assembly /3 cr. hrs./5 periods (1 lec., 4 lab)
- MRE 200 Microelectronic Photolithographic Processes /3 cr. hrs./4 periods (2 lec., 2 lab)
- MRE 220 Microelectronics Packaging /3 cr. hrs./4 periods (2 lec., 2 lab)
- MRE 230 Microelectronics Circuit Fabrication /4 cr. hrs./6 periods (2 lec., 4 lab)

**PROCESS TECHNOLOGY**

- PRO 101 Production Processing of Circuit Boards I /4 cr. hrs./8 periods (2 lec., 6 lab)
- PRO 102 Production Hardware Processing /3 cr. hrs./5 periods (2 lec., 3 lab)
- PRO 103 Plastics Processing of Circuit Boards /3 cr. hrs./5 periods (2 lec., 3 lab)
- PRO 104 Plastics Processing of Production Hardware /3 cr. hrs./5 periods (2 lec., 3 lab)
- PRO 106 Painting and Coating of Metals /4 cr. hrs./8 periods (2 lec., 6 lab)
- PRO 107 Computer Numerical Control Concepts and Program Operation / 4 cr. hrs./5 periods (3 lec., 2 lab)
- PRO 108 Drilling Processes of Circuit Boards /3 cr. hrs./5 periods (2 lec., 3 lab)
- PRO 109 Heat Treatment Processes /3 cr. hrs./5 periods (2 lec., 3 lab)

- PRO 110 Surface Plating /3 cr. hrs./5 periods (2 lec., 3 lab)
- PRO 111 Production Processing of Circuit Boards II /4 cr. hrs./8 periods (2 lec., 6 lab)
- PRO 120 Mechanical Aspects of Circuit Board Manufacturing I /4 cr. hrs./6 periods (3 lec., 3 lab)
- PRO 122 Mechanical Aspects of Process Facilities /3 cr. hrs./5 periods (2 lec., 3 lab)

**SHEET METAL**

- SML 104 Punch Press and Material Preparation /4 cr. hrs./5 periods (3 lec., 2 lab)
- SML 105 Strippit and Weideomatic Turret Punch Press /4 cr. hrs./5 periods (3 lec., 2 lab)

**WELDING**

- WLD 162 Resistance Spot Welding /4 cr. hrs./6 periods (2 lec., 4 lab)
- WLD 163 Automatic GTAW Spot Welding/Silver Brazing /4 cr. hrs./6 periods (2 lec., 4 lab)
- WLD 164 Laser Beam Welding /4 cr. hrs./6 periods (2 lec., 4 lab)



# Microcomputer Repair

## Microcomputer Repair—Basic Certificate for Direct Employment

Program Identification Code: 255-10-08

This certificate provides foundational training which permits advancement to higher levels in the job market. Basic reading and communication skills as well as good work habits are essential for success. Program courses and advising are available on the Downtown Campus and on the West Campus.

### Required Courses (16 Credit Hours)

Course Number	Course Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
CSC 100	Introduction to Computers and Information Systems	3	MAT 092*
CSC 105	Survey of Microcomputer Uses	3	
CSC 108	Microcomputer Operating Systems	3	
ETR 130	Microcomputer Assembly and Testing	4	*
WRT 150	Practical Communications	3	

### Suggested Course Sequence (Read down.)

WRT 150  
CSC 100  
CSC 105  
ETR 130  
CSC 108

\*For additional prerequisite information, check course section.

## Microcomputer Repair—Technical Certificate for Direct Employment

Program Identification Code: 255-10-05

This certificate provides the necessary skills for entry level microcomputer installation and servicing job opportunities. Basic reading, math and study skills as well as good work habits are essential for success in this program.

### Required Courses (33-34 Credit Hours)

Course Number	Course/Title	Credit Hours	Prerequisites
<b>Core Courses</b> - A grade of C or better is required for graduation.			
CSC 100	Introduction to Computers and Information Systems	3	MAT 092*
CSC 105	Survey of Microcomputer Uses	3	
CSC 108	Microcomputer Operating Systems	3	
ETR 101	Basic DC Electronic Circuit Analysis	3	MAT 115*
ETR 110	Digital Electronics	3	MAT 115
ETR 130	Microcomputer Assembly and Testing	4	*
ETR 132	Microcomputer Systems Servicing	3	ETR 130
ETR 210	Local Area Network (LAN) Servicing	3	CSC 108*

### Support Courses

ETR 294	Microcomputer Repair Internship		ETR 132
or 299	Co-op Related Class in ETR		*
and 299	Co-op Work in ETR	2-3	*

### General Educations Courses

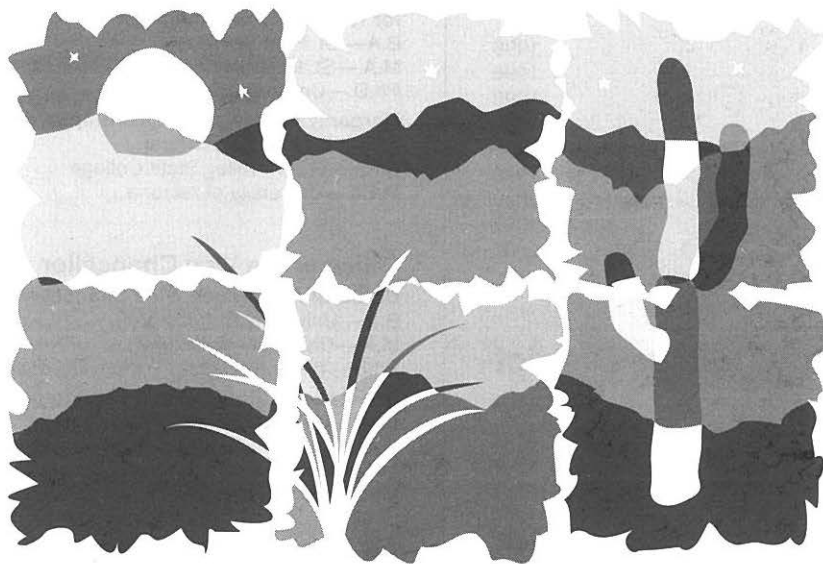
Communication			
WRT 150	Practical Communications	3	
Science and/or Mathematics			
MAT 115	Electronics Mathematics	3	MAT 092

### Suggested Course Sequence (Read down.)

WRT 150	CSC 105	ETR 132
CSC 100	ETR 110	ETR 210
MAT 115	CSC 108	ETR 294 or 299
ETR 101	ETR 130	

\*For additional prerequisite information, check course section.

# Governance and Faculty



## State Board of Directors for Community Colleges of Arizona

Chairman: Robert L. Gugino, Pima County	1998
Vice Chairman: Thava Freedman, Navajo County	2000
Immediate Past Chairman: James A. Ullman, Maricopa County	1997
Secretary: Evangelina "Conkie" Hoover, La Paz County	1998
Treasurer: Patrick K. Carlin, Mohave County	2001
Executive Committee Member-at-Large: Theodore C. Fichtl, Cochise County	2002

### Members:

Apache County, Dr. Robert J. McKenzie	1998
Coconino County, Mary Kuzell-Babbitt	1996
Gila County, Josephine Quesada-Alvarez	1996
Graham County, Lois W. Claridge	2002
Greenlee County, Ruth Senne	1999
Pinal County, Dalton H. Cole, Jr.	1999
Santa Cruz County, Lourdes Moreno-Jeong	2000
Yavapai County, Dr. Joseph F. Russo	1997
Yuma County, T. O. Beach	2001
Superintendent of Public Instruction: Lisa Graham Keegan	
Arizona Board of Regents: Judith A. Gignac	

## Pima County Community College District Board of Governors

Dr. Theodore H. Koff	District 1, Jan. 1997
John L. Huerta, Jr.	District 2, Jan. 1997
Gerald J. Bishop	District 3, Jan. 2001
John R. Even	District 4, Jan. 1999
E. Marty Cortez-Terrazas	District 5, Jan. 2001

## College District Administrators

Dr. Robert D. Jensen, Chancellor
Dr. Carol A. Gorsuch, Vice Chancellor
Edward B. Acuña, Campus President, Desert Vista Campus
Jana B. Kooi, Campus President, Community Campus
Dr. Miguel A. Palacios, Campus President, Downtown Campus
J. Graham Smart, Campus President, West Campus
Dr. Wesley E. Soderquist, Campus President, East Campus

## District Central Office

### Office of the Chancellor

**Dr. Robert D. Jensen, Chancellor**

B.S.—Linfield College

M.S.—Linfield College

Ph.D.—Washington State University

**Joseph E. Nevin, Executive Director, Pima Community College Foundation**

B.S.—University of Montana

**Dr. Philip J. Silvers, Senior Assistant to the Chancellor for Research and Planning**

B.A.—St. Paul Seminary

M.A.—St. Paul Seminary

Ph.D.—University of Arizona

**Margaret A. Sprague, Equal Employment Opportunity/Affirmative Action Officer**

B.Ph.—Grand Valley State College

M.Ed.—University of Arizona

### Office of the Vice Chancellor

**Dr. Carol A. Gorsuch, Vice Chancellor**

B.A.—University of Arizona

M.A.—University of Arizona

Ed.D.—(Honoris Causa) Tucson University

**Dr. Robert K. Baker, Senior Assistant to the Vice Chancellor for Policy and Library Technology**

B.A.—California State University, Northridge

M.A.—University of California-Los Angeles

M.L.S.—University of California-Los Angeles

Ed.D.—Northern Arizona University

**Eva A. Cota, Director of Minority and Interdisciplinary Education**

B.A.—University of Arizona

B.S.—University of Arizona

M.A.—University of Arizona

**Jean Y. Dowdy, Assistant Vice Chancellor for Human Resources**

B.A.—Gustavus Adolphus College

**Dr. Doris Jefferies Ford, Assistant Vice Chancellor for Educational Services**

B.S.—Wayne State University

M.Ed.—Wayne State University

Ph.D.—University of Illinois, Champaign-Urbana

**Dr. John Gabusi, Assistant Vice Chancellor  
for Economic Development**

B.A.—University of Arizona  
Ph.D.—(Honoris Causa) Lincoln University

**Dr. Mary Lou Ferrer Schmidt, Special Assistant to the Vice Chancellor  
for Institutional Effectiveness**

B.A.—Washington State University  
M.Ed.—Washington State University  
Ed.D.—Seattle University

**Paul F. Smith, Assistant Vice Chancellor  
for Administrative Services and Facilities**

B.S.—University of Arizona  
M.S.—Georgia College

**Kenneth M. Sternstein, Assistant Vice Chancellor  
for Finance/Chief Fiscal Officer**

B.S.—University of Arizona

**Ann Strine, Assistant Vice Chancellor for Information Technology**

B.A.—Texas Christian University  
M.A.—Indiana University

**Community Campus**

**Jana B. Kooi, Campus President**

B.A.—Calvin College  
M.A.—Western Michigan University

**Dr. Harry Phillip Muir, Dean of Instruction**

B.S.—University of Kansas  
M.S.—University of Kansas  
Ph.D.—Kansas State University

**Juanita L. Chrysanthou, Dean of Student Development**

B.S.—Loyola Marymount University  
M.S.—Loyola Marymount University

**Carolyn C. Christian, Associate Dean of Instruction**

B.S.—Bowling Green State University  
M.A.—Ball State University

**Doris J. Williams, Associate Dean of Student Development**

A.A.—Pima Community College  
B.S.—University of Arizona  
M.S.—University of Arizona

**Desert Vista Campus**

**Edward B. Acuña, Campus President**

B.S.—University of Arizona  
M.Ed.—University of Arizona

**Dr. Angela Zerdavis, Dean of Instruction**

Certificate—Beijing Normal University  
B.A.—University of Illinois  
M.A.—California State University  
Ed.D.—Brigham Young University

**Dean of Student Development (vacant)**

**Dr. Johnson Bia, Dean, Center for Training and Development**

B.S.—University of Arizona  
M.S.—University of Arizona  
Ph.D.—Iowa State University

**Downtown Campus**

**Dr. Miguel Palacios, Campus President**

B.A.—University of Arizona  
M.A.—University of Arizona  
Ph.D.—University of Arizona

**Dr. Richard E. Durán, Dean of Instruction**

B.A.—Adams State College  
M.A.—Adams State College  
Ed.D.—University of Northern Colorado

**Alfred B. Montes, Dean of Student Development**

B.A.—University of Arizona  
M.Ed.—University of Arizona

**Francisco Z. Fernandez, Associate Dean of Student Development**

B.A.—University of Arizona  
M.Ed.—University of Arizona

**Rosemarie Schulz, Associate Dean of Educational Services**

B.A.—University of Wisconsin  
M.S.—University of Wisconsin

**East Campus**

**Dr. Wesley E. Soderquist, Campus President**

B.S.—Illinois Institute of Technology  
M.B.A.—University of Chicago  
Ed.D.—Loyola University

**Dr. Stanley P. Witt, Dean of Instruction**

B.A.—University of Arizona  
M.A.—University of Arizona  
Ph.D.—University of Arizona

**Dr. Barbara C. Ganz, Dean of Student Development**

B.A.—Arizona State University  
M.A.—Arizona State University  
Ph.D.—Northern Arizona University

**Dr. Suzanne L. Miles, Associate Dean of Instruction**

B.S.—Northwestern University  
M.A.—Arizona State University  
Ph.D.—University of Arizona

**West Campus**

**J. Graham Smart, Campus President**

B.S.—Appalachian State University  
M.A.—Appalachian State University

**Dr. Kathleen E. Assar, Campus Vice President/Dean of Educational Services**

B.S.—West Chester University  
M.A.—George Washington University  
Ed.D.—Catholic University of America

**Dr. Elizabeth Q. Gonzales, Dean of Student Development**

B.A.—University of Arizona  
M.Ed.—University of Arizona  
Ed.D.—University of Arizona

**Lucy A. Brajevich, Associate Dean, Health Related Professions**

B.S.—Northern Arizona University  
M.Ed.—University of Arizona

**Dr. Colin E. Campbell, Associate Dean, Mathematics and Sciences Division**

B.S.—University of Arizona  
Ph.D.—University of Arizona

**Michael B. Curry, Associate Dean, Business, Computer and Human Sciences Division**

B.S.—Wheeling College  
M.M.—Utah State University

**Michael S. Engs, Associate Dean of Student Development**

B.A.—College of William and Mary  
M.Ed.—University of Arizona

**Dr. Louise S. Haugh, Associate Dean of Instructional Support Services**

B.A.—University of Kentucky  
M.Ed.—University of Arizona  
Ed.D.—Brigham Young University

**Carl S. Wachsman, Associate Dean, Arts Division**

B.S.—Dickinson State University  
M.A.—University of Arizona

**Lawrence R. Toledo, Athletics Director**

B.A.—California Western University  
M.Ed.—University of Arizona

**Emeritus Status**

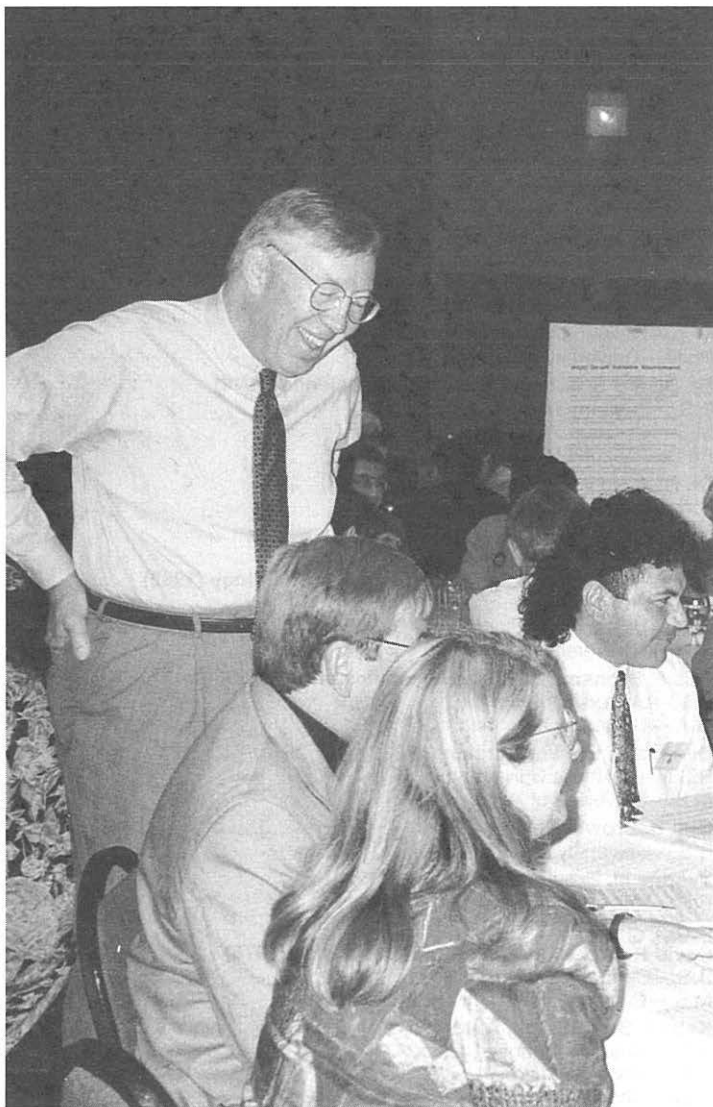
The Board of Governors confers *Emeritus* status on distinguished individuals, retired from the College, to signify honor and respect for outstanding accomplishments and contributions to the College. This distinction is a tribute to the special relationship that will expand well into the future as the 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

**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. 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 area of service, professional organizations, their campus or the Central Office, the College district, and the Pima community.

Emily McMillin	1996
Harold Thompson	1996



## Pima Community College Faculty

### **Cynthia A. Adams, Fitness and Sport Sciences (1990)**

B.S.—Salem College

M.S.—State University of New York-Cortland

### **Alice L. Adamson, Mathematics (1992)**

B.S.—Maryville College

M.S.—California State University-Hayward

### **Javier Alcaraz, Spanish and French (1978)**

B.A.—Montezuma Pontifical College

M.A.—Universidad Jaime Balmes

M.Ed.—St. Mary's College

### **Barbara M. Anderson, Counselor (1970)**

A.A.—Cochise College

B.S.—University of Arizona

M.Ed.—University of Arizona

### **Emilia Andujo, Dental Hygiene Education (1991)**

A.A.—Rio Hondo Community College

A.S.—Cerritos Community College

B.S.—California State University-Long Beach

M.S.—California State University-Los Angeles

### **Cynthia P. Arcala, Nursing (1988)**

B.S.N.—Phillipine Women's University

M.S.—University of Michigan

### **Dr. Cynthia A. Arem, Counselor (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

### **Gun E. Bailey, Speech (1973)**

B.A.—University of Arizona

M.A.—University of Arizona

### **Kay S. Baker, Nursing (1978)**

B.S.N.—Arizona State University

M.Ed.—University of Arizona

M.S.N.—University of Arizona

### **Pamela A. Barnes, Counselor (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.—University of Arizona

M.A.—University of Arizona

**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 Science (1978)**

B.S.E.E.—University of Texas-Austin

M.S.E.E.—New York University

Ph.D.—Columbia University

**Dan L. Beeson, Electronics (1985)**

B.S.—Southeast Missouri State University

**Robert P. Beitz, Psychology (1979)**

A.S.—Mercer County Community College

B.A.—University of Arizona

M.Ed.—University of Arizona

Ed.S.—University of Arizona

**Sandra M. Bejarano, Environmental Technology (1993)**

B.S.—University of Arizona

**Philip S. Bellomo, Visual Arts and Ceramics (1975)**

B.F.A.—University of Arizona

M.F.A.—University of Arizona

**Dr. Theria M. Beverly, Reading (1975)**

B.A.—Clark College

M.Ed.—University of Arizona

Ed.D.—University of Sarasota

**Kathy A. Blicharz, Computer Science (1982)**

A.A.S.—Pima Community College

B.S.—University of Phoenix

M.Ed.—University of Phoenix

**Charles A. Bollong, Anthropology and Archaeology (1992)**

B.A.—Simon Fraser University

M.A.—University of Otago

M.A.—Southern Methodist University

**C. Lynn Bonner, Speech (1971)**

B.A.—Western Michigan University

M.A.—Western Michigan University

M.A.—Northern Arizona University

**Samuel P. Borah, Mathematics (1987)**

B.S.—Hardin Simmons University

M.A.—Appalachian State Teachers College

**Dr. Johnny W. Bowens, Sociology (1970)**

B.A.—Dillard University

M.Ed.—University of Arizona

Ph.D.—Union Institute

**Dr. Aristeo Brito, Spanish (1970)**

B.A.—Sul Ross State College

M.A.—University of Arizona

Ph.D.—University of Arizona

**Monica J. Brito Spanish (1992)**

B.A.—St. Francis College

M.A.—University of Arizona

**Dr. Fé Carol P. Brittain, Languages (1977)**

B.A.—Florida State University

M.A.—Middlebury College

Ph.D.—University of Arizona

**Dr. Dillard S. Broderick, Computer Science (1974)**

B.S.—Brigham Young University

M.S.—Brigham Young University

Ph.D.—Arizona State University

**Dr. Richard L. Brodesky, Writing (1978)**

B.A.—Brandeis University

M.A.—Harvard University

Ph.D.—Harvard University

**Dr. Louise F. Bronson, Psychology and Sociology (1969)**

B.A.—University of Rochester

M.A.—University of Florida

Ph.D.—University of Arizona

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B.S.—University of Florida

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**Cynthia A. Brown, Nursing (1980)**

B.S.N.—Catholic University

M.S.—University of Arizona

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B.S.—University of Arizona

**Yvonne M. Brown, Mathematics (1992)**

B.S.—University of Southern Colorado

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**David K. Bruce, Administration of Justice (1975)**

B.S.—Central Missouri State University

M.S.—California State University-San Jose

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B.S.N.—University of Massachusetts  
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B.A.—Sonoma State College

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**Ellen F. Caldwell, Mathematics (1983)**

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M.A.—University of Wyoming

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B.A.—University of New Hampshire  
M.Ed.—University of Hartford  
Ph.D.—University of Florida-Gainesville

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B.A.—University of Arizona  
R.T.—Tucson Medical-Respiratory Therapy  
M.Ed.—Northern Arizona University

**Guadalupe Castillo, History (1991)**

B.A.—University of Arizona  
M.A.—University of Arizona

**Neil D. Catone, Electronics (1983)**

A.S.—Community College of the Air Force  
B.S.E.E.—University of Hawaii  
M.A.—Northern Arizona University

**Sandra J. Chan, Librarian (1982)**

A.A.—Pima Community College  
B.A.—University of Arizona  
M.L.S.—University of Arizona

**Anthony M. Chana, Counselor (1971)**

A.A.—Phoenix College  
B.A.—Arizona State University

**Shirley J. Chann, Computer Science (1970)**

B.A.—Wellesley College  
M.Ed.—University of Arizona

**Gustavo A. Chavez, Counselor (1982)**

A.A.—Mesa Community College  
B.A.—Arizona State University  
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**Dr. Kenneth R. Chiaro, Political Science and History (1975)**

B.A.—University of Arizona  
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Ph.D.—University of Arizona

**Dr. Ann A. Christensen, Biology (1992)**

D.C.E.—Mariapolis College  
B.S.—Concordia University  
M.S.—Concordia University  
Ph.D.—Queens University

**Dr. Nancy G. Christie, Psychology (1993)**

B.A.—University of Arizona  
M.S.—University of Arizona  
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**Bruce C. Clark, Art (1992)**

B.F.A.—University of Georgia  
M.F.A.—University of Arizona

**Christine Clifford, Biology (1975)**

B.A.—Bowling Green State University  
M.S.—University of Colorado

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B.Ed.—Colorado State University

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**Martha L. Connolly, Reading (1990)**

B.S.—University of Dayton  
M.Ed.—University of Arizona

**Alan E. Coons, Mathematics (1983)**

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B.S.—Northern Arizona University  
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M.B.A.—University of Arizona

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A.A.—Bakersfield College  
B.A.—University of Nevada  
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Ph.D.—University of Arizona

**Dr. Joseph D. Cortez, Mathematics (1975)**

B.S.—University of Arizona  
M.A.—University of Denver  
Ed.D.—University of Denver

**Timothy M. Cote, Aviation Structural Repair (1992)**

**Ronald D. Crabtree, Humanities (1970)**

B.A.—Washington University  
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**Barbara J. Crowley, Dental Assisting Education (1975)**

C.D.A.—Certified Dental Technician  
B.A.—University of Arizona  
M.Ed.—University of Arizona

**Kathleen F. Curley, Librarian (1991)**

B.A.—University of Arizona  
M.A.—University of Arizona  
M.L.S.—University of Arizona

**John P. Dailey, Hospitality (1992)**

B.S.—Bryant College  
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**Dr. Arnold C. Davidson, Writing (1978)**

B.S.—Emporia State University  
M.A.—Emporia State University  
Ed.S.—University of South Dakota  
Ph.D.—Florida State University

**C. Lee Davidson, Reading (1993)**

B.A.—University of Arizona  
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**Dr. Daniel Davidson, Physics (1971)**

B.S.—University of Rochester  
Ph.D.—University of Arizona

**Dr. June F. Davidson, Counselor (1981)**

B.S.—University of Rochester  
M.Ed.—University of Arizona  
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**Dr. Patricia J. Davis, Writing and Literature (1971)**

B.A.—University of Texas  
M.A.—University of Wisconsin  
Ph.D.—University of Wisconsin

**Susana De La Pena, Writing (1995)**

B.A.—University of Arizona  
M.Ed.—University of Arizona

**Dr. James De La Rosa, Biology (1994)**

B.S.—University of Southern California  
M.S.—Cornell University  
Ph.D.—Cornell University

**Francisco O. Delgado-Duran, Landscape Technology (1991)**

B.S.—University of Chihuahua  
M.S.—University of Arizona

**Margaret R. Denfeld, Writing (1992)**

A.A.—Southeast Iowa Area Community College  
B.A.—Iowa Wesleyan College  
M.A.—Western Illinois University  
M.A.—Iowa State University

**Robert C. Douglas, Dental Laboratory Technology (1975)**

C.D.T.—National Assn. of Dental Laboratories

**Allan E. Doyle, Accounting and Business (1977)**

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M.B.A.—New York University  
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**Michael A. Enis, Welding (1970)**

Cert.—American Welding Society  
A.A.—Pima Community College

**Vernone H. Erickson, Nursing (1992)**

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M.S.—University of Arizona

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B.S.—University of Arizona  
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**Donald W. Evans, Drama (1990)**

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M.F.A.—University of Arizona

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B.A.—University of Arizona

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M.Ed.—University of Arizona

**Roxane Fenicle-Funckes, Sign Language (1992)**

B.A.—Gallaudet University

M.A.—Western Maryland College

**Julia B. Fiello, Biology (1994)**

B.A.—Oberlin College

M.A.—University of Arizona

**Dr. Brad C. Fiero, Biology (1990)**

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D.A.—Idaho State University

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**Margaret K. Files, Writing (1987)**

B.A.—Kalamazoo College

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**Georgianne R. Fimbres, Design (1971)**

B.S.—University of Arizona

M.Ed.—University of Arizona

**Susan S. Finch, Computer Science (1969)**

B.S.—University of California, Los Angeles

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B.S.—Colorado State University

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M.S.—North Dakota State University

**Rita V. Flattley, Faculty Resources and Educational Development (1991)**

A.A.—Pima Community College

B.A.—University of Arizona

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**Joyce A. Flieger, Dental Hygiene Education (1991)**

B.S.P.H.—University of Southern California

M.P.H.—University of Michigan

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M.S.—Eastern Illinois University

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B.S.—North Texas State University

M.Ed.—University of Arizona

**Richard H. Fridena, Social Services (1981)**

B.A.—University of Arizona

M.S.W.—Arizona State University

**Mary M. Fried, Nursing (1982)**

B.S.N.—College of St. Teresa

M.A.—University of Washington

**Richard J. Frontain, Writing (1976)**

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M.Ed.—University of Arizona

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B.A.—University of Havana

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**Mary B. Furlow, Writing (1978)**

B.A.—University of Tennessee

M.Ed.—University of Tennessee

M.A.—Governors State University

C.A.S.—University of Chicago

**David W. Gallagher, Psychology (1971)**

B.A.—University of Arizona

M.Ed.—University of Arizona

**Dr. Rosemary Garcia, Sociology, Business, and Administration of Justice (1972)**

B.A.—University of California

M.A.—University of California

J.D.—Loyola University

**Kenneth N. Gardiner, Communication Graphics (1976)**

B.A.—California State University-Long Beach

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B.S.—Chestnut Hill College

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B.A.—Sonoma State College  
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A.R.R.T.—Registered Radiation Therapist  
B.S.—Northern Arizona University  
B.S.A.S.—Northern Arizona University  
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B.S.—Skidmore College  
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B.A.—Bryn Mawr College  
M.A.—University of California-San Diego  
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**James R. Goff, Physics (1971)**

B.A.—Nebraska Wesleyan University  
M.S.—Case Western Reserve University

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A.A.—Southwest College  
B.S.—University of Illinois  
M.Ed.—University of Arizona

**C. Barclay Goldsmith, Drama and Writing (1970)**

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M.Ed.—University of Arizona  
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B.A.—Queens College  
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M.A.—University of Wisconsin

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M.Phil.—Yale University

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B.A.—Eastern Washington University  
M.Lib.R.—University of Washington

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B.A.—Kutztown State College  
M.A.—University of Arizona

**Thomas C. Grissom, Marketing and Management (1981)**

B.S.—University of Arizona  
M.Ed.—University of Arizona

**Joan Groff, Mathematics (1983)**

B.S.—Millersville State College  
M.S.—Purdue University

**Anthony S. Guglielmino, Aviation Mechanics and Metallurgy (1971)**

A.T.—Northrop Institute of Technology  
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Cert.—AP, I.A., D.M.E., WTE, APC

**Guadalupe A. Gutierrez, Nursing (1989)**

B.S.—University of Arizona

**Clare Hamlet, Computer Science (1971)**

B.A.—University of Arizona  
M.Ed.—University of Arizona

**Roxanne S. Harley, Counselor (1980)**

B.A.—Grand Valley State College  
M.Ed.—University of Arizona

**Paul W. Harlos, Counselor (1989)**

B.S.—University of Wisconsin-La Crosse  
M.Ed.—University of Arizona

**Betty G. Harris, Art (1977)**

B.S.—Pratt Institute  
M.F.A.—University of Arizona

**Clinton J. Harrold, Business (1987)**

B.S.—University of Arizona  
C.P.A.—Certified Public Accountant  
C.M.A.—Certified Management Accountant  
M.Ed.—Northern Arizona University  
M.Accounting—University of Arizona

**Christopher R. Hawken, Fitness and Sport Sciences (1995)**

B.H.—University of London  
M.A.—University of California-Berkeley

**Dr. Donald S. Hayes, Astronomy (1991)**

B.A.—Pomona College  
M.A.—University of California-Los Angeles  
Ph.D.—University of California-Los Angeles

**Lester G. Hays, Computer Science (1968)**

B.S.—Washington University

M.Ed.—University of Arizona

**Susan L. Heinrich, Fitness and Sport Sciences (1993)**

B.S.—University of Arizona

M.S.—University of Wisconsin-La Crosse

**Dr. Andrea K. Henderson, Instructional Support Services Coordinator (1993)**

B.S.—Wayne State University

M.Ed.—University of Arizona

Ed.D.—Northern Arizona University

**Robert P. Herrman, Drafting (1995)**

A.A.S.—Pima Community College

A.A.S.—Pima Community College

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A.A.—St. Petersburg Junior College

B.A.—University of South Florida

M.A.—Arizona State University

M.L.S.—University of Arizona

**Maria A. Holmberg, Counselor (1995)**

B.A.—University of Arizona

M.S.—University of Arizona

**Mark S. Homan, Social Services (1978)**

B.A.—University of Arizona

M.S.W.—Arizona State University

**Lloyd J. Homewood, Mathematics (1988)**

B.A.—University of Oregon

B.S.—Portland State University

M.S.—Portland State University

**Pamela A. Horch, Dental Assisting Education (1989)**

A.A.—Pima Community College

A.A.—Phoenix College

B.S.—Northern Arizona University

M.Ed.—Northern Arizona University

**Ann W. Houck, Computer Science (1982)**

A.A.S.—Pima Community College

B.S.—University of Arizona

M.Ed.—University of Phoenix

**Patricia G. Houston, Spanish (1989)**

B.A.—Syracuse University

M.A.—Universidad de las Americas

**Patricia M. Hruby, Physics (1969)**

B.S.—College of Mount St. Vincent

M.S.T.—Cornell University

**Jill K. Hutcheson, Counselor (1995)**

B.A.—Coe College

M.A.—Northern Arizona University

**Dr. David G. Iadevaia, Physics and Astronomy (1984)**

A.S.—Community College of Rhode Island

B.A.—University of Rhode Island

M.A.T.—Rhode Island College

Ph.D.—Pacific Western University

**Madeleine Irell, Reading (1979)**

B.A.—University of Arizona

M.Ed.—University of Arizona

**Dr. Roger D. Irwin, Sociology, Psychology, and Religion (1970)**

B.A.—Wichita State University

M.S.—Kansas State College

Ph.D.—Paideia

Ed.D.—Brigham Young University

F.S.A.—Society of Antiquaries of Scotland

**Kathryn L. Iverson, Biology (1988)**

B.A.—California State University

M.A.—California State University

**Carol G. Jacques, Art (1976)**

B.F.A.—University of Denver

M.F.A.—University of Massachusetts

**Dr. Darla Janssen, Legal Assistant Program (1995)**

B.A.—University of Arizona

J.D.—University of Arizona

**John F. Jarchow, Construction (1978)**

B.Arch.—University of Arizona

A.I.A.—American Institute of Architects

**Susan T. Jensen, Mathematics (1992)**

B.Math.—University of Minnesota

M.Ed.—University of Minnesota

**Joe C. Jimenez, Administration of Justice (1989)**

B.S.—California State University-Fresno

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**Beth A. Johnson, Early Childhood Education (1992)**

B.A.—University of South Carolina

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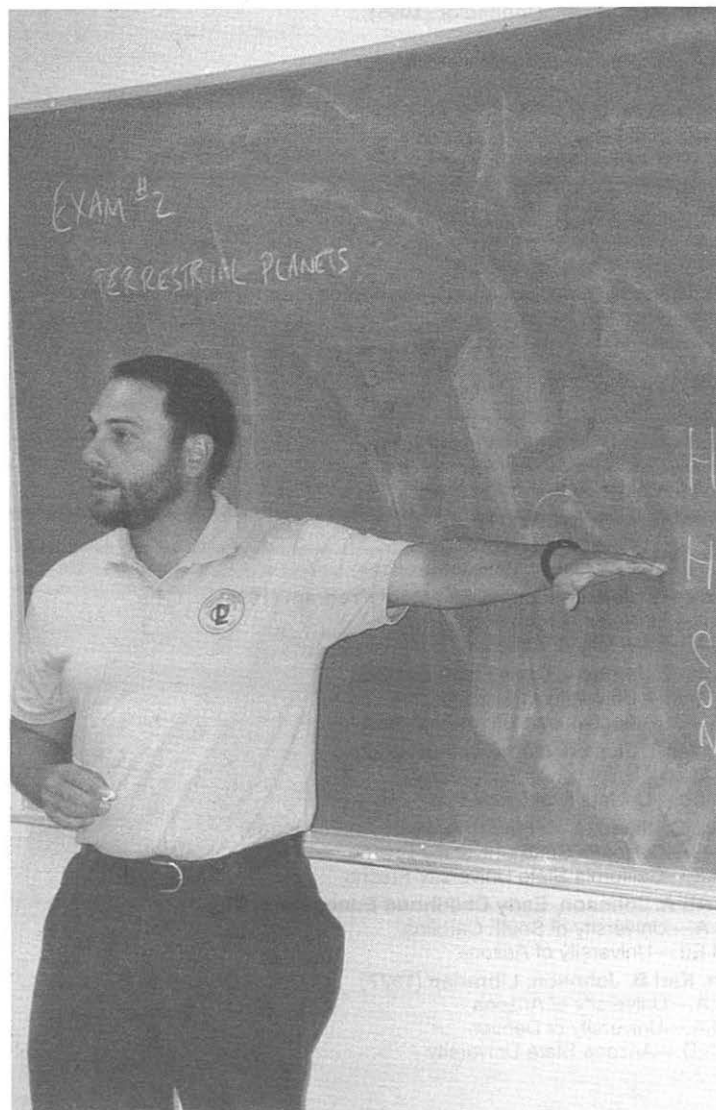
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B.A.—University of Arizona

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M.S.T.—University of Arizona

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B.A.—University of Arizona

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B.S.—University of Colorado

R. Ph.—Registered Pharmacist

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A.A.—Pima Community College

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B.S.—Illinois State University

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B.S.—Purdue University

M.Ed.—University of Arizona

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B.Arch.—University of Arizona

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Registered Architect

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B.A.—St. Ambrose College

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B.A.—Silliman University

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A.A.—Corning Community College

B.A.—Amherst College

M.Ed.—University of Massachusetts

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**Linda B. Lynn, Economics and Business (1989)**

B.S.—University of Arizona

B.A.—University of Arizona

M.A.—Indiana University

M.B.A.—University of Arizona

**Paul Malanga, Writing (1987)**

B.A.—University of Arizona

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B.S.—University of Arizona

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B.A.—State University of New York-Potsdam

M.S.—Gallaudet College

M.Ed.—University of Arizona

**Adolfo P. Marquez, Welding (1976)**

Cert.—Welding-Engineers Testing Laboratory

A.A.—Pima Community College

**D. Jim Martin, Jr., Geography (1969)**

B.S.—Colorado State University

M.Ed.—University of Florida

M.A.—University of California-Davis

**William B. Martin, Mathematics (1984)**

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B.S.—St. Louis University

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M.C.P.—University of Cincinnati

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B.S.—Anderson College

M.S.—University of Arizona

Ph.D.—University of Arizona

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B.A.—University of Arizona

M.A.—University of Arizona

M.A.—University of Arizona

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NARTE—Engineering Certificate, Sr. Member

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M.S.E.—Eastern Illinois University

**Patricia A. Murray, Nursing (1992)**

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M.S.N.—University of Pennsylvania

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B.S.—University of Wisconsin

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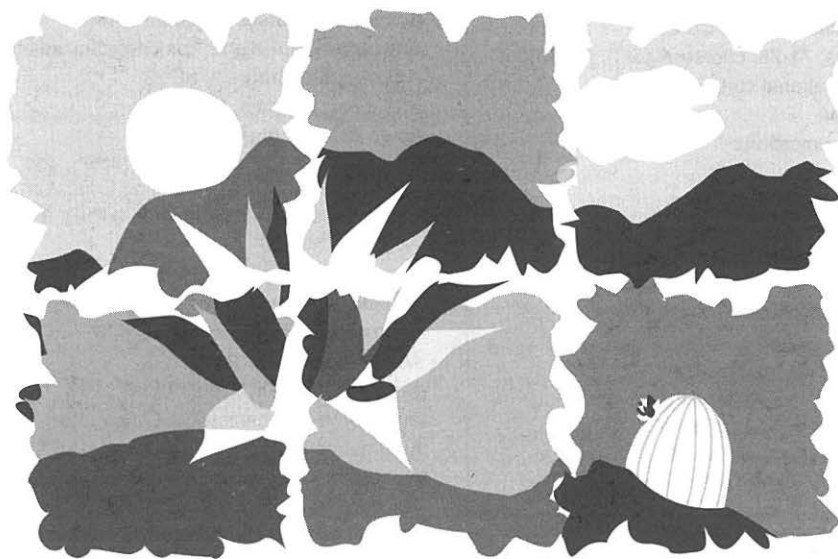
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The Board of Governors of Pima County Community College District has affirmed that the College is an equal educational/employment opportunity institution.

Discrimination is prohibited by Titles VI and VII of the Civil Rights Act of 1964 and 1991, Title IX of the Education Amendments of 1972, Sections 503 (793) and 504 (794) of the Rehabilitation Act of 1973 as amended in 1988, the Americans with Disabilities Act of 1990 (ADA), the Vietnam Veterans Readjustment Acts of 1972 and 1974, the Age Discrimination Act of 1967 as amended in 1978 and 1986, Uniformed Services Employment and Reemployment Rights Act of 1994, and other federal and state statutes, executive orders and regulations.

The College has policies prohibiting discrimination on the basis of race, color, national origin, religion, sex, sexual orientation, age, disability, membership in the uniformed services, or any other basis which is proscribed by law. Such policies apply to all educational programs, services, activities, and facilities, and to all terms and conditions of employment.

To inquire about filing a discrimination complaint, contact an intake interviewer designated to serve your campus:

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For general information related to the above policies, the College's discrimination/sexual harassment complaint procedure, or the rights and protections afforded by the ADA, contact Margaret Sprague, Affirmative Action Officer, District Central Office, 4905C East Broadway Blvd., Tucson, AZ, 85709-1010, (520) 748-4539 or see the College's Affirmative Action Plan available in all campus libraries. Every effort will be made to maintain the highest level of confidentiality.

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