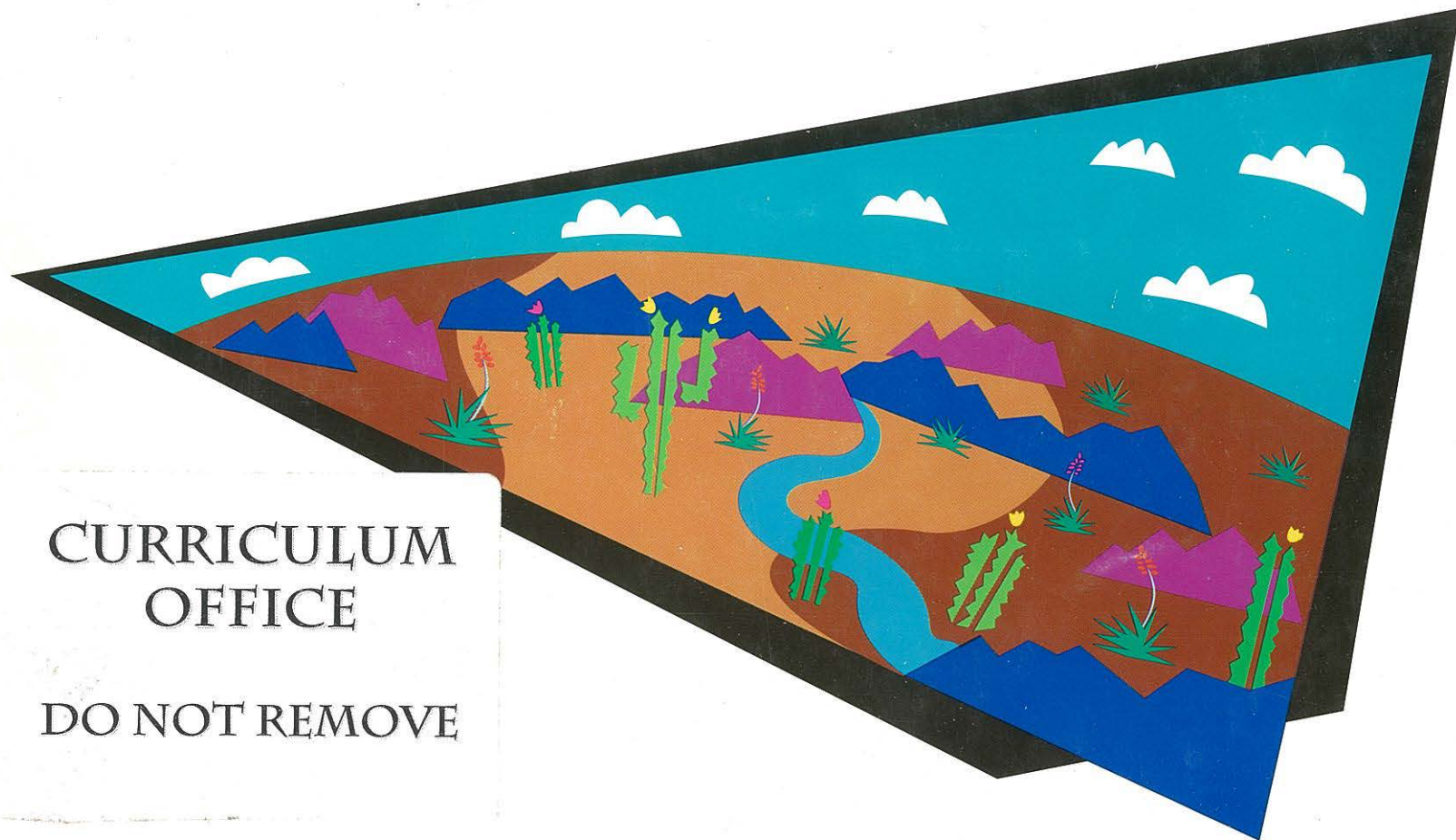


# PimaCommunityCollegeCatalog

PimaCountyCommunityCollegeDistrict



92/93



CURRICULUM  
OFFICE

DO NOT REMOVE

# Pima Community College Catalog 1992/93

## **Pima County Community College District**

200 North Stone Avenue, P.O. Box 3010  
Tucson, Arizona 85702-3010  
(602) 884-6060

**\$1.00**

While this catalog was prepared on the basis of the best information available at the time, all information—including statements on tuition, fees, course offerings, admission and graduation requirements—is subject to change without notice, obligation, or liability.

Published: June 1992.

Pima Community College is committed to equal educational opportunity. Pima Community College is an equal opportunity/reasonable accommodation/Vietnam-Era veteran/affirmative action employer. See pages 20 and 414 for further information.



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## Message from the Chancellor

I invite you to pursue your educational goals this year at Pima Community College. Pima works for you in several ways:

The College is committed to providing classes for you at convenient times and locations because many students work while continuing their education.

We know that you are looking for certain classes that can help you make progress, and we work to design courses that respond to your needs.

As always, Pima is doing everything possible to keep student costs low, so that the education option, with its many rich opportunities, remains open to you.

The mission of Pima Community College is to offer you the highest quality instruction in an environment where you will gain the most benefit.

Pima is your community college. As you prepare for your chosen occupation, each member of the faculty and every support employee is dedicated to helping you achieve your full potential.

This college catalog is an invitation to expand your knowledge and gain an edge in our complex and competitive world. It is an invitation I hope you will accept.

Sincerely,



Jeff Hockaday  
Chancellor



# Academic Calendar 1992/93

## Fall Semester 1992

All-college in-service day  
Faculty advising begins  
Open registration (walk-in)  
Drop-add  
**Fall classes start**  
Labor Day holiday  
Graduation applications due  
Veterans Day holiday  
Thanksgiving Day holiday  
Evaluation/assessment/exam week  
**Fall semester ends**  
Final grades due  
Winter recess

Aug 17  
Aug 18  
Aug 18-21  
Aug 24-28  
**Aug 24**  
Sep 7  
Oct 1  
Nov 11  
Nov 26-29  
Dec 10-16  
**Dec 16**  
Dec 17  
Dec 17-Jan 3

## Spring Semester 1993

Faculty development day  
Faculty advising begins  
Open registration (walk-in)  
Drop-add  
**Spring classes start**  
Martin Luther King, Jr., holiday  
Graduation applications due  
Rodeo Days holiday  
Spring holiday  
Evaluation/assessment/exam week  
**Spring semester ends**  
Final grades due  
Graduation

Jan 4  
Jan 5  
Jan 5-8  
Jan 11-15  
**Jan 11**  
Jan 18  
Feb 1  
Feb 25-28  
Mar 15-21  
May 5-11  
**May 11**  
May 12  
May 12

## Summer School Program 1993

Summer advising/registration period

Apr 26-May 14

### Session A

Classes begin  
Drop-add  
Memorial Day holiday  
Classes end  
5 weeks\*  
6 weeks\*\*

May 17  
May 17-18  
May 31  
  
Jun 17  
Jun 24

### Session B

Advising/registration continues  
Classes begin  
Drop-add  
Classes end  
5 weeks\*  
6 weeks\*\*

Jun 21-Jul 1  
Jul 6  
Jul 6-7  
  
Aug 5  
Aug 12

### Session C

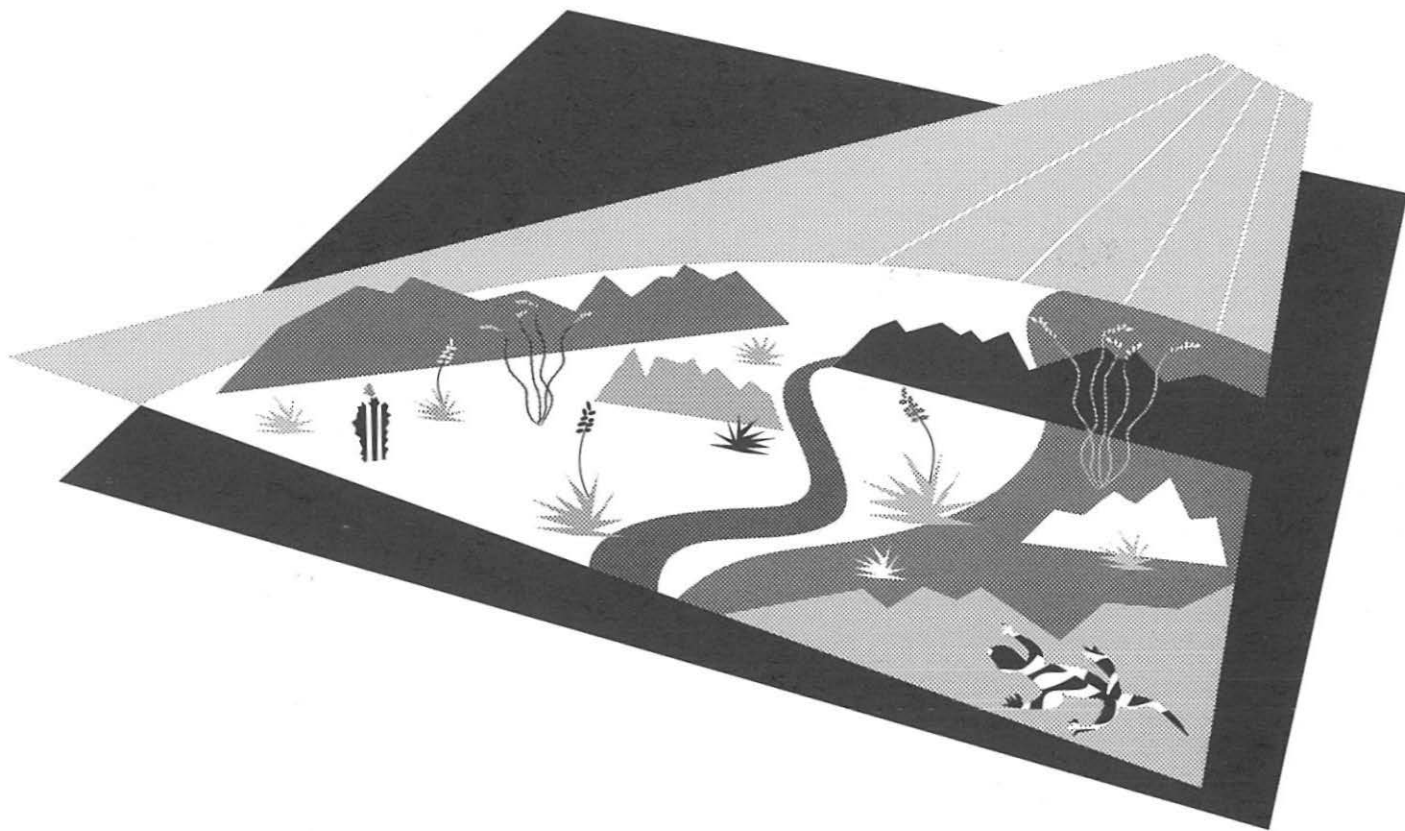
Classes begin  
Drop-add  
Memorial Day holiday  
Independence Day holiday  
Classes end  
8 weeks\*  
10 weeks\*\*

May 24  
May 24-26  
May 31  
July 5  
  
Jul 15  
Jul 29

\* Standard length of session.

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

# The College





# Pima County Community College District

## **Educational Facilities**

### **Community Campus**

1901 N. Stone Avenue  
Tucson, Arizona 85705  
(602) 884-6940

### **Downtown Campus**

1255 N. Stone Avenue  
Tucson, Arizona 85705  
(602) 884-6788

Aviation Technology Center  
1668 S. Research Loop Road  
Tucson, Arizona 85730  
(602) 884-6186

### **East Campus**

8202 E. Poinciana Drive  
Tucson, Arizona 85730  
(602) 886-3331

### **West Campus**

2202 W. Anklam Road  
Tucson, Arizona 85709  
(602) 884-6965

### **Education Center-South**

2859 E. Elvira Street  
Tucson, Arizona 85706  
(602) 884-6577

### **Skill Center**

1859 W. Grant Road, #104  
Tucson, Arizona 85705  
(602) 623-8456

### **Community Services** (noncredit classes)

220 E. Speedway Boulevard  
Tucson, Arizona 85705  
(602) 884-6720

## **Administrative Service Facilities:**

### **District Service Center**

200 N. Stone Avenue  
P.O. Box 3010  
Tucson, Arizona 85702-3010  
(602) 884-6666

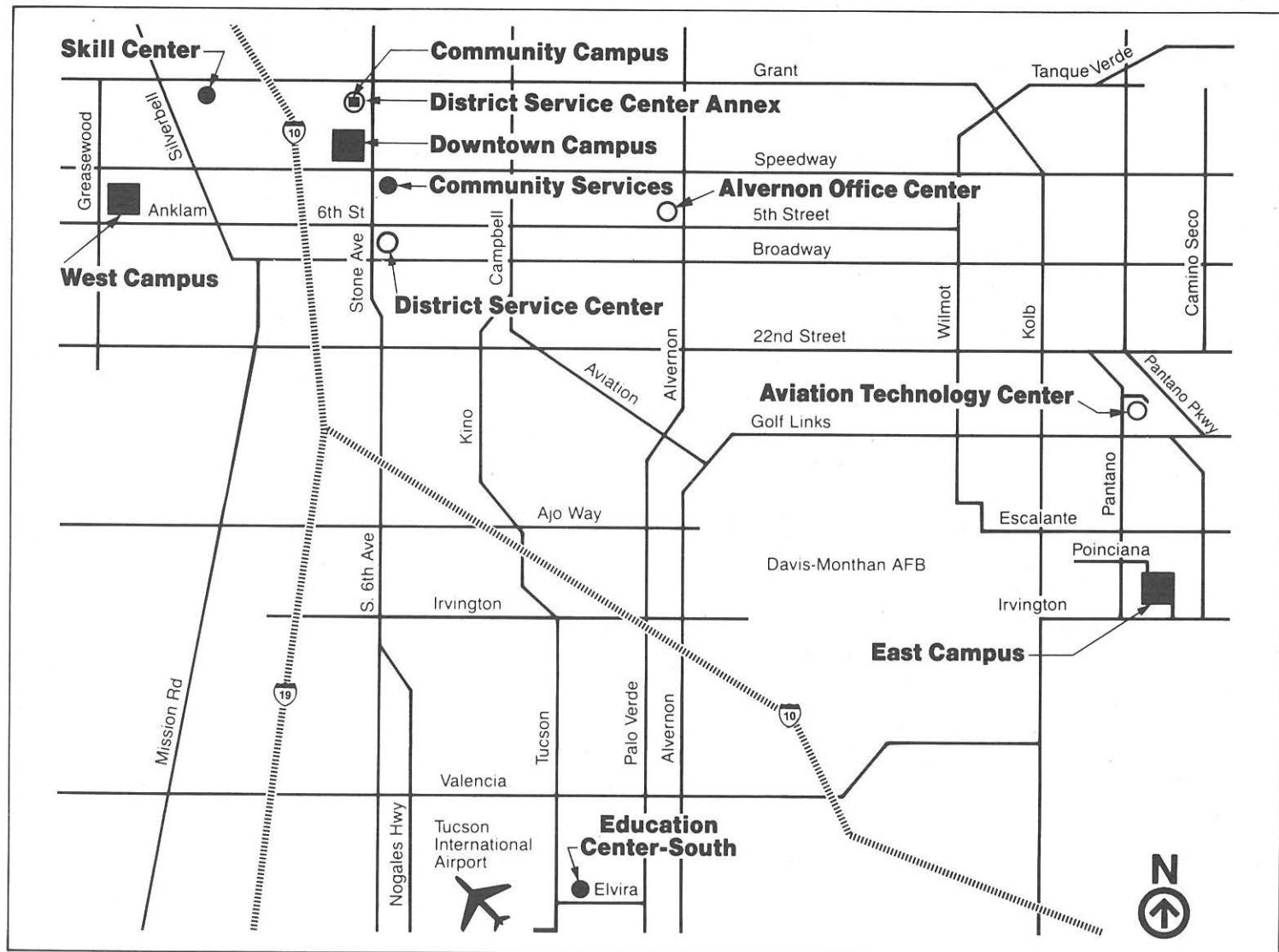
### **District Service Center Annex**

1927 N. Stone Avenue  
2001 N. Stone Avenue  
Tucson, Arizona 85705  
(602) 884-6666

### **Alvernon Office Center**

655 N. Alvernon Way  
Tucson, Arizona 85711  
Alumni/Foundation, Suite 112  
(602) 884-6277  
Small Business Development  
Center, Suite 110  
(602) 884-6306

If you experience difficulty reaching any of the offices or campuses listed on this page, call 884-6060 for assistance.





## Downtown Campus

The Downtown Campus opened in 1974 in a remodeled post office annex near Speedway Boulevard and Stone Avenue. A complex of new and converted buildings, facilities include classrooms, laboratories, faculty offices, and the Campus Center, which houses various student services offices, the library, a bookstore, lounges, and a food service area.

The 16½-acre campus is easily accessible by public transportation from most sections of the city, and there is regular bus service between the Downtown and West campuses of the College.

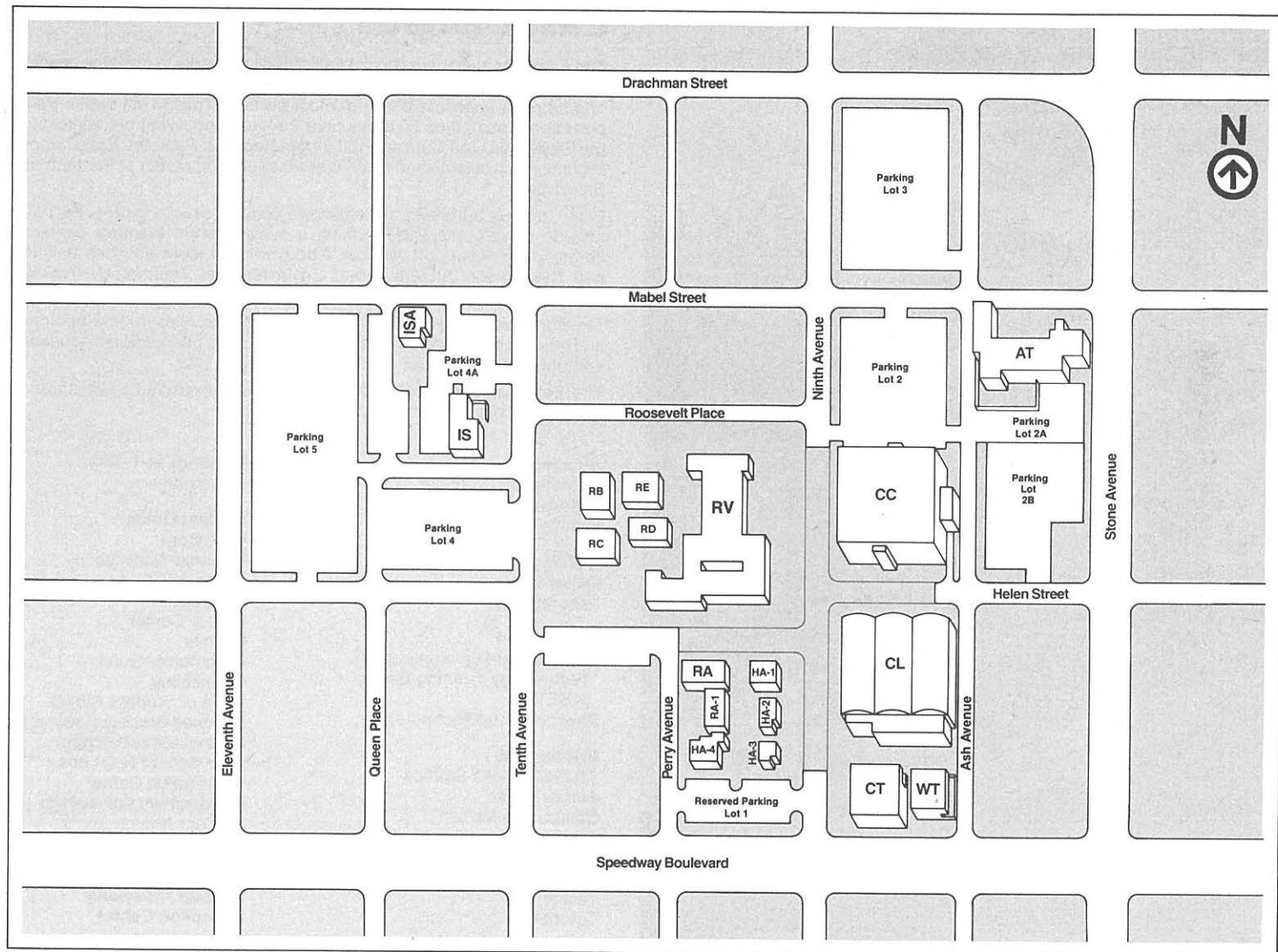
In addition to offering a comprehensive study program, the campus also offers some of Pima's specialized industrial technology programs such as automotive, air conditioning, advertising art, graphic technology, machine tool, and welding.

The aviation technology program, including the only aviation structural repair program of its kind in the country, moved to a new facility in the spring of 1991. The Aviation Technology Center is located in a business and industrial complex at 1668 S. Research Loop. (See district map, p.7.)

Downtown Campus enrollment is about 10,000.

|      |   |
|------|---|
| AT   | Automotive Technology                   |
| CC   | Campus Center                           |
| CL   | Classroom Building                      |
| CT   | Classroom Technology                    |
| HA-1 | Offices                                 |
| HA-2 | Restrooms                               |
| HA-3 | Physical Plant                          |
| HA-4 | Faculty Offices                         |
| IS   | Instructional Services                  |
| ISA  | Instructional Services Annex            |
| RA   | Classrooms                              |
| RV   | Roosevelt Building                      |
| RB   | Classrooms                              |
| RC   | Classrooms                              |
| RD   | Faculty Resource and Development Center |
| RE   | Classrooms                              |
| WT   | Welding Technology                      |

**Aviation Technology Center**  
 1668 S. Research Loop Road  
 Tucson, Arizona 85730  
 (602) 884-6788







## East Campus

The East Campus opened in the Fall of 1981 primarily to meet the needs of the city's far east side, but it now serves students from throughout the city. The campus is accessible from most parts of Tucson via public transportation. Located on 60 acres near Pantano and Irvington, adjacent to the Fred Enke Golf Course and Lincoln Regional Park, the East Campus originally was established in 1976 as an education center at Pantano and Broadway.

East Campus buildings are clustered around several patios. Facilities include classrooms, laboratories, a supplemental learning center, a library, general support services, a bookstore, student activities facilities, and the unique Arizona State Environmental Technology Training Center. A new student union and library opened in the Fall of 1989.

The curriculum at the East Campus includes courses in developmental and general education, and selected programs in occupational education and university transfer.

The East Campus enrollment is 5,231 and is expected to continue to increase as the new facilities are put into use.

### **Building O**

Administrative Offices  
Associate Faculty Office  
Faculty Offices

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

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  
Learning Center  
Testing  
Tutoring

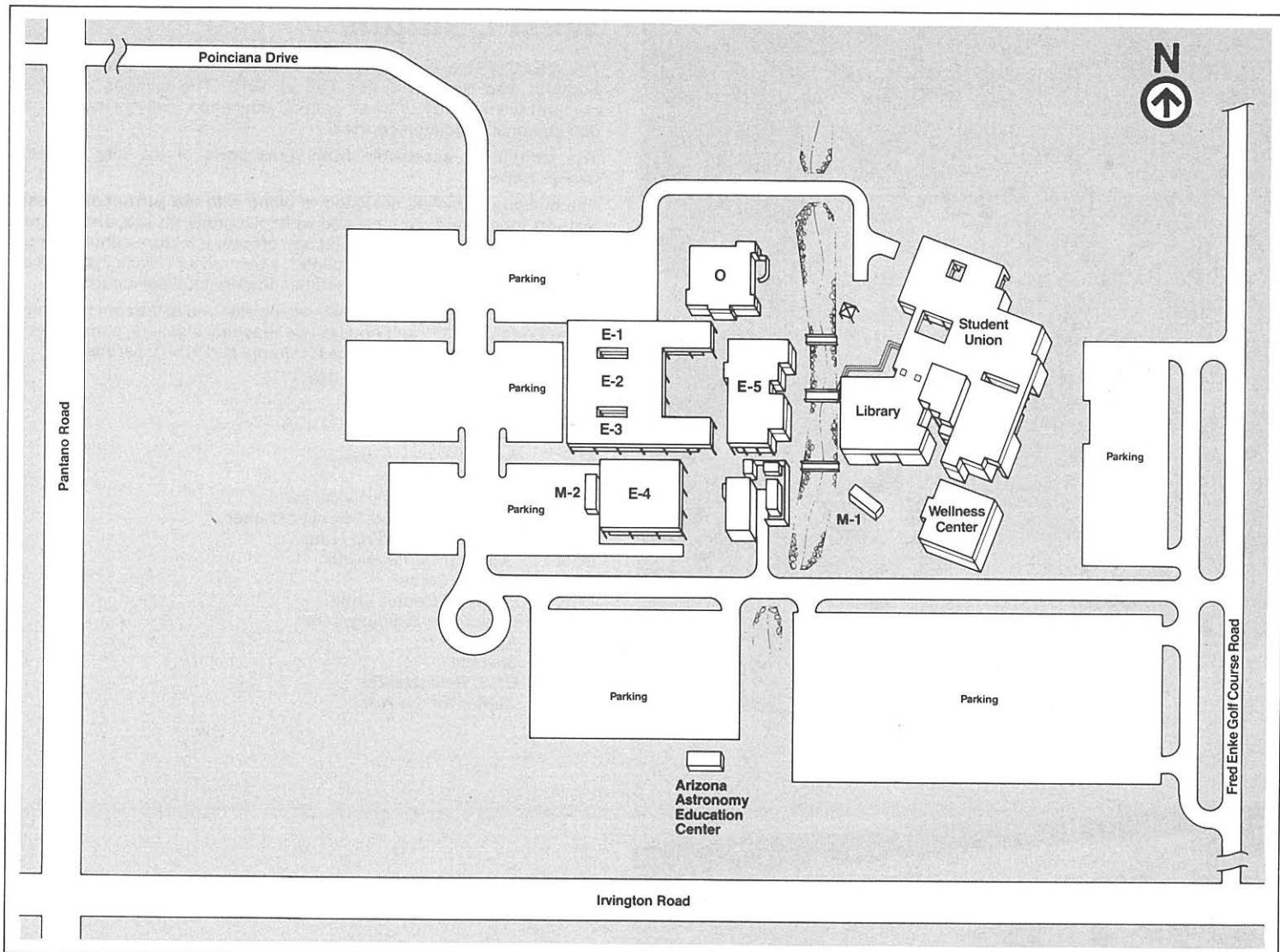
### **Buildings M-1, M-2** Classrooms

### **Student Union**

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

### **Library**

**Arizona Astronomy  
Education Center**





## West Campus

The West Campus was built in 1969 on 273 acres in the Tucson Mountain Foothills and opened in the Fall of 1970. The campus provides a comprehensive curriculum of general education, college transfer, and occupational education courses.

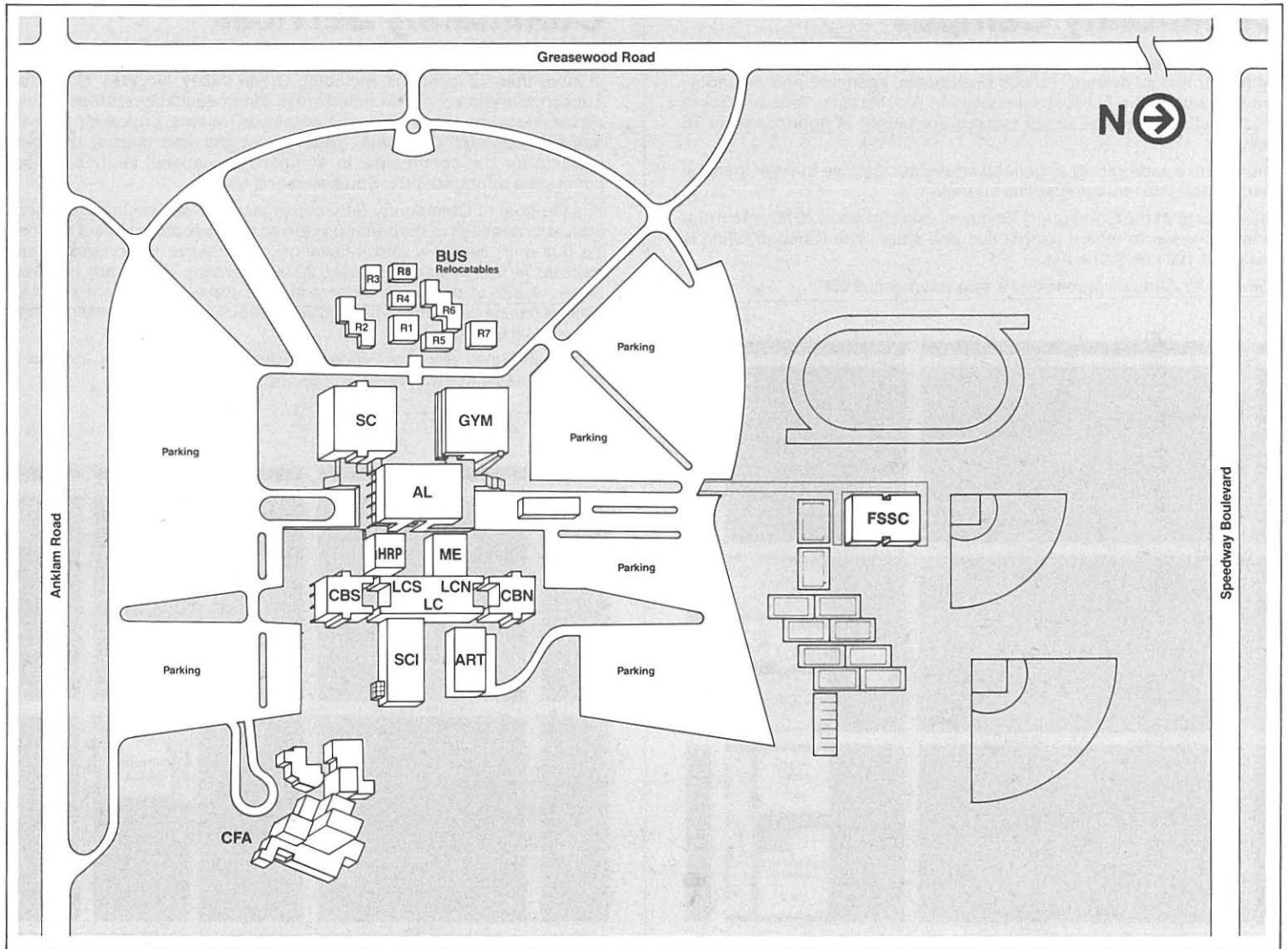
The campus is accessible from most parts of the city by public transportation.

The building complex, designed to blend with the surrounding desert, features inner courtyards planted with lush grass, shrubs, and tall trees. Facilities include classrooms, faculty offices, a lecture center, a music building, a library, a computer center, a gymnasium, track, baseball and softball diamonds, and tennis and handball/racquetball courts.

A new Center for the Arts complex on the east end of the campus opened in the Spring of 1991 and houses two theaters, a gallery, a music recital hall, and offices and classrooms for drama and arts departments.

West Campus enrollment is 13,029.

|      |                                   |
|------|-----------------------------------|
| GYM  | Gymnasium                         |
| SC   | Student Center                    |
| AL   | Administration/Library            |
| ME   | Math/Electronics                  |
| HRP  | Health Related Professions        |
| FSSC | Fitness and Sport Sciences Center |
| CBN  | Classroom Building North          |
| LCN  | Learning Center North             |
| LC   | Lecture Center                    |
| LCS  | Learning Center South             |
| CBS  | Classroom Building South          |
| ART  | Art                               |
| SCI  | Science                           |
| BUS  | R1-8, Relocatables                |
| CFA  | Center for the Arts               |





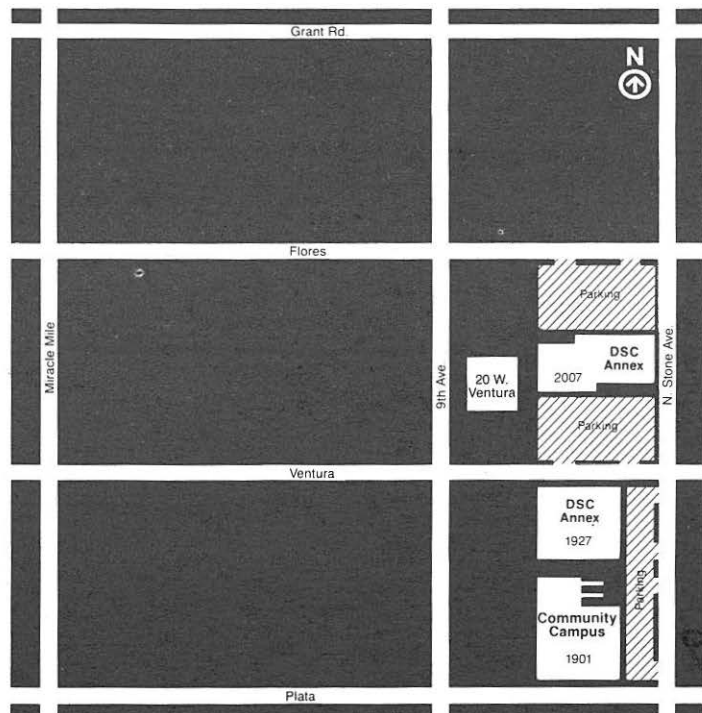
## Community Campus

The Community Campus utilizes the facilities of the community including the public school system, various businesses, agencies, and neighborhood centers in the Tucson vicinity and in Ajo, Marana, Sells and Santa Cruz locations. College credit classes are taught at approximately 76 locations.

Offered are a wide variety of general education, college transfer, general interest, and telecommunications courses.

The concept of the Community Campus, established in 1975, is to bring college classes to where people live and work. The Campus office is located at 1901 N. Stone Ave.

Community Campus enrollment is approximately 9,000.

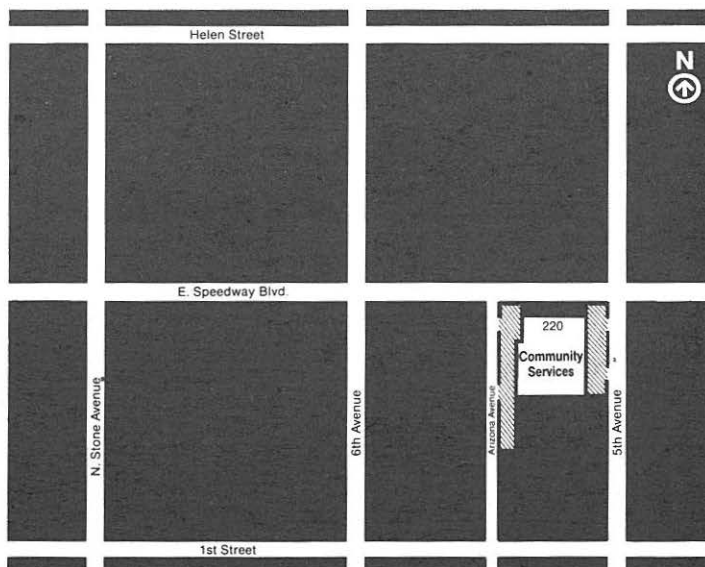


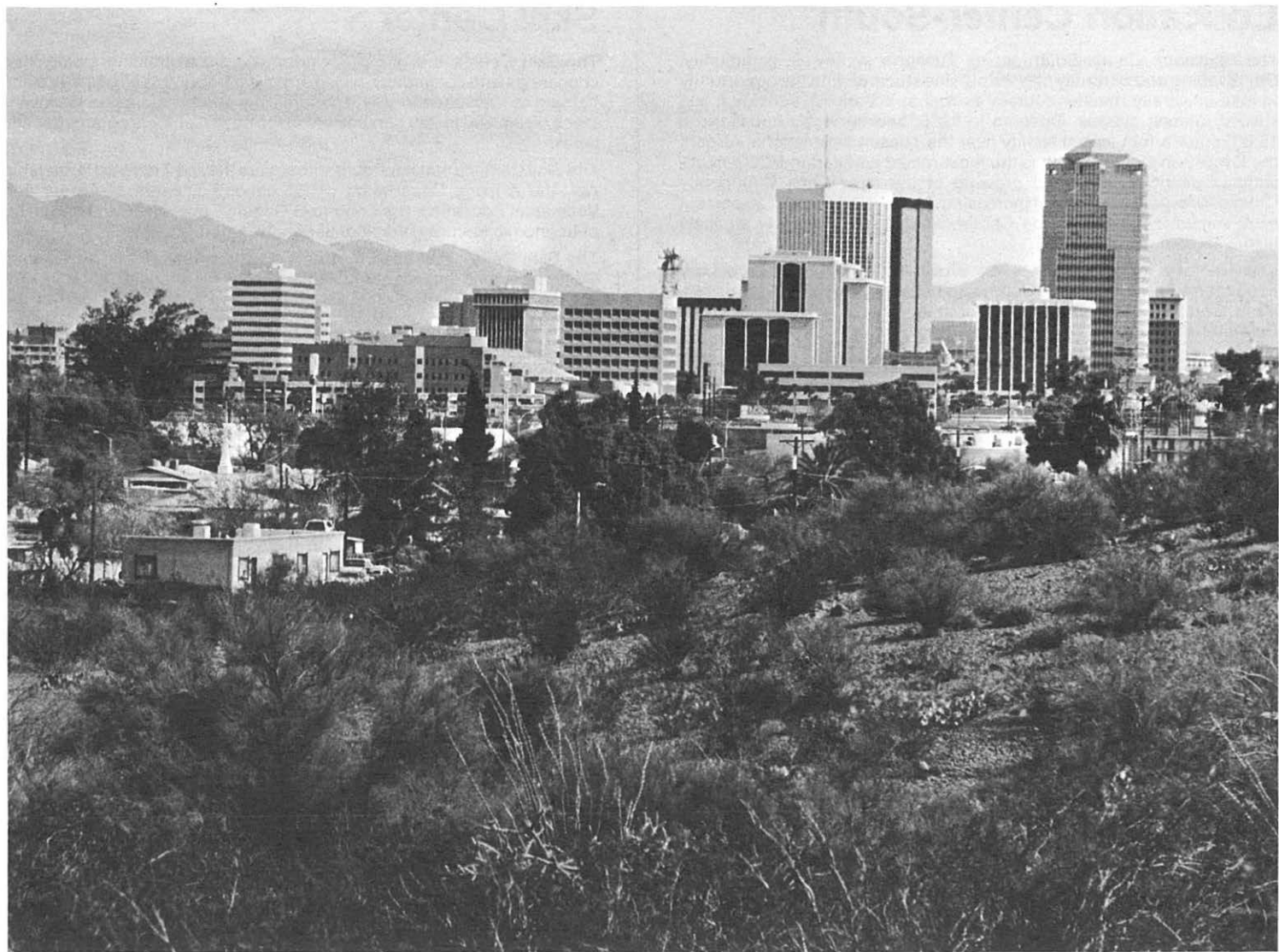
## Community Services

Community Services offers noncredit classes, workshops, and seminars at more than 70 locations, including Green Valley, Nogales, Northwest Tucson, Marana and surrounding areas. Major educational areas include senior education, general interest, employee training, professional development, contract programs, youth programs and special on-going projects for the community. In addition, educational study tours are conducted throughout the Southwest and Mexico.

It is the goal of Community Services to meet the self-defined noncredit educational needs of the community in an effective and efficient manner. To this end, flexibility and innovation characterize the programs and classes, in which approximately 22,000 persons yearly are involved. Nearly 4,000 of these are older adults. If there is sufficient demand, classes can be developed at any time in various locations. Participants do not receive College credit.

The Community Services office and classroom complex is located at 220 E. Speedway Blvd., between 5th and 6th Avenues.

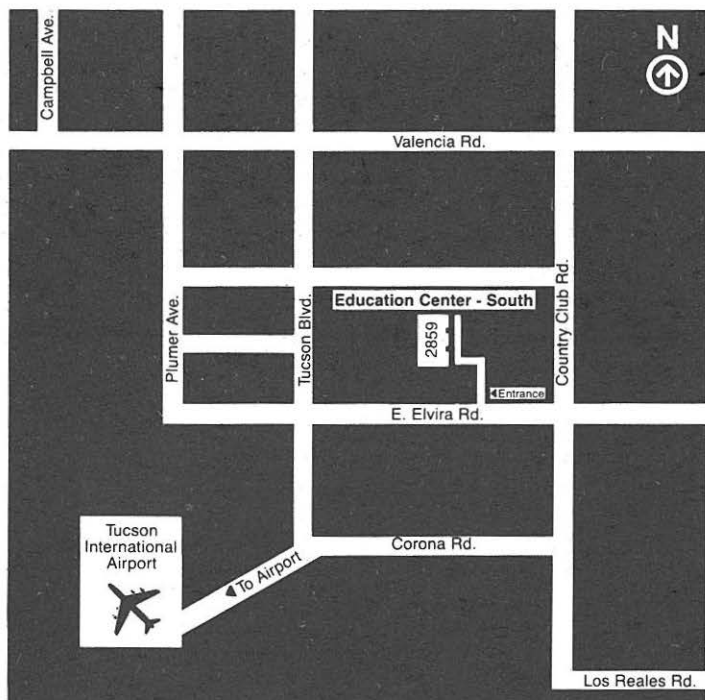




## Education Center-South

The Education Center-South serves Tucson's southwest community. Day, evening and Saturday classes provide students with the opportunity to take university transfer courses as well as vocational education and special interest classes. Opening in 1986, and currently housed in a 15,000 square-foot leased facility near the Tucson International Airport, the Education Center-South is the most recent addition to PCC's multi-campus district. The fastest growing of the fixed Pima Community College sites, with enrollment increasing at an average rate of 20 percent each semester, the Education Center-South began with 244 students taking 18 courses.

The Center's mission focuses on providing quality post-secondary education to residents of the South and Southwest areas of Tucson and Pima County. Education Center-South is located at 2859 E. Elvira. Enrollment is 1,226.



## Skill Center

The Skill Center is a non-profit adult vocational training facility that cooperates with community-based organizations and agencies to provide training to the educationally, economically and handicapped disadvantaged. From 200 to 250 persons are involved in Center programs at peak times.

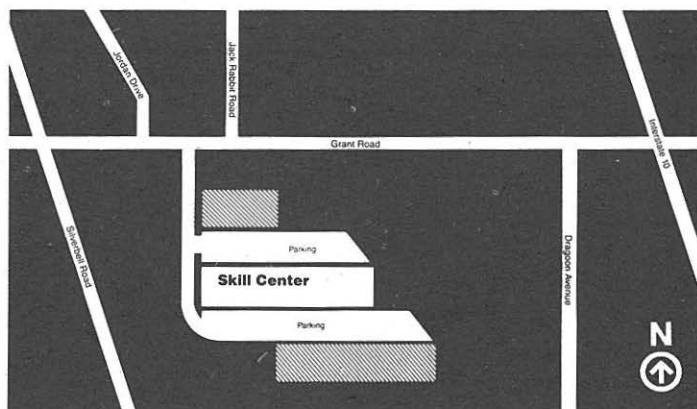
The Skill Center's major funding sources are the Job Training Partnership Act, the Arizona Department of Education's Division of Career and Vocational Education, the Tohono O'Odham Tribe, and the Department of Economic Security, Vocational Rehabilitation Division.

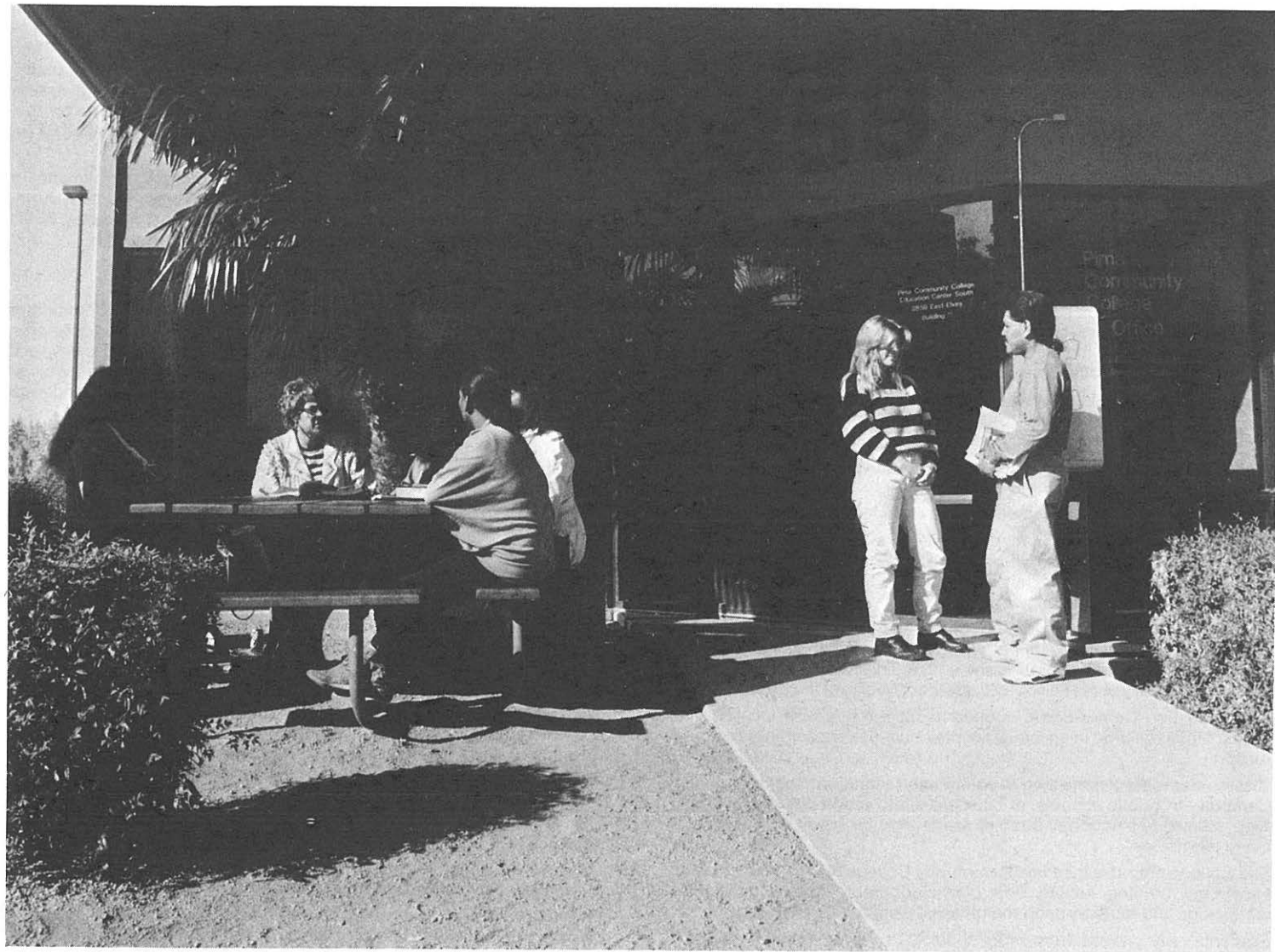
The Skill Center has been in operation since 1963. Pima Community College became the local educational agency for the Skill Center in 1973 and on August 9, 1979, officially recognized the Center as part of the college organization.

Job training and certification is provided in the area of health occupations, business and office education, printing, food service, manufacturing technology, and telecommunications. Classes are held Monday through Thursday, 7:30 a.m. to 4 p.m. Enrollment is on-going, year round.

Support services include developmental education and G.E.D. preparation, counseling, job placement assistance, employability skills training, assistance to special needs students, and financial assistance.

The Skill Center is located at 1859 W. Grant Road, #104, on Tucson's west side.







# Historic Profile

Pima Community College was established in 1966 when the citizens of Pima County, Arizona, voted overwhelmingly to form a junior college district.

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, chose a campus site and selected an architect.

Today the College is a multicampus, two-year institution serving the 1.1 million residents who live in the 9,240 square miles of Pima County. The College is supported primarily by county taxes and state aid.

The original board was succeeded by a publicly elected board in 1967 when voters also approved a \$5.9 million bond issue for the College. In 1969, construction of the first campus began on the 273-acre site in the Tucson Mountain Foothills west of the city.

When the new College opened its doors in the Fall of 1970, more than 3,500 students, the victims of construction delays, attended classes in unlikely quarters: a hangar at Tucson International Airport.

In January 1971, students in all programs moved to the 11-building campus on Anklam Road, the West Campus of today's College.

In 1972, Pima College was renamed Pima Community College.

The Downtown Campus opened in 1974 in a remodeled post office building near Speedway and Stone. Purchase of other buildings and construction of the Campus Center and Classroom Technology Building expanded the campus to 15 buildings.

The East Campus opened in 1981 on a desert site just east of Davis Monthan Air Force Base. It was an outgrowth of the East Education Center which had been operating since 1976. The opening of the Student Union and Library in the Fall of 1989 doubled the size of the East Campus.

The Education Center-South opened in 1986 and is now located in a leased office building in an industrial park near the Tucson International Airport.

Classes also meet at more than 70 community locations of the Community Campus—in public schools, at business sites, and in agency facilities. Also, a limited selection of courses are offered for credit via public and cable television.

The College operates the Pima Community College Skill Center, an adult vocational training facility, and offers noncredit classes, seminars, workshops and tours through the office of Community Services.

Students may choose from more than 100 programs leading toward

associate degrees or from the certificate programs in various technical-occupational fields. Pima prepares students for direct employment or for transfer to a four-year institution to complete a bachelor's degree. There are 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.

Growth of the College is reflected in an ever-increasing enrollment. For the 1991 Fall Semester, 29,088 students enrolled in credit classes. During the twelve months from July 1990, to June 1991, approximately 60,000 individuals were served in credit and noncredit classes.

## Accreditation

In 1975, Pima Community College became accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Secondary Schools (NCA). Specialized agencies have also accredited individual study programs in nursing, radiological technology, dental laboratory technology, dental assisting education, landscape technology, legal assisting, and respiratory therapy.

## 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.

## Institutional Effectiveness

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. The College administration is authorized to establish regulations and procedures to implement this policy.

## 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 contribuidor 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 Bilingüe.

# Board Policies

## 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.

## Sexual Harassment

Pima Community College is committed to maintaining a work and educational environment free of discriminatory intimidation and sexual harassment. Sexual harassment is defined by law as follows:

Unwelcome sexual advances. Requests for sexual favors and other verbal or physical conduct of a sexual nature constitute sexual harassment when (1) submission to such conduct is made, either explicitly or implicitly, a term or condition of an individual's employment; (2) submission to or rejection of such conduct by an individual is used as the basis for employment decisions affecting such individual; or (3) such conduct has the purpose or effect of unreasonably interfering with an individual's work performance or creating an intimidating, hostile or offensive working environment.

This definition shall pertain not only to conditions of employment but also to the instructional environment and extends to both students and College employees.

## Equal Employment Opportunity

Pima County Community College District is committed to the philosophy of affirmative action and equal employment opportunity in education and employment. Thus, through responsible management, the College will endeavor to comply with the intent and spirit of civil rights legislation and regulations in each segment of the College and as an integral part of personnel policy and practice including, but not limited to, recruitment, hiring, seniority, training, promotion, transfer, demotion, layoff, return from layoff, benefits, including educational benefits, performance evaluation, disciplinary action including discharge, social and recreational programs and compensation and to administer these policies and practices without regard to race, color, religion, sex, national origin, age, handicap, disabled veteran status, or Vietnam Era veteran status.

Pima Community College actively supports an affirmative action program and seeks to maintain a staff and educational program representative of a policy of non-discrimination.

Employment decisions shall be based on the principles of equal employ-

ment opportunity and with the intent to further the College's commitment.

Administrators shall take affirmative action to ensure that minority group individuals, females, veterans of the Vietnam Era and qualified handicapped persons and disabled veterans are introduced into the work force and that these employees are encouraged to aspire for promotion and are considered as promotional opportunities arise.

The Board of Governors delegates to the Chancellor the responsibility for developing and implementing an affirmative action plan.

Pima Community College will also endeavor to assure full participation of all persons contracting or providing services to the College and through cooperative efforts improve community relations which affect contracting and services.

# 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.

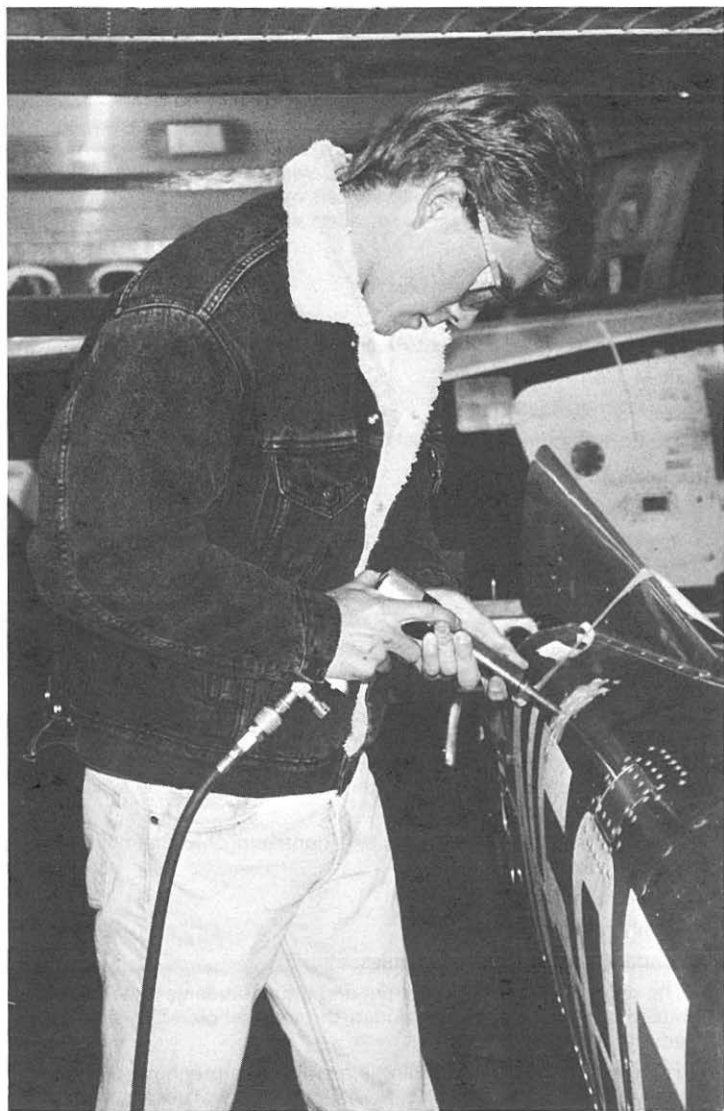
Prime objectives of the Foundation are to promote recognition by individuals, business and industry, and to secure adequate financial support of the College.

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, 1992-93**

Bernie Ray, President  
Blake Down, Vice President  
Shirley Chann, Secretary  
James W. Godwin, Jr., Treasurer  
Michael J. Rich, Immediate Past President  
Joseph E. Nevin, Executive Director  
Alex Hobson, Legal Counsel

**Foundation Board of Directors**

Dewey Barich  
Bruce Bates  
Frances Bustamante  
Victoria L. Clark  
Odiemae Elliott  
Celestino Fernandez  
Dorothy Finley  
Raul B. Gamez  
Bob Garrison  
Jeff Hockaday  
Alan Lurie  
Wayne Meyer  
Pablo Ortiz  
Richard Polheber  
Michael Racy  
James Ronstadt  
Wil Runcorn  
Alex Shumay  
Victor Soltero  
Dean Vesling  
Paul Wendee

## 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 has written bylaws and formed the Pima Community College Alumni Association with a current membership of more than 400.

**Officers, 1992-93**

Harry Alexander, President  
John Johnson, Vice President/President Elect  
Josie M. Corral, Secretary  
Henry Warner, Treasurer  
Lillian E. Rotter, Immediate Past President.

**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:

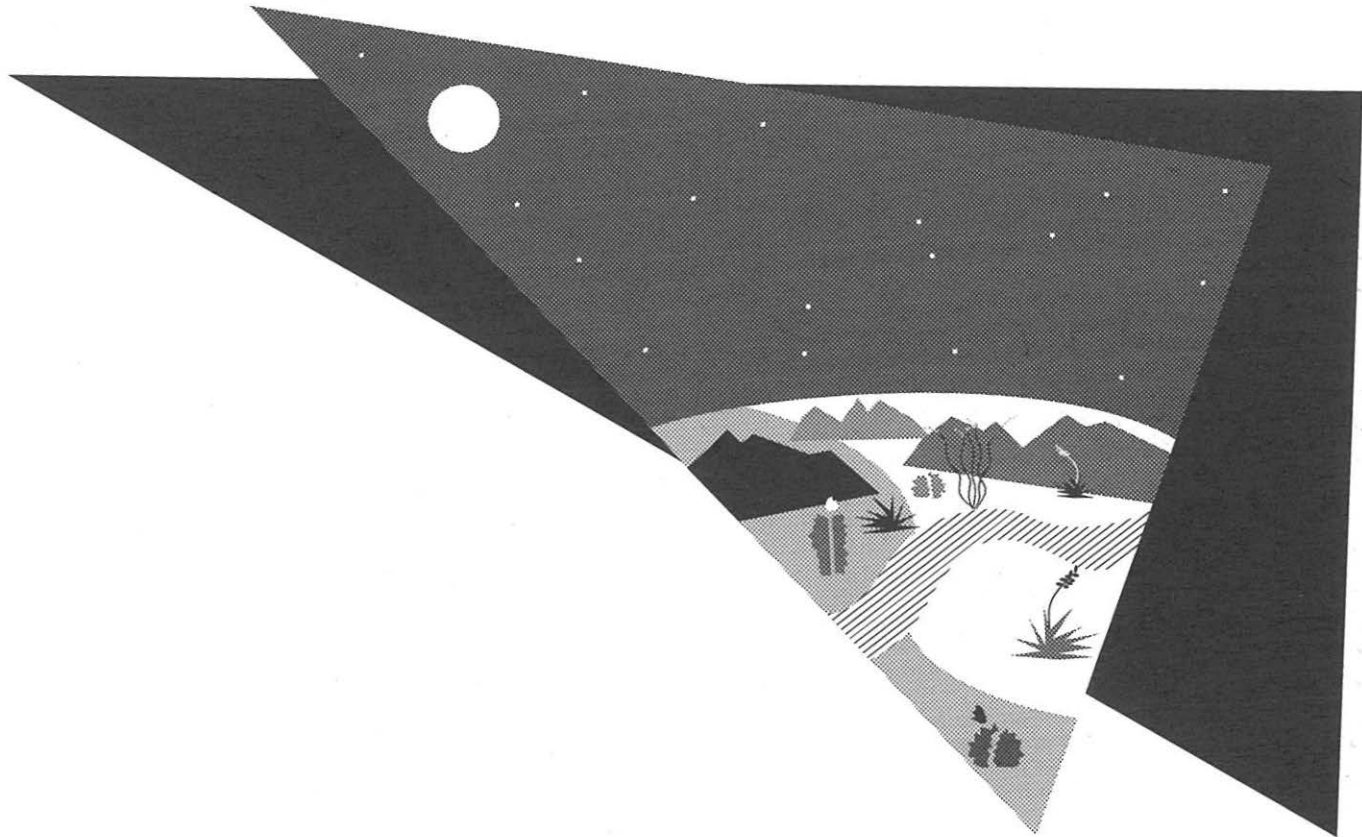
A subscription to the alumni newsletter containing information about the association and the College.

- 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, Suite 112, 655 N. Alvernon Way, Tucson, AZ 85711, 884-6277.



# Processes & Procedures





# 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 shall 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 durational domicile requirement determined by the appropriate Campus Registrar prior to the time of registration and payment of fees. 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. Income tax return.
  - b. Voter registration.
  - c. Automobile registration.
  - d. Driver's license.
  - 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.

Any non-citizen of the United States who has not received immigrant status is considered an international student and must meet the admission requirements listed below. These students pay the same tuition and fees as out-of-state students.

All international students, regardless of full-time or part-time status, must meet all appropriate immigration standards and requirements.

### **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, and
4. Upon admission to the College, enroll in IBC 120 during the first semester of attendance.

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.

### **Transfer of Credits**

Appropriate credit may be accepted for all course work completed at other accredited institutions with a grade of C, its equivalent, or better. This credit must be considered applicable toward the student's program objective at Pima Community College. The Registrar's Office must receive an official transcript for transferring students. Upon a student's written request, the Registrar's Office will evaluate all requests for transfer of credit.

### **Arizona Higher Education Course Equivalency Guide**

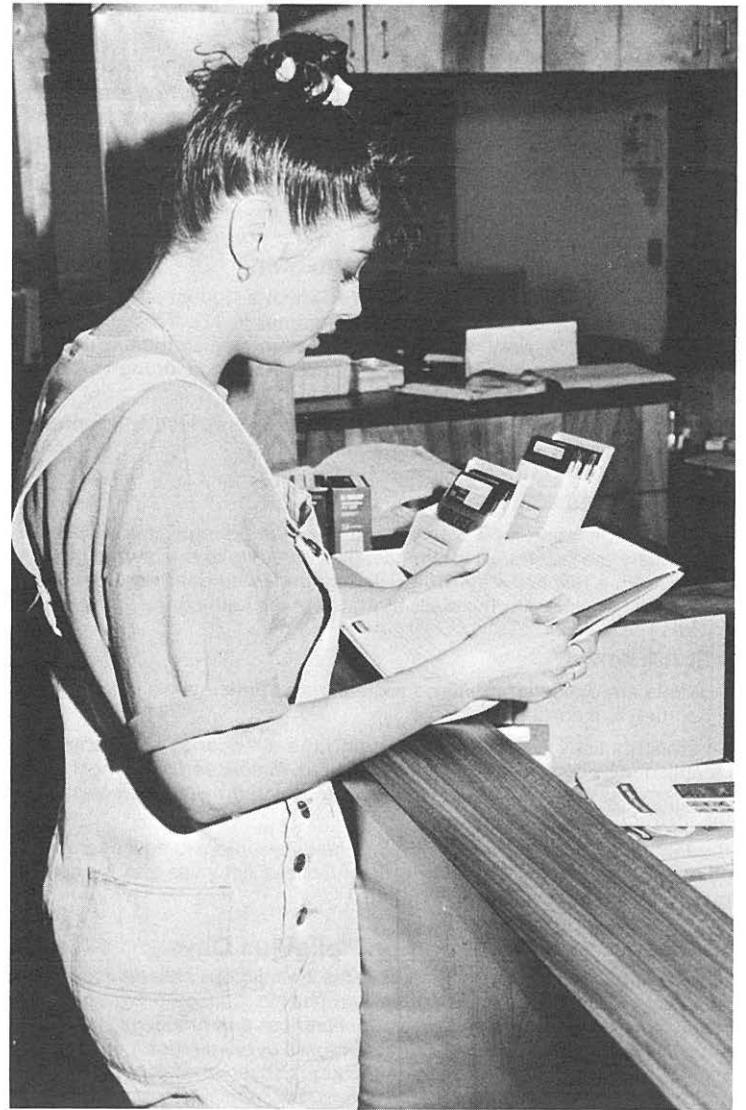
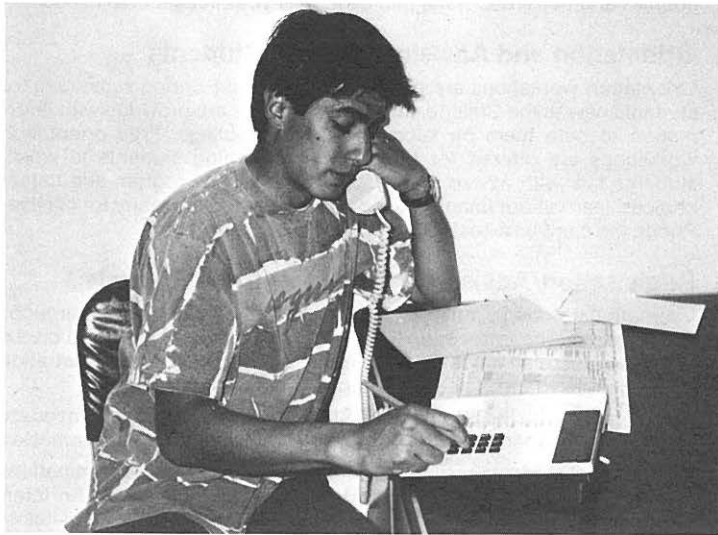
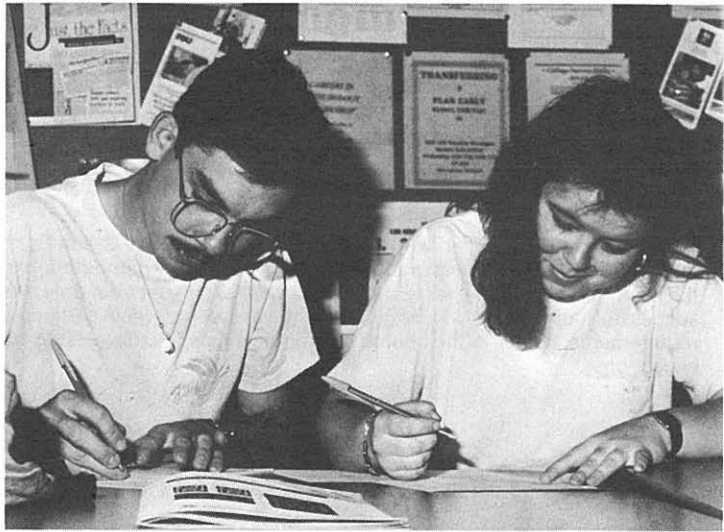
This guidebook has been developed in order to smooth the transfer of students from Arizona community colleges to four-year colleges and universities. The guide offers information on which courses will transfer for equal credit. Copies of the guide are available in all Advising Centers.

### **Measles Immunity**

Because of periodic outbreaks of measles in the United States, the College recommends that students be immunized against the disease. In the event of an outbreak, persons born after January 1, 1957, are especially susceptible unless immunized.

Measles inoculations are available from private physicians and at the Pima County Health Department clinics. Information on inoculations, immunization testing, clinics, and other communicable disease concerns is available from the County's Immunization Program Office, 740-3755.

Students may be asked to provide proof of immunization at registration.



# Registration

Students may register for classes after going through early or summer advising as well as during the regular registration periods. Registration is not complete until all fees have been paid. If students register through MAX or early registration, there is a fee deadline. However, if registering during walk-in or later in the registration process, students must pay the same day. After registering, students with awards for financial aid should report to a Financial Aid Office before their payment deadline.

## 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 as well as 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 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 regularly and punctually all classes in which they are enrolled.

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. Advisors are available year-round at campus advising centers to help you choose courses and make decisions that best meet your educational needs.

## Orientation and Advising for New Students

Orientation workshops are held prior to Fall and Spring semesters for students new to the College. First-time students are provided with information to help them be successful at the College. Free orientation workshops are offered for both day and evening students in which students talk with advisors and counselors about program and career choices, learn about financial aid sources, and register early for classes. Phone the campus advising centers for more information.

## Registration/Advising for International Students

International students must contact the International Student Admissions Specialist and the International Student Advisor who are located on the West Campus. You must apply for admission and complete registration and schedule changes at that location.

After meeting with the International Student Advisor, the student needs 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. An instructor may withdraw a student who does not have the proper prerequisites for his or her class.

## **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.

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 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.

### **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, specific learning disabilities, vocational interests, aptitudes, achievement, and personal needs. English as a Second Language exams are available.

The General Education Development tests (GED for high school equivalency) and Pre-Professional Skills Tests (PPST for Colleges of Education) are offered through the Assessment Center at the West Campus. The CLEP (College Level Examination Program) tests and DANTES Standardized Subject Tests for college level placement are offered through the Assessment Center at the Downtown Campus. 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. Accommodations include extended time for disabled students, large print tests, writing assistants, and interpreters.

## **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 or advanced certificate from an accredited college. Students with this equivalency are not required to take placement assessment tests. The equivalency may not be used to meet Pima Community College General Education Requirements or other specified program entrance requirements. Documentation of a degree or advanced certificate as an assessment equivalency must be recorded with the Admissions Office by the time of registration.



# Student Costs

Student fees and tuition are subject to change pending final approval by the Board of Governors.

For information on financial aid, refer to Student Resources section.

## Fees and Tuition — Fall and Spring Semesters

| Credit Hours | In-State Resident | Out of State/Country |
|--------------|-------------------|----------------------|
| 1            | \$ 26.00          | \$ 41.00             |
| 2            | 52.00             | 82.00                |
| 3            | 78.00             | 123.00               |
| 4            | 104.00            | 164.00               |
| 5            | 130.00            | 205.00               |
| 6            | 156.00            | 246.00               |
| 7            | 182.00            | 987.00               |
| 8            | 208.00            | 1,128.00             |
| 9            | 234.00            | 1,269.00             |
| 10           | 260.00            | 1,410.00             |
| 11           | 286.00            | 1,551.00             |
| 12           | 312.00            | 1,692.00             |
| 13           | 325.00            | 1,820.00             |
| 14           | 325.00            | 1,935.00             |
| 15           | 325.00            | 2,050.00             |
| 16           | 325.00            | 2,165.00             |
| 17           | 325.00            | 2,280.00             |
| 18           | 325.00            | 2,395.00             |
| 19           | 351.00            | 2,536.00             |
| 20           | 377.00            | 2,677.00             |

## Additional Special and Miscellaneous Fees

### Credit Course Fees

|                                    |   |
|------------------------------------|---|
| Misc. Course Fee                   | not to exceed \$40.00   |
| Laboratory Fees                    | recovery of extraordinary course specific costs not to exceed 20.00 |
| Course Related Field Trips         | Based on actual cost of field trip                                  |
| Health Science Liability Insurance | 13.00   |
| Music Lessons (individual)         |   |
| ½ hour per week                    | 170.00  |
| 1 hour per week                    | 340.00  |
| Time Management Class              | 140.00  |
| Commercial Driving License Course  | 264.00 per credit hour  |
| Advertising Art                    | based on specialized software/support training requirements         |
| Course Repeat                      | Additional 26.00 per credit hour                                    |

### Processing Fees

|  |         |
|--|---------|
| Application Fee (out-of-state/country) | \$15.00 |
| Transcript (per copy)                  | 2.00    |
| Graduation Application                 | 15.00   |
| GED Test                               | 15.00   |
| GED Test (repeat each section)         | 3.00    |
| I.D. Card                              | 2.00    |
| Withdrawal Charge                      | 15.00   |
| Faculty/Staff/Dependent Fee            | 5.00    |

### Penalties and Fines

|                                  |  |
|----------------------------------|--|
| Excessive Loss or Breakage       | Replacement cost   |
| Lost Books                       | Replacement plus \$10.00 processing fee                    |
| Non-Sufficient Funds (NSF) Check | 12.00 per each occurrence                                  |
| Parking and Traffic Fines        | 10.00-25.00 per applicable parking and traffic regulation. |

## Refund Regulation for Credit Courses — Fall and Spring Semesters

### Cancelled Classes

In the event a class(es) is cancelled by the College, a refund will be made for all tuition and fees attributable to the cancelled class(es).

### Dropped Classes

If a student processes a total "drop" from the College within the guidelines below, a refund, less a \$15.00 processing fee, will be made.

If a student remains enrolled for at least one class but decreases his/her schedule of classes by processing a "drop" within the guidelines below, a refund of student fees and tuition applicable to that class(es) will be made.

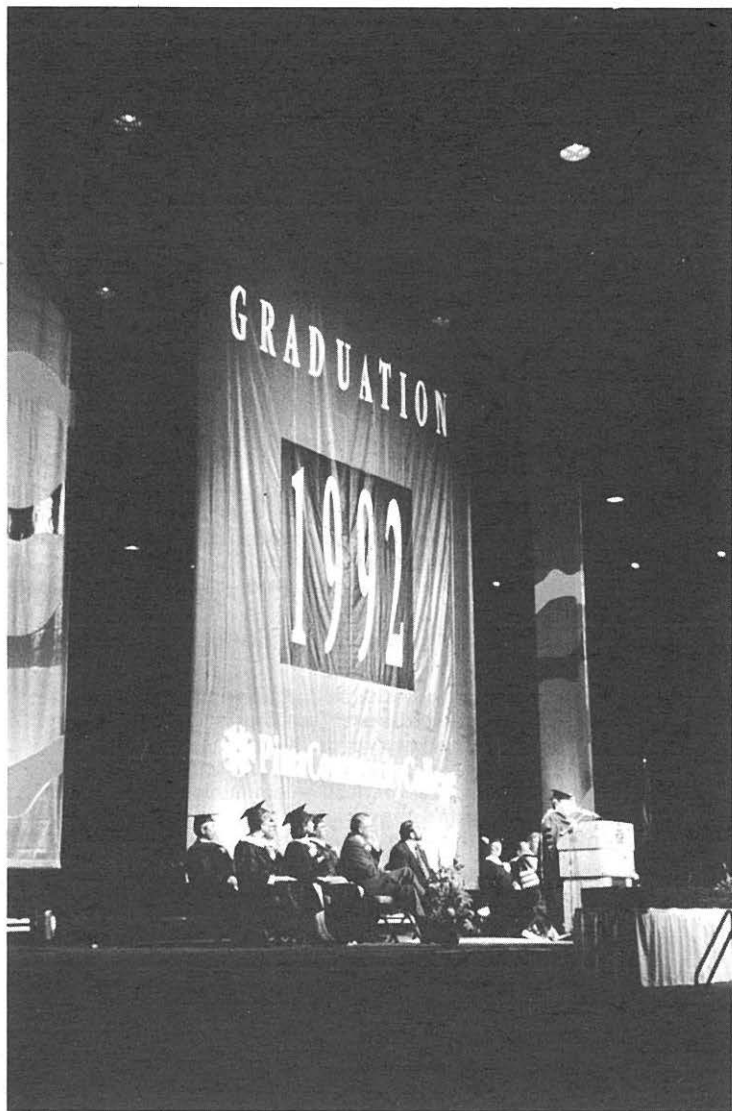
| Length of Class (Calendar Days) | Official "Drop" Must Occur On Or Before      |
|---------------------------------|--|
| Regular Semester                | 13 calendar days after start of the semester |
| Special Program                 |  |
| 2 days or less                  | Start of class                               |
| 3 to 7 days                     | 1 calendar day after start of class          |
| 8 to 14 days                    | 6 calendar days after start of class         |
| 15 days or more                 | 13 calendar days after start of class        |

No refunds for withdrawals will be made after the 13th calendar day after the start of the class or semester as appropriate. In addition, a "W" grade will be recorded on the student's academic transcript.

See Class Schedule for refund regulation for summer sessions.

### Financial Aid Recipients

Federal financial aid recipients who drop below 6 credit hours will receive



no refund of fees or tuition. Instead, the refund will be distributed to the respective aid program.

### **Refund Regulation for Noncredit Classes and Educational Study Tours**

The Community Services office handles requests for refunds for special interest/noncredit classes and educational study tours.

#### **Noncredit Classes**

Refund requests must be made in writing and received five working days prior to the first class. A \$5.00 service fee will be charged.

Refunds are made in full for cancelled classes.

#### **Educational Study Tours**

One-day tours: A written request must be received 14 days prior to the tour date. A service fee of \$5.00 will be charged.

Cancellation fees are:

100% of tour fee if written request is received within 13 calendar days of tour date.

50% of tour fee if written request is received within 14 to 29 calendar days of tour date.

25% of tour fee or \$25, whichever is less, if written request is received 30 calendar days prior to tour date.

Questions should be directed to the Community Services office, 884-6720.

## **Graduation**

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

1. complete the general education requirements,
  - 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, Associate of Applied Science Degree
  - e. 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.

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.

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. 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<br>(select 5-6 credits from the options): |              |
| (a) Oral Communication  |              |
| (b) Mathematics, Computer Science, Logic, or<br>Critical Thinking   |              |
| (c) Foreign Language  |              |
| (d) International and Multi-cultural Studies                        | 5-6          |
| Total Hours   | 40-41        |

## 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. 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<br>(select 8-10 credits from the options): |              |
| (a) Oral Communication   |              |
| (b) Mathematics, Computer Science, Logic, or<br>Critical Thinking    |              |
| (c) Foreign Language   |              |
| (d) International and Multi-cultural Studies                         | 8-10         |
| Total Hours  | 40-44        |

### 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.

### 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       |

0014\* For additional prerequisite information, check course section.

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

| Course Number | Course Title                            | Credit Hours | Prerequisites |
|---------------|---|--------------|---------------|
| 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)   | Asian Civilizations I                   | 3            |               |
| HIS 114 (2)   | Asian Civilizations II                  | 3            |               |
| HIS 122 (2)   | Tohono O'odham History and Culture      | 3            |               |



|           |   |   |          |
|-----------|---|---|----------|
| BIO 226   | Ecology                                   | 4 | *        |
| CHM 121   | Introductory Chemistry                    | 5 |          |
| CHM 130   | Fundamentals of Chemistry                 | 5 |          |
| CHM 140   | Fundamentals of Organic and Biochemistry  | 5 | CHM 130* |
| CHM 141   | Introductory Organic and Biochemistry     | 5 | CHM 121  |
| CHM 151   | General Chemistry I                       | 5 | MTH 130* |
| 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  |
| 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 | *        |
| PHY 122   | Introductory Physics II                   | 5 | PHY 121  |
| PHY 131   | Introductory Physics with Calculus I      | 5 | MTH 180* |
| PHY 132   | Introductory Physics with Calculus II     | 5 | PHY 131* |
| PHY 210   | Introductory Mechanics                    | 5 | MTH 180* |
| 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            | 4 | 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.

(3) BIO 184 and BIO 190 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            | MTH 170*      |
| MTH 150       | College Algebra                               | 3            | MTH 130*      |
| MTH 155 #     | Trigonometry                                  | 3            | MTH 150*      |
| MTH 160       | Precalculus                                   | 5            | MTH 130*      |
| MTH 170 #     | Finite Mathematics                            | 3            | MTH 150       |

|         |  |     |          |
|---------|--|-----|----------|
| MTH 175 | Topics in Calculus                       | 3   | MTH 150  |
| MTH 180 | Analytic Geometry and Calculus I         | 4   | MTH 160* |
| MTH 185 | Analytic Geometry and Calculus II        | 3   | MTH 180  |
| MTH 210 | Introductory Statistics                  | 3   | MTH 130* |
| MTH 215 | Analytic Geometry and Calculus III       | 4   | MTH 185  |
| MTH 219 | Differential Equations                   | 3   | MTH 215  |
| MTH 225 | Introduction to Linear Algebra           | 3   | MTH 215  |
| MTH 230 | Discrete Mathematics in Computer Science | 3-4 | MTH 150  |

\* 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 205       | Introduction to Southwestern Prehistory               | 3            |               |
| ANT 206       | Contemporary Native Americans of the Southwest        | 3            |               |
| ARC 101       | Human Origins and Prehistory                          | 3            |               |
| ARC 205       | Introduction to Southwestern Prehistory               | 3            |               |
| ECO 100 #     | Introduction to Microeconomics                        | 3            | MTH 070       |
| ECO 101 #     | Introduction to Macroeconomics                        | 3            | MTH 070       |
| ECO 200 #     | Principles of Economics                               | 3            | MTH 070       |
| ECO 210 #     | Survey of Economic Theory                             | 3            | MTH 175       |
| 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 (3)   | Asian Civilizations I                                 | 3            |               |
| HIS 114 (3)   | Asian Civilizations II                                | 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     | History and Peoples of Africa                                | 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 |           |
| PSY 101 #   | Introduction to Psychology                                   | 4 |           |
| 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 125 (2) | Islam  | 3 |           |
| REL 140     | Philosophy of Religion                                       | 3 |           |
| SOC 101     | Introduction to Sociology                                    | 3 |           |
| 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 (1)   | Introduction to Oral Communication | 3            |               |
| SPE 110 (1)   | Public Speaking                    | 3            |               |
| SPE 130 #     | Small Group Discussion             | 3            |               |
| SPE 136 (1)   | Oral Interpretation of Literature  | 3            |               |

- (1) Either SPE 102 and SPE 136 or SPE 110 and SPE 136 must be taken together to meet the general education requirement in literature at the University of Arizona's College of Arts and Sciences or College of Education.

##### (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            | MTH 070*      |
| CSC 140 #     | FORTAN Programming                                       | 3            | CSC 100*      |
| CSC 160 #     | COBOL Programming  | 3            | CSC 130*      |
| MTH #         | Any Mathematics course numbered 150 or above             |              |               |
| POS 100       | Introduction to Politics                                 | 3            |               |
| SCIENCE #     | Any 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       |
| 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       |
| RUS 110       | Elementary Russian I           | 4            |               |
| RUS 111       | Elementary Russian II          | 4            | RUS 110       |
| SLG 101       | American Sign Language I       | 4            |               |
| SLG 102       | American Sign Language II      | 4            | SLG 101       |
| SLG 201       | American Sign Language III     | 4            | SLG 102       |
| SLG 202       | American Sign Language IV      | 4            | SLG 201       |
| 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.

**(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

\* For additional prerequisite information, check course section.

**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. See the general education course list for the Associate of Arts Degree for Transfer and Associate of Science Degree for Transfer for courses which fulfill the requirements.

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

\* Students 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.

**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. See the general education course list in this section of the catalog for courses which fulfill the requirements.

| Subject Area                   | AAA*<br>Credit Hours | AAS*<br>Credit Hours |
|--------------------------------|----------------------|----------------------|
| Communication                  | 6                    | 6                    |
| Humanities and Fine Arts       | 6                    | 3                    |
| Science and/or Mathematics     | 3                    | 6                    |
| Social and Behavioral Sciences | 3                    | 3                    |
| Total Hours                    | 18                   | 18                   |

\*AAA —Associate of Applied Arts

\*AAS —Associate of Applied Science

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; OED 151, 251; SPE 102, 110, 120; SSE 135; WRT 100, 101, 102, 106, 107, 108, 150, 154, 205, 206, 254
2. Humanities and Fine Arts: ADA 100, 101, 102, 103, 104, 109; any ART course 100 and above, excluding 199; DRA 140, 141, 149, 151, 245; any Foreign Language course 100 and above; FSS 289; HIS 101, 102; HUM 110, 111, 131, 251, 252, 253, 260; any LIT course 100 and 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, 203
3. Science and/or Mathematics: ACC 100, 101, 102, 200; ARC 105; AST 101, 102, 111, 112; any BIO course 100 and above, excluding 298; BUS 105, 151, 205, 206; any CHM course 100 and above, excluding 196; CSC 100, 104, 105, 106; ENV 100, 106, 140, 142; ETR 160; GEO 101, 102; any GLG course 100 and above; MAC 103, 104; any MTH course 100 and above; any PHY course 100 and above
4. Social and Behavioral Science: AJS 101; any ANT course 100 and above, excluding 199, 296, 299; any ARC course 100 and above, excluding 199, 296, 299; BUS 201; ECE 106, 107, 108, 114, 117, 118; ECO 100, 101, 200, 210, 230; FDC 122, 132; FSN 113; FSS 288; GEO 103; any HIS course 100 and above, excluding 201; MAN 110; any POS course 100 and above, excluding 149, 250; any PSY course 100 and above, excluding 294, 296, 298; any SOC course 100 and 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. See the general education course list for the 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.

#### **Subject Area**

|                                | <b>Credit Hours</b> |
|--------------------------------|---------------------|
| Communication                  | 3                   |
| Humanities and Fine Arts       | -                   |
| Science and/or Mathematics     | 3                   |
| Social and Behavioral Sciences | -                   |
| <b>Total Hours</b>             | <b>6</b>            |

#### **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: MTH 060, 065, 070, 090. **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.

**Associate Degrees** are generally 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 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 six 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.

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 may choose to fulfill degree or certificate requirements as outlined in any one catalog which was in effect during their dates of attendance at Pima Community College with the following exception: Students who withdraw from Pima for two or more consecutive semesters must meet degree requirements as outlined in the catalog at their date of re-enrollment or any subsequent catalog during their dates of attendance.

## Graduation Application

Students are required to make application for each certificate and/or degree desired by the dates specified in the College academic calendar. Failure to do so may result in a processing delay 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:

1. Advanced placement examinations from high school.
2. College Level Examination Program (CLEP).
3. Defense Activity for Non-Traditional Educational Support (DANTES), formerly United States Armed Forces Institute (USAFI).
4. Special examinations 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 hours credit by examination.

### Advanced Placement from High School

These exams are administered in various high schools each year in 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.

1. General Examination: A maximum of 6 credit hours may be obtained for each general exam in which a standard score of 500 or better is achieved. Five general exams are offered—English composition, humanities, mathematics, natural sciences and social sciences (history).
2. Subject Examinations: These are more specific and intended to cover material typical of college level courses in each subject area. More than 40 of these exams are available, and credit may be earned for one or more Pima Community College courses upon completing an appropriate subject examination with a standard score of 50 or better.

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

Students who successfully complete DANTES subject standardized

tests may be eligible to receive credit by examination for appropriate Pima Community College courses. An official transcript of test results can be obtained by writing to DANTES, Box 2819, Princeton, N. J. 08540.

### Special Examinations for Credit of Grade

Credit by examination may be awarded for selected courses currently taught at the College. The student should consult with the appropriate departmental chairperson or faculty member for further information. Only students currently enrolled at Pima Community College may earn 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 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 the end of the term when circumstances dictate that none of the other grades is 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 unless:

1. Their cumulative Grade Point Average falls below the minimum GPA.

| Units Completed | Minimum Cumulative<br>Grade Point Average (GPA) |
|-----------------|---|
| 15 through 29   | 1.50  |
| 30 through 44   | 1.75  |
| 45 or more      | 2.00  |

Units completed include those credits earned at Pima Community College with a grade of A, B, C, D, F, or P.

2. They receive 8 or more credit hours of W (official withdrawal) and/or Y (unofficial withdrawal) in each semester for two consecutive semesters of enrollment.

Implementation of these criteria were effective with the beginning of the Spring 1984 semester based upon GPA earned during and prior to the Fall 1983 semester at Pima Community College. Effective date of the W and Y criteria stated above began with the Fall 1983 semester.

### Academic Alert

Students will be placed on academic alert when:

1. Students are not in good academic standing.
2. Students have been readmitted after having been placed on academic disqualification.

The Academic Alert system:

1. Informs students of academic status.
2. Allows students one semester to achieve 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 conditions:

1. Does not raise his/her cumulative GPA to the required Standards of Progress. (Exception: if the student earns a 2.00 GPA or higher for the current semester he/she will be permitted to continue on academic alert status.)
2. Records 8 or more credit hours of withdrawal (W) or unofficial withdrawal (Y) grades in any combination thereof during the current semester.

A student who has been academically disqualified will not be permitted to enroll for the semester following disqualification.

### Appeal of Academic Disqualification

A student who has been academically disqualified must follow established College appeal procedures for immediate reinstatement if he/she feels that mitigating circumstances contributed to the unsatisfactory academic progress. Specific procedures for appeal are outlined within the notification letter that is provided to students who are disqualified.

### Appeal of Grades

Students who feel that a course grade has been unfairly awarded and have not been able to resolve the matter with the instructor involved should follow the established College appeals procedure for requesting a change of course grade.

### Reinstatement

For reinstatement after academic disqualification:

1. Students must not enroll at PCC for one regular semester (excluding summer school) following their academic disqualification.
2. Students disqualified at the end of the spring semester may enroll for the summer session. Providing the student earned a 2.00 GPA in 6 credit hours or more in the summer session, he/she may continue for the fall semester.
3. Students may appeal the academic disqualification in accordance with the established College appeals procedures.

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 four (4) or more credit hours for a seven-week session will be classified as full-time students.



### **Part-Time Student**

Students enrolled for 1-11 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 seven-week summer session will be classified as part-time students.

### **Freshman**

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

### **Sophomore**

Students who have earned 28 or more semester hours of credit 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.

Local regulation explains, in detail, the procedures to be used by the institution for compliance with the provisions of the act. Copies of the regulations can be obtained at the Office of Registration and Admissions or the Office of Student Affairs at any campus.

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

### **Student Information Excluded from Coverage by the Act**

Pima Community College hereby designates the following 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 withhold disclosure of public or directory information under the Family Educational Rights and Privacy Act of 1974. To withhold disclosure, written notification must be received by the West Campus Office of Admission and Records prior to the end of drop/add for each semester concerned.

Pima Community College assumes that failure on the part of any student to 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.

# Educational Programs



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

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

1. Continuing Pima students must have completed at least 9 hours of college-level courses numbered 100 or above with a GPA of 3.5. Students with less than 9 credit hours must present assessment scores qualifying them for two of the following: WRT 101, MTH 130, or REA 112.
2. New students should show evidence of a GPA of 3.5 on previous academic records if available, and have Pima assessment scores that qualify them for two of the following: WRT 101, MTH 130, or REA 112. If previous academic records are not available, assessment scores alone may be submitted.
3. Continuing college students (from other than Pima) must have completed at least 9 credit hours of college-level courses numbered 100 or above with a GPA of 3.5. Students with less than 9 credit hours must present assessment scores qualifying them for two of the following: WRT 101, MTH 130, or REA 112.

Students who meet the criteria may obtain application forms from the Downtown, East, or West Campus Career Center.

## Armed Service Members College Opportunity

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 and Junior Colleges (AACJC).

For information on Department of Veterans Affairs (DVA) educational assistance, refer to "Financial Aid" in Student Affairs section.

## Cooperative Education

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

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.

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.

## Office of Minority Education

The Office of Minority Education supports activities that focus on priorities outlined in a College Policy and Regulations that address 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 for minorities and comparable achievement across disciplines that include an increase in graduation and transfer rates.

## Evening and Weekend Classes

Many Pima courses are offered in the evening or on weekends. These courses cover many areas of interest and are offered at many places in Tucson. Classes 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 nine or ten hours per day for two non-consecutive weekends. Accelerated weekend classes may be cancelled ten days prior to the scheduled start date due to low enrollment. Enrolled students are notified in the event of a cancellation.

## Summer School Program

Three sessions beginning in late May are offered each summer with courses determined by student demand. Sessions normally run for five to six weeks or eight to ten weeks at a time.

## Bilingual Program

Pima Community College offers students a unique educational opportunity through the Bilingual Program. The program serves students with a variety of backgrounds and needs.

### Both English and Another Language Are Used

Bilingual Program courses are taught in English with assistance in another language, in most cases Spanish. Bilingual instructors help students understand and learn better by using English for class presentation and the student's native language when answering questions or giving assistance. If students need more help, it will be provided in language they understand best.

### Take Other Courses While Studying English

The Bilingual Program makes it possible for students with limited English proficiency to begin course work in the field 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. Bilingual degree programs all include some courses taught only in English. The vast majority of the classes offered at Pima Community College are taught only in English; thus, it is most important for students to take ESL, reading, and writing courses to attain proficiency in English.

### Students Fluent in English Also Take Bilingual Courses

Students who are fluent in English and wish to increase their proficiency in another language (mainly in Spanish) in certain subject areas such as business, secretarial studies, or psychology, should also be informed of the bilingual program offerings and/or encouraged to speak to instructors or staff members of the bilingual program area. These students do not have to be able to read the native language, they merely have to understand and speak it. Taking bilingual program courses will help them improve their proficiency in Spanish (or another language) while learning course content, which is the primary goal. Learning new vocabulary and terminology in the native language in addition to improving their English in particular subject areas such as accounting, secretarial studies, education, business, etc., provides students with additional marketable skills they can take to prospective employers.

### Programa Bilingüe

El colegio ofrece una variedad de cursos usando inglés y español como base instrucción 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, biología, etc.

### El estudiante que estudia inglés

Mientras el estudiante estudia inglés, puede tomar clases bilingües en algún campo que le interese 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.

# 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."

The goal of international/intercultural education is to provide students with basic information that allows them to function better within their own culture and foster understanding and appreciation of other cultures.

To respond to this need, the College endeavors to provide a multiplicity of academic, social, and cultural activities which increase international/intercultural understanding.

As part of its academic program, the College offers some sections of courses which have been modified to include international studies content, through several United States Department of Education grants. 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 be better informed about international events which affect their daily lives.

The following is a list of these courses:

|         |                                       |
|---------|---------------------------------------|
| ART 135 | Pre-Columbian Art                     |
| ART 136 | Masks                                 |
| 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                |
| IBC 120 | Cultural Similarities and Differences |
| IBC 130 | Living in the Foreign Country         |
| IBC 135 | The International Job                 |
| IBC 136 | Global Economy                        |

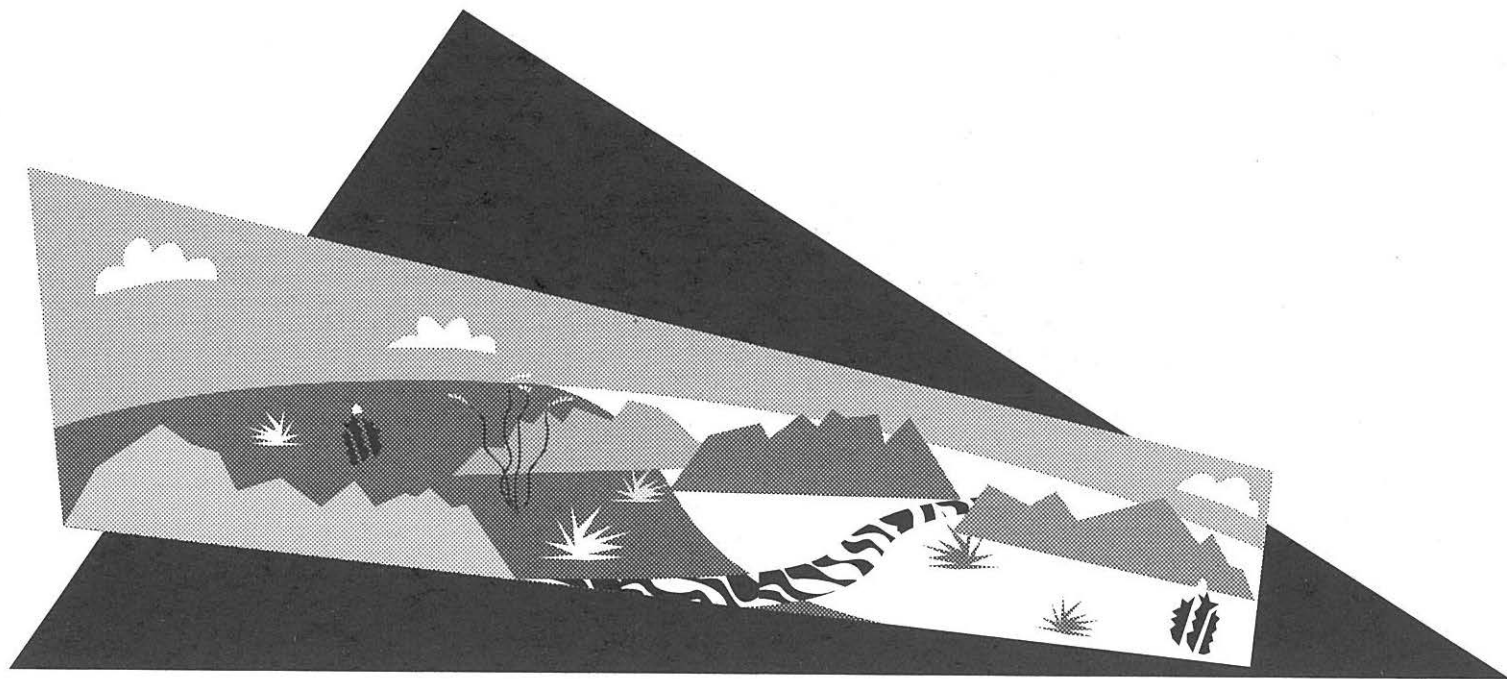
|         |   |
|---------|---|
| IBC 140 | Basic Techniques of International Trade                               |
| IBC 150 | Cultural Shock Management   |
| IBC 160 | Hosting Foreign Business Personnel                                    |
| MAN 110 | Human Relations in Business and Industry                              |
| MAN 122 | Supervision   |
| MAN 124 | Small Business Management   |
| MAN 278 | Labor/Management Relations  |
| MAN 280 | Business Organization and Management                                  |
| MKT 111 | Marketing   |
| OED 251 | Business Communications   |
| PHI 101 | Introduction to Philosophy  |
| PSY 120 | Introduction to Social Psychology                                     |
| PSY 296 | Individual Studies in Psychology                                      |
| REL 130 | Comparative Religions: Oriental                                       |
| SPA 110 | Elementary Spanish I  |
| SPA 217 | El Español Para Los Negocios<br>(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 a basic certificate and an associate degree in International Business Communications Studies.

The Office of Multi-Disciplinary Educational Services also sponsors study abroad programs for students interested in studying in a foreign country. For information about these programs, contact the Office of International Educational Services/Multi-Disciplinary Educational Services at 884-6617.

# Student Resources





# Student Services

The Student Affairs staff provides students with a variety of services to meet their educational, personal, and career goals. These services are provided at the Downtown, East, and West campuses, and at certain sites designated by the Community Campus and the Education Center-South.

## Counseling

Counseling services are provided to students as they identify and pursue their academic, career, and personal goals. The Counseling Faculty provide admission assistance and continue their involvement with students as they strive to reach their goals. Students may use walk-in hours or designated appointment times.

## 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 is offered giving students an opportunity to focus on adult life skills. Courses are varied, from stress management and career exploration to study skills and assertiveness training. Short courses that provide information on special interest topics are also available. These special topics courses can be taken for partial credit under the HDE 298 course number. Other Human Development Education courses meet for one or two hours each week. Check the Schedule of Classes under HDE for times and locations.

## Special Programs

Special programs are designed to assist minority students (Native Americans, Hispanics, Blacks), 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 Affairs office for information.

## Career Centers

Career Centers located in the Student Center at the West Campus, the Campus Center at the Downtown Campus, and in the Student Union at the East Campus provide information on various careers, training needed for different careers, salary projections, future outlooks for employment, special job requirements, resume writing, and job seeking skills. Assistance in developing life management skills or making career

decisions is available through individual and group counseling, film strips, slides, tapes, computer systems, and written materials.

## Career and Job Placement

The College offers career advising and job placement services on each campus. The centers provide assistance with employment preparation and maintain a listing of part-time and full-time temporary jobs for students. Personnel also assist students involved in the College Cooperative Education Program.

A job information hot line is available after business hours by calling 884-6815. For more information and assistance in finding a job, visit a campus Career Center.

## Disabled Student Resources

Disabled Student Resources is committed to providing educational support services for disabled students on all Pima Community College campuses. The department assists students and instructors in adapting learning environments to allow each individual to function to the best of his/her ability within the scope of the College. Disabled Student Resources also refers disabled students to other College departments and community agencies that can enrich their educational experience. Services provided by Disabled Student Resources may include: academic advising, career and personal counseling, classroom assistance, special education tutoring, note taking, sign language interpreting, mobility assistance, specialized equipment, and workshops for faculty, staff and the community about students with disabilities.

# Financial Aid/Grants/ Scholarships

A complete financial aid program is offered to help students with the cost of school through scholarships, loans, grants, and jobs. The main purpose of this aid program is to help eligible students pay for college. The College does not discriminate against qualified individuals on the basis of sex, race, color, national origin or handicaps when awarding financial aid. **Early application for financial aid is essential.** Contact a campus Financial Aid Office for information and application.

For all types of federal financial aid, students must be committed to an educational program which leads to a degree, certificate, or university transfer.

## Eligibility

Each of the programs has somewhat different eligibility requirements. In general, financial need is the most important selection factor. The lack of previous academic achievement should not discourage an otherwise deserving financial aid applicant.

## Applications

Pima Community College, in cooperation with other colleges and universities in Arizona, uses the American College Testing Service Family Financial Statement form. The Student Data form must be submitted to a College Financial Aid Office whereas the Family Financial Statement must be submitted to the American College Testing Service. Forms are available in any College Financial Aid Office or any Pima County high school counselor's office.

Because funds under all programs are limited in the amount available each year, applications received by **April 1**—prior to the beginning of the following school year—will be given priority consideration. Applicants are encouraged to apply as early as possible and turn in all documents as indicated, to insure full consideration. The financial aid staff welcomes inquiries, and members may be called upon to meet with groups of students and their families in high schools and neighborhood centers to provide information and counsel about financing college expenses. Inquiries should be directed to the Financial Aid Office, 884-6606.

## Types

### Student Loans

The College offers a large number of student loans at low interest rates and deferred repayment at favorable terms. Among these are Stafford Loans (formerly GSL) and Perkins Loans. Students who previously earned a Bachelor's degree are ineligible for a Perkins Loan. A Pima Community College Emergency Loan Fund provides small loans for short periods of time to assist students in meeting emergencies.

### Grants

A limited number of Supplemental Educational Opportunity Grants are offered students having exceptional financial need. A limited number of Arizona State Student Incentive Grants (SSIG) awards are made to individuals who demonstrate exceptional financial need.

Pell Grants are available to eligible students enrolled at least half-time in a program which leads to a certificate or a degree. Students who previously

earned a bachelor's degree are ineligible. Applications can be obtained from any of the College's Financial Aid Offices or from high school counselors.

## College Work-Study Program

A number of campus jobs, supported jointly by college and federal funds under the College Work-Study Program, are available to students. However, students with their bachelor's degree are ineligible for the work-study program. Students, generally, may work up to 15 hours per week when classes are in session. A financial aid application should be submitted at least six weeks prior to the beginning of a term.

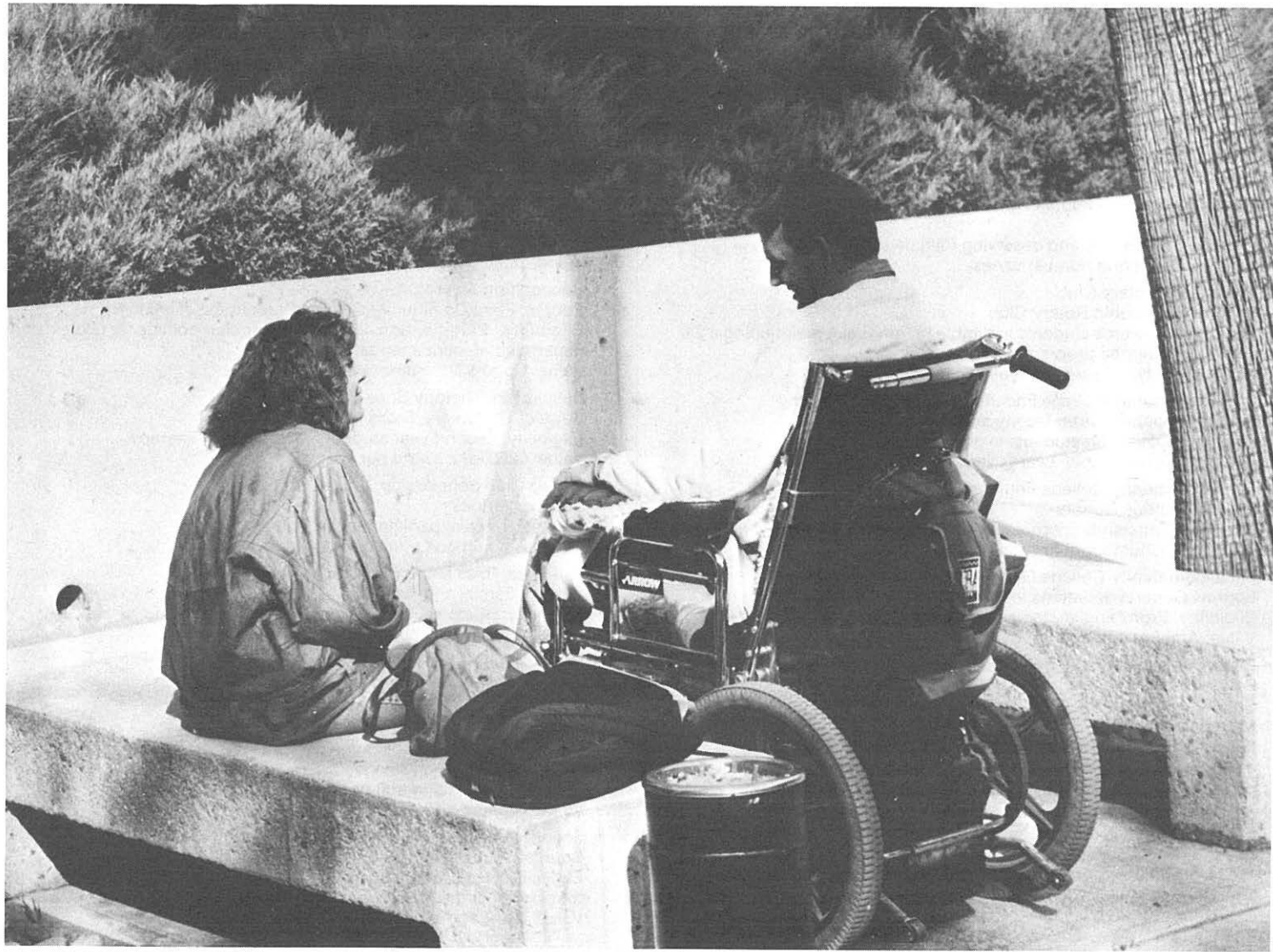
## Scholarships

A number of scholarships have been set up for students by generous private donors. Awards range from \$100 to \$300 and often can be renewed for a second year. 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: Fulltime vocal music student  
Value: \$504.00, 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: \$250, 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 program  
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 office education  
Value: \$500
- Mary Macon Memorial Scholarship for Office Education Students  
Source: Family and friends  
Eligibility: Promising and needy students in Office Education  
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.C.H.A.—Lizzie Lopez Memorial Temporary Loan Fund  
Source: M.E.C.H.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 fulltime 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
- Security Pacific Bank Scholarship  
Source: Security Pacific Bank  
Eligibility: Needy and academically deserving students, with preference to minority or disabled/handicapped  
Value: \$300, one award per year



- 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 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 Airport Authority Scholarship  
Source: Tucson Airport Authority  
Eligibility: Dependents of T.A.A. Employees or Tenants, full or part-time students  
Value: Tuition and up to \$100 for books, three one semester awards, renewable
- Tucson Electric Power Scholarship  
Source: Tucson Electric Power Company  
Eligibility: Children of Tucson Electric Power Company employees  
Value: \$400, four awards per year, renewable
- 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, and selected reservists 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 only tuition and fees. 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 non-standard 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 non-standard semester courses, and whether the student is combining standard and non-standard courses.



Veterans enrolled in TV, self-paced or independent study courses will be paid for a maximum of 5 credits, provided they are enrolled in at least 1 credit of classroom training. Veterans enrolled in a non-degree certificate program that is not contained in this catalog will be certified to the DVA on a clock-hour basis, thereby affecting the rate of benefit.

#### **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 will 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.

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 Downtown, East and West Campus libraries. District library resources are listed in a single computerized catalog and shared through courier and telefacsimile services.

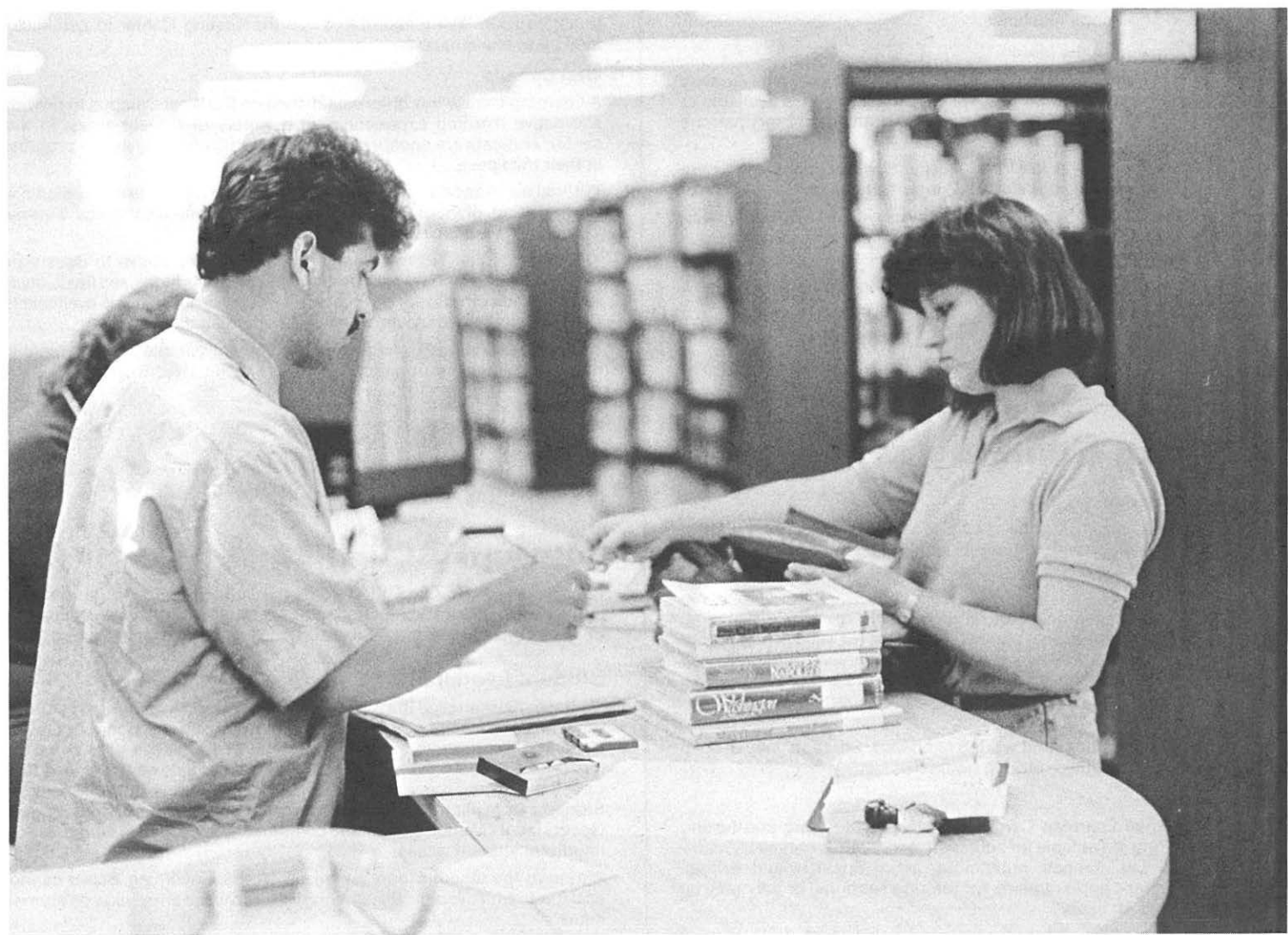
Public services staff are available at all libraries to answer reference questions and to assist users in locating and utilizing information. They provide bibliographies, online database searching, student and faculty manuals, national phone books and college catalogs on microfilm, and referral to other information resources. Campus libraries may also provide a self-paced library skills assignments, a Hypercard orientation program, classroom presentations, individualized consultancies, library skills courses, and the use of calculators, typewriters, and micro-computers.

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.

The Downtown Campus library, located on the second floor of the Campus Center, houses a collection numbering 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, machine tool, alternative energy (especially solar), graphic technology, advertising art, hospitality, small business, office education, legal assistant and practical nursing. Current magazines and newspapers are available for informational and leisure reading.

The East Campus library has a collection of over 22,000 items of print and non-print materials for reference and personal interest. This library specializes in the area of environmental technology and equine science.

The West Campus library, located on the third floor of the Library/Administration Building, has a multi-media collection of 135,000 items, 750 periodical subscriptions, and extensive periodical backfiles. The collection is particularly strong in the areas of art, ethnic studies, law enforcement, literature, business and legal reference, and Latin American history. The library features a number of special collections—Spanish Language, Children's Literature, Paperback Leisure Reading, SAMS Photofact Repair Manuals, Film and Video, ERIC documents, Current Best Sellers, CDs and Records, and College Archives—and the following CD-ROM indexes: *InfoTrac's Magazine Index* and *Academic Index*; *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 barcoded I.D. card 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 \$10.00 per item.

## **Learning Centers**

### **Downtown Campus**

The Alternative Learning Center (ALC), located on the second floor of the Campus Center, provides students with three major services: math, reading and writing courses for credit and supplemental tutorial assistance.

The ALC offers many courses for credit in math, reading and writing. Each course has an individual plan which allows for scheduling during the day and evening as well as self-paced study. Personal and individual attention from instructors, lab assistants and tutors is given to help the student successfully complete 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.

### **East Campus**

The Supplemental Learning Center provides free tutoring and testing services. Tutoring is available for courses in accounting, chemistry, computer science, ESL, French, humanities, math, 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**

A Learning Center has been established on the West Campus to provide alternative learning experiences in a variety of subject areas. In this center, students are encouraged to work independently and to progress at their own pace.

Tutorial assistance and supplemental resource materials are available in math, writing, physics, chemistry, engineering, and electronics. 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.

All Pima Community College students should visit one of the centers to obtain additional information about this specific educational service.

## **Student Activities**

Information on the student governance, student clubs, organizations, athletics and cultural events scheduled during the academic year 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 at each of the campuses. Student government representatives also sit on various task forces and committees that make recommendations to the President. Students from each campus elect representatives to the District Student Government Council to facilitate communication between campuses on important student issues.

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 and Intramural 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 or the Health Related Professions Division of the West Campus.

### **Intercollegiate**

Pima is a member of the Arizona Community College Athletic Association, National Junior College Athletic Association, NJCAA Region #1, and the National Intercollegiate Rodeo Association.. 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), pep squad (men and women), cross country (men and women), basketball (men and women), tennis (men and women), track (men and women), baseball (men), volleyball (women), golf (men), softball (women), and rodeo (men and women).

### **Intramural Sports**

Intramural activities are open to any member of the College—students, faculty, and staff—with sports geared to individual and team competition. Many activities are available and others are developed when enough interest is shown. Activities 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 Ice Hockey, Rodeo, Tae Kwon Do, Judo, Indoor Track, Marathon, Soccer, Volleyball, Wrestling, and Los Dorados (Sundays).

## **Student Publications**

Student publications include the *Aztec Press* and two literary magazines, *Mazagine* and *Llueve Tlaloc*.

Those who would like to serve on the newspaper staff in any capacity

should contact either the Fine, Applied and Communicative Arts area office or the Student Activities Office on the West Campus.

Students interested in publishing *Mazagine* (a literary/arts publication) should register for Writing 062. *Mazagine* is nationally distributed and acclaimed and contributions are welcomed from anyone. Submit to *Mazagine* in CBN 127, West Campus, SASE.

*Llueve Tlaloc*, a bilingual literary magazine, is published annually by students enrolled in Literatura Creativa (Spanish 206). Selections are written in Spanish and some are translated into English for publication. Those who would like additional information regarding *Llueve Tlaloc* should contact the Bilingual Studies Office.

# **Student Life and Conduct**

## **Student Housing**

Pima Community College does not own or operate student housing either on campus or in the community. Student Affairs 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 for Pima Community College students enrolled for credit courses without additional cost under a blanket policy. 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 in the Student Services area of each campus.

## **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. Semester bus passes are available at any campus Cashier's Office at a discounted student rate. 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 Code of Conduct and Scholastic Ethics Code**

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 grievance procedures, rights and responsibilities are contained in the Student Code of Conduct and the Scholastic Ethics Code. Copies of this document are available through the office of the Campus Dean of Student Affairs.

### **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).

#### **Standards of Conduct**

The College Student Code and Procedures prohibit the unlawful use, possession, or distribution of alcohol and illicit substances by students. Under the provisions contained in these documents, the following misconduct is subject to disciplinary actions including exclusion, suspension, or expulsion:

1. Failing to comply with published rules and regulations of conduct restricting the sale or possession of alcoholic beverages and illicit substances on the college campuses or college-sponsored activities, or
2. Being under the influence of, or the use, sale or possession of any narcotic or controlled substance on campus or during off-campus college-sponsored activities. This includes, but is not limited to, marijuana, any narcotic drug, hallucinogen, stimulant, depressant, amphetamine, or barbiturate, abusable glue, aerosol paint, or other chemical substance. Over-the-counter drugs are excluded from consideration unless improperly used.

#### **Legal Sanctions**

Local state and federal laws make illegal use of drugs and alcohol serious crimes. Conviction can lead to imprisonment, fines and/or assigned community service. Students convicted by a civil court 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, county, state, and federal authorities in the enforcement and control of the use of illegal substances 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, 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. Contact the counseling center on any campus for information.



# Degrees & Certificates





# Program Areas

Refer to Index for subjects not listed below.

|  | Degrees | Certificates |
|--|---------|--------------|
| Accounting                                     | AAS     | A            |
| Administration of Justice                      | AA, AAS |              |
| Advertising Art and Computer Graphics          | AAS     | B, A         |
| Air Conditioning                               | AAS     | B, T         |
| Allied Health                                  |         | B            |
| American Indian Studies                        | AA      |              |
| Anthropology                                   | AA      |              |
| Apprentice Related Instruction                 | AAS     | A            |
| Archaeology                                    | AS      | B, A, T      |
| Arts, Applied                                  | AAA     |              |
| Arts, Fine                                     | AA      |              |
| Asian Studies                                  | AA      |              |
| Automotive Technology                          | AS, AAS | B, T         |
| Aviation Mechanics                             | AAS     | B, T         |
| Bilingual Business Administration              |         | B            |
| Biology  | AS      |              |
| Business Administration                        | AS, AAS | B, A         |
| Chemistry                                      | AS      |              |
| Computer Science                               | AS, AAS | B, A         |
| Construction                                   | AS      |              |
| Construction Drafting                          | AAS     | B, T         |
| Construction Technology                        | AAS     | B, A, T      |
| Dental Assisting Education                     |         | A            |
| Dental Hygiene                                 | AAS     |              |
| Dental Laboratory Technology                   | AAS     |              |
| Design   | AAA     | B, A         |
| Drafting Technology                            | AAS     | T            |
| Drama  | AA      |              |
| Early Childhood Education                      | AAS     | A            |
| Education                                      | AS      |              |
| Electronics Technology                         | AAS     | B, A         |
| Emergency Medical Technology                   |         | B, A, T      |
| Engineering                                    | AS      |              |
| Environmental Technology                       | AAS     | A            |
| Finance  | AAS     | B, A         |
| Fire Science                                   | AAS     | B, A         |
| Fitness and Sport Sciences                     | AA      | A            |
| Foods, Clothing, Family and Consumer Resources | AAS     | A            |
| General Studies                                | AGS     |              |
| Geology  | AS      |              |

|                                       |         |      |
|---------------------------------------|---------|------|
| Graphic Technology                    | AAS     | B, A |
| Home Child Care                       |         | A    |
| Hospitality Education                 | AS, AAS | B, A |
| Institutional Foodservice             |         | B, A |
| International Business Communication  | AAS     | B    |
| Interpreter Training (Sign Language)  | AAA     | B    |
| Landscape Technician                  | AAS     | A    |
| Legal Assistant                       | AAS     |      |
| Liberal Arts                          | AA, AS  |      |
| Machine Tool Technology               | AAS     | B, T |
| Manufacturing Technology              | AS      |      |
| Mathematics                           | AA      |      |
| Media Communications                  | AA, AAS | A    |
| Mental Health Technician              |         | A    |
| Microcomputer Technician              | AAS     | B, A |
| Music                                 | AA      |      |
| Nursing                               | AAS     |      |
| Nursing Assistant                     |         | B    |
| Practical Nursing                     |         | A    |
| Office Education                      | AAS     | B, A |
| Pharmacy Technology                   | AAS     | B    |
| Physics                               | AS      |      |
| Postal Service Management             | AAS     | B, A |
| Production and Inventory Management   | AAS     | B, A |
| Public Administration                 | AS      |      |
| Quality Systems Technology            | AAS     | B, A |
| Radiologic Technology                 | AAS     |      |
| Real Estate                           | AAS     | B, A |
| Respiratory Therapist                 | AAS     | A    |
| Social Services                       | AA, AAS | B    |
| Speech Communication                  | AA      |      |
| Training for Special Education        | AAS     | B, A |
| Transportation and Traffic Management | AAS     | B, A |
| Welding                               | AAS     | B, T |
| Youth Care                            | AA, AAS | A    |

AA - Associate of Arts

AS - Associate of Science

AAA - Associate of Applied Arts

AAS - Associate of Applied Science

AGS - Associate of General Studies

Certificates: B - Basic, A - Advanced, T - Technical

# 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

### Required Courses (34-37 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 200  | Accounting Practice on the Microcomputer          | 3            | ACC 100*      |
| ACC 204  | Individual Tax Accounting                         | 4            |               |
| <b>General Education and Support Courses</b>                             |   |              |               |
| BUS 100  | Introduction to Business                          | 3            |               |
| BUS 200  | Business Law I                                    | 3            |               |
| BUS 105  | Survey of Microcomputer Uses                      |              |               |
| or CSC 105   | Survey of Microcomputer Uses                      |              |               |
| or CSC 100   | Introduction to Computers and Information Systems | 3            | MTH 070*      |
| OED 111  | Typing I or equivalent proficiency                | 0-3          |               |
| MAN 110  | Human Relations in Business and Industry          | 3            |               |
| MTH 070  | Algebra I   | 3            | MTH 060*      |
| OED 151  | Business English                                  |              |               |
| or WRT 101   | Writing I   | 3            | WRT 100*      |

### Suggested Course Sequence (Read down.)

|                    |                    |
|--------------------|--------------------|
| OED 151 or WRT 101 | BUS/CSC 105 or 100 |
| MTH 070            | ACC 102            |
| ACC 100            | ACC 204            |
| BUS 100            | ACC 200            |
| ACC 101            | BUS 200            |
| OED 111            | MAN 110            |

\*For additional prerequisite information, check Course Section.

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

### Required Courses (61-65 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. |              |               |
| <b>Core Courses</b> - A grade of C or better is required for graduation. |   |              |               |
| ACC 101  | Financial Accounting  | 3            |               |
| ACC 102  | Managerial Accounting   | 3            | ACC 101*      |
| ACC 200  | Accounting Practice on the Microcomputer  | 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            |               |

### General Education and Support Courses

|            |   |   |          |
|------------|---|---|----------|
| BUS 100    | Introduction to Business                          | 3 |          |
| BUS 200    | Business Law I                                    | 3 |          |
| BUS 105    | Survey of Microcomputer Uses                      |   |          |
| or CSC 105 | Survey of Microcomputer Uses                      |   |          |
| or CSC 100 | Introduction to Computers and Information Systems | 3 | MTH 070* |
| MAN 280    | Business Organization and Management              | 3 | BUS 100* |
| ECO 101    | Introduction to Macroeconomics                    | 3 | MTH 070  |
| MAN 110    | Human Relations in Business and Industry          | 3 |          |

|                       |  |      |          |
|-----------------------|--|------|----------|
| MTH                   | Determined by assessment test at the 100 level or higher   | 3    |          |
| OED 151<br>or WRT 101 | Business English   | 3    | *        |
| SPE 120               | Writing I  | 3    | WRT 100* |
|                       | Business and Professional Communication  | 3    |          |
| HUM/ART               | Humanities and Fine Arts Elective  |      |          |
|                       | Complete one of the following:<br>(Check individual course descriptions.)  | 3-4  |          |
|                       | ART 130, 131, 132, 135   |      |          |
|                       | DRA 140, 141   |      |          |
|                       | HUM 110, 111   |      |          |
|                       | Foreign Language   |      |          |
|                       | LIT 260, 265   |      |          |
|                       | MUS 151, 201, 202  |      |          |
|                       | PHI 101, 120   |      |          |
| ELEC                  | Other Electives:<br>Complete 3 of the following courses (other courses may be substituted with the consent and written approval of accounting instructors or the department chairperson) | 9-12 |          |
|                       | ANT 101, 102   |      |          |
|                       | ECO 100  |      |          |
|                       | HUM 110, 111   |      |          |
|                       | MTH 130 or MTH 150   |      |          |
|                       | PHI 101, 120   |      |          |
|                       | POS 110, 130   |      |          |
|                       | PSY 100A, 100B   |      |          |
|                       | REA 100  |      |          |
|                       | SOC 101, 120   |      |          |
|                       | WRT 154  |      |          |

### Suggested Course Sequence (Read down.)

|                     |                    |                     |
|---------------------|--------------------|---------------------|
| Reading requirement | ACC 204            | ECO 101             |
| OED 151 or WRT 101  | BUS/CSC 105 or 100 | Other elective      |
| MTH course          | SPE 120            | ACC 202             |
| ACC 101             | Other elective     | MAN 280             |
| BUS 100             | ACC 203            | ACC 200             |
| MAN 110             | ACC 201            | Humanities elective |
| ACC 102             | BUS 200            | Other elective      |

\*For additional prerequisite information, check Course Section.

## Administration of Justice

The administration of justice program area offers options in criminal justice and corrections serving three types of students: in-service, pre-service and transfer. Students can gain skills needed to update their present duties, find a job or transfer to a four-year school.

Job entry programs offer the largest number and broadest range of skills. Students in these programs should enroll in the core courses and general education courses that are required. Beyond this requirement, students are urged to seek the help of an administration of justice advisor in order to choose elective courses which will be best matched to their job entry needs.

Those who plan to transfer should follow the requirements of the four-year college they wish to attend, taking only the core courses in their major area. It is also the student's task to get the correct program information from the college of his or her choice. Transfer programs offered by the administration of justice department are designed for transfer to the University of Arizona.

Students who enter an administration of justice program must see one of the instructors in the area for advisement and counseling.

## Corrections—Associate of Applied Science Degree For Direct Employment

### Required Courses (61-71 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 101* |
| AJS 123 | Corrections as a System                           | 3 |          |
| AJS 201 | Rules of Evidence                                 | 3 | AJS 109* |
| AJS 212 | Juvenile Justice Procedures                       | 3 |          |
| AJS 225 | Crime and Delinquency                             | 3 |          |
| AJS 290 | Administration of Justice Field Experience        | 3 | *        |

### General Education and Support Courses

|                                |   |     |          |
|--------------------------------|---|-----|----------|
| AJS ELEC                       | Administration of Justice Electives<br>Select one of the following:<br>AJS 146, 163, 240, 245, 256. | 3   |          |
| POS 110                        | American National Government and Politics   | 3   |          |
| POS 130                        | American State and Local Governments and Politics   | 3   |          |
| PSY 101<br>or 100A<br>and 100B | Introduction to Psychology<br>Psychology I<br>Psychology II   | 4-6 |          |
| 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<br>or 154              | Practical Communications<br>Technical Communications I  | 3   | WRT 100* |

|         |   |     |
|---------|---|-----|
| HUM/ART | Humanities and Fine Arts Electives<br>Complete one of the following:<br>ART 130, 131, 132, 135<br>DRA 140, 141<br>HUM 251, 252, 253<br>Foreign Language<br>LIT 260, 265<br>MUS 151, 201, 202<br>PHI 101, 102, 120 | 3-4 |
|---------|---|-----|

|         |  |        |
|---------|--|--------|
| SCI/MTH | Science and Mathematics Electives<br>Complete two of the following:<br>ACC 100, 101, 102<br>AST 101, 102, 111, 112<br>BUS 151<br>BIO 101, 102, 160, 190, 195,<br>201, 202, 204, 205, 242, 243<br>CHM 121, 130, 140, 141, 151, 152<br>GEO 101, 102<br>GLG 101, 102<br>MTH 110, 115, 120, 125, 130, 135,<br>140, 145, 150, 155, 160, 170, 175,<br>180, 185, 210, 215, 219, 220<br>PHY 101, 102, 105, 121, 122,<br>131, 132, 210, 216, 221, 230 | 6-10 * |
|---------|--|--------|

|        |   |     |
|--------|---|-----|
| ELEC** | Other Electives<br>Complete three credit hours from the following list:<br>(Other courses may be taken as electives with the approval of an AJS advisor.)<br>AJS 171, 204, 208, 210, 220, 256<br>ANT or HIS (ethnic studies courses)<br>FSN 114<br>PSY 140, 214, 216, 265<br>OED 111<br>SSE 115, 116, 133, 134, 135, 138, 218, 234, 236<br>ECE 107<br>ECO 100, 101<br>PAD 105 | 0-3 |
|--------|---|-----|

### Suggested Course Sequence

See an administration of justice faculty advisor.

\*For additional prerequisite information, check Course Section.

\*\*Only if necessary to meet minimum degree hour requirement.

## Corrections—Associate of Arts Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

### 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.

|         |   |   |          |
|---------|---|---|----------|
| AJS 101 | Introduction to Administration of Justice Systems | 3 |          |
| AJS 123 | Corrections as a System                           | 3 |          |
| AJS 109 | Criminal Law                                      | 3 |          |
| AJS 115 | Criminal Procedures                               | 3 | AJS 101* |
| AJS 212 | Juvenile Justice Procedures                       | 3 |          |
| AJS 225 | Crime and Delinquency                             | 3 |          |

### Support Courses

|         |  |   |  |
|---------|--|---|--|
| PAD 105 | Introduction to Public Administration                    | 3 |  |
| PAD 204 | Introduction to the Analysis of Data for Decision Making | 3 |  |

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

|                                  |     |
|----------------------------------|-----|
| English Composition              | 6   |
| Humanities and Fine Arts         | 9   |
| Biological and Physical Sciences | 8   |
| Mathematics (MTH 150 or above)   | 3   |
| Social and Behavioral Sciences   | 9   |
| Other Requirement options        | 5-6 |

### Suggested Course Sequence

See an administration of justice faculty advisor.

\*For additional prerequisite information, check Course Section.

## Corrections Rehabilitation Option—Associate of Arts Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

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 highly recommended for this program.

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 MTH 150 (College Algebra) or above. The student is urged to take this course if an equivalent course was not taken. MTH 150 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.

### 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.

|         |   |   |          |
|---------|---|---|----------|
| AJS 101 | Introduction to Administration of Justice Systems | 3 |          |
| AJS 109 | Criminal Law                                      | 3 |          |
| AJS 115 | Criminal Procedures                               | 3 | AJS 101* |
| AJS 123 | Corrections as a System                           | 3 |          |
| AJS 146 | Child Abuse Intervention and Protection           | 3 |          |
| AJS 212 | Juvenile Justice Procedures                       | 3 |          |
| AJS 225 | Crime and Delinquency                             | 3 |          |

#### Support Courses

|         |                               |   |          |
|---------|-------------------------------|---|----------|
|         | Select one of the following:  | 3 |          |
| AJS 163 | Introduction to Youth Care    |   |          |
| AJS 201 | Rules of Evidence             |   | AJS 109* |
| AJS 240 | Detention Supervision Methods |   |          |
| AJS 245 | Treatment of the Offender:    |   |          |
|         | Institutional and Field       |   | AJS 101* |
| AJS 256 | Justice System Administration |   |          |

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

|  |     |
|--|-----|
| 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 (MTH 150 or above)   | 3   |
| Social and Behavioral Sciences   | 9   |
| Other Requirement options  | 5-6 |

#### Suggested Course Sequence

See an administration of justice faculty advisor.

\*For additional prerequisite information, check Course Section.

## Criminal Justice—Associate of Applied Science Degree For Direct Employment

### Required Courses (64-71 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 101* |
| AJS 201 | Rules of Evidence                                 | 3 | AJS 109* |
| AJS 210 | Police Community and Human Relations              | 3 | AJS 101* |
| AJS 212 | Juvenile Justice Procedures                       | 3 |          |
| AJS 225 | Crime and Delinquency                             | 3 |          |
| AJS 290 | Administration of Justice Field Experience        | 3 | *        |

### General Education and 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                        |     |          |
| or 100A  | Psychology I                                      |     |          |
| and 100B | Psychology II                                     | 4-6 |          |
| 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  | Practical Communications                          |     |          |
| or 154   | Technical Communications I                        | 3   | WRT 100* |

|         |  |      |   |
|---------|--|------|---|
| HUM/ART | Humanities and Fine Arts<br>Elective   |      |   |
|         | Complete one of the following:   | 3-4  | * |
|         | ART 130, 131, 132, 135   |      |   |
|         | DRA 140, 141   |      |   |
|         | HUM 251, 252, 253  |      |   |
|         | Foreign Language   |      |   |
|         | LIT 260, 265   |      |   |
|         | MUS 151, 201, 202  |      |   |
|         | PHI 101, 102, 120  |      |   |
| SCI/MTH | Science and Mathematics<br>Electives   |      |   |
|         | Complete two of the following:   | 6-10 | * |
|         | ACC 100, 101, 102  |      |   |
|         | AST 101, 102, 111, 112   |      |   |
|         | BUS 151  |      |   |
|         | BIO 101, 102, 160, 190, 195,<br>201, 202, 204, 205, 242, 243                                       |      |   |
|         | CHM 121, 130, 140, 141, 151, 152   |      |   |
|         | GEO 101, 102   |      |   |
|         | GLG 101, 102   |      |   |
|         | MTH 110, 115, 120, 125, 130, 135,<br>140, 145, 150, 155, 160, 170, 175,<br>180, 185, 210, 215, 219 |      |   |
|         | PHY 101, 102, 105, 121, 122,<br>131, 132, 210, 216, 221, 230                                       |      |   |
| ELEC    | Other Electives  |      |   |
|         | Complete six credit hours from<br>the following list:  | 6    |   |
|         | (Other courses may be taken<br>as electives with approval<br>of an AJS advisor.)                   |      |   |
|         | AJS 123, 146, 163, 171, 204,<br>208, 220, 240, 245, 256, 277                                       |      |   |
|         | ECE 107  |      |   |
|         | ECO 100, 101   |      |   |
|         | HIS or ANT (ethnic study courses)  |      |   |
|         | FSN 114  |      |   |
|         | OED 111  |      |   |
|         | PAD 105  |      |   |
|         | PSY 140, 214, 216, 265   |      |   |
|         | SSE 115, 116, 133, 134, 135, 138,<br>218, 234, 236.  |      |   |

### Suggested Course Sequence

See an administration of justice faculty advisor.

\*For additional prerequisite information, check Course Section.

## Criminal Justice—Associate of Arts Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

### 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.

|         |   |   |          |
|---------|---|---|----------|
| AJS 101 | Introduction to Administration of Justice Systems | 3 |          |
| AJS 109 | Criminal Law                                      | 3 |          |
| AJS 115 | Criminal Procedures                               | 3 | AJS 101* |
| AJS 201 | Rules of Evidence                                 | 3 | AJS 109* |
| AJS 210 | Police Community and Human Relations              | 3 | AJS 101* |
| AJS 225 | Crime and Delinquency                             | 3 |          |

### Support Courses

|         |  |   |  |
|---------|--|---|--|
| PAD 105 | Introduction to Public Administration                    | 3 |  |
| PAD 204 | Introduction to the Analysis of Data for Decision Making | 3 |  |

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

|                                  |     |
|----------------------------------|-----|
| English Composition              | 6   |
| Humanities and Fine Arts         | 9   |
| Biological and Physical Sciences | 8   |
| Mathematics (MTH 150 or above)   | 3   |
| Social and Behavioral Sciences   | 9   |
| Other Requirement options        | 5-6 |

### **Suggested Course Sequence**

See an administration of justice faculty advisor.

\*For additional prerequisite information, check Course Section.

## **Advertising Art and Computer Graphics**

Programs in advertising art and computer graphics prepare students for direct employment in the field. Their training may include the layout and production of advertisements, brochures, billboards, logos, point of purchase displays, catalogs, stationery, flyers, packaging and television story boards. Specialized training is also offered in illustration, cartooning, television commercial design, airbrush, computer art, and desktop publishing. Nine program options are available:

- Basic Certificate For Direct Employment
- Associate of Applied Science Degree For Direct Employment
- Computer Art Option—Associate of Applied Science Degree For Direct Employment
- DeskTop Publishing Option—Associate of Applied Science Degree For Direct Employment
- Pre-Press Artist Option—Associate of Applied Science Degree For Direct Employment

- Illustration Option—Associate of Applied Science Degree For Direct Employment
- Production Artist Option—Associate of Applied Science Degree For Direct Employment
- Technical Illustration Option—Advanced Certificate For Direct Employment
- Technical Illustration Option—Associate of Applied Science Degree For Direct Employment.

Program courses and advising are offered on the Downtown Campus.

### **Advertising Art and Computer Graphics—Basic Certificate For Direct Employment**

The basic certificate program introduces students to the basic skills required in advertising art and computer graphics and prepares them for employment as advertising artist trainees.

#### **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. |  |              |               |
| ADA 101  | Advertising Art I                      | 3            |               |
| ADA 102  | Advertising Design I                   | 3            |               |
| ADA 103  | Advertising Drawing I                  | 4            |               |
| ADA 111  | Production Techniques and Processes I  | 3            | MTH 060*      |
| ADA 211  | Production Techniques and Processes II | 3            | ADA 111*      |

#### **General Education and Support Courses**

|     |                               |   |  |
|-----|-------------------------------|---|--|
| MTH | Determined by assessment test | 3 |  |
|-----|-------------------------------|---|--|

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

|         |             |
|---------|-------------|
| ADA 101 | Math course |
| ADA 102 | ADA 111     |
| ADA 103 | ADA 211     |

\*For additional prerequisite information, check Course Section.

## Advertising Art and Computer Graphics—Associate of Applied Science Degree For Direct Employment

This program trains students for entry-level positions as layout and/or production artists.

### 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.

|         |  |   |          |
|---------|--|---|----------|
| ADA 101 | Advertising Art                          | 3 |          |
| ADA 102 | Advertising Design I                     | 3 |          |
| ADA 103 | Advertising Drawing I                    | 4 |          |
| ADA 106 | Advertising Drawing II                   | 4 | ADA 103  |
| ADA 111 | Production Techniques and Processes I    | 3 | MTH 060* |
| ADA 120 | Advertising Design II                    | 3 | ADA 102* |
| ADA 205 | Advertising Drawing III                  | 4 | ADA 106* |
| ADA 207 | Advertising Drawing IV                   | 4 | ADA 205  |
| ADA 210 | Advertising Design III                   | 3 | ADA 120  |
| ADA 211 | Production Techniques and Processes II   | 3 | ADA 111* |
| ADA 212 | Production Techniques and Processes III  | 3 | ADA 211  |
| ADA 215 | Desktop Publishing I for Advertising Art | 3 |          |
| ADA 220 | Advertising Design IV                    | 3 | ADA 210  |
| GRA 101 | Graphic Technology I                     | 3 |          |

### General Education and Support Courses

|         |  |   |  |
|---------|--|---|--|
| MAN 110 | Human Relations in Business and Industry                 | 3 |  |
| MTH     | Determined by assessment test at the 100 level or higher | 3 |  |
| MTH     | Second course in sequence at the 100 level or higher     | 3 |  |
| SPE 120 | Business and Professional Communication                  | 3 |  |

|         |                            |   |          |
|---------|----------------------------|---|----------|
| WRT 100 | Writing Fundamentals       |   | WRT 070* |
| or 101  | Writing I                  |   | WRT 100* |
| or 102  | Writing II                 |   | WRT 101* |
| or 154  | Technical Communications I | 3 | WRT 100* |

### Suggested Course Sequence (Read down.)

|                              |         |             |
|------------------------------|---------|-------------|
| Reading requirement          | ADA 111 | SPE 120     |
| WRT 100 or 101 or 102 or 154 | ADA 120 | ADA 207     |
| Math course                  | ADA 106 | ADA 212     |
| ADA 101                      | ADA 215 | ADA 220     |
| ADA 102                      | ADA 210 | MAN 110     |
| ADA 103                      | ADA 205 | Math course |
| GRA 101                      | ADA 211 |             |

\*For additional prerequisite information, check Course Section.

## Advertising Art and Computer Graphics—Computer Art Option—Associate of Applied Science Degree For Direct Employment

### Required Courses (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.

|         |                                       |   |          |
|---------|---------------------------------------|---|----------|
| ADA 100 | Applied Computer Graphics             | 3 |          |
| ADA 101 | Advertising Art                       | 3 |          |
| ADA 102 | Advertising Design I                  | 3 |          |
| ADA 103 | Advertising Drawing I                 | 4 |          |
| ADA 106 | Advertising Drawing II                | 4 | ADA 103  |
| ADA 111 | Production Techniques and Processes I | 3 | MTH 060* |
| ADA 120 | Advertising Design II                 | 3 | ADA 102* |
| ADA 131 | Computer Painting                     | 3 |          |
| ADA 140 | Presentation Graphics                 | 3 | ADA 100* |
| ADA 205 | Advertising Drawing III               | 4 | ADA 106* |
| ADA 207 | Advertising Drawing IV                | 4 | ADA 205  |

|         |  |   |          |
|---------|--|---|----------|
| ADA 211 | Production Techniques and Processes II   | 3 | ADA 111* |
| ADA 215 | DeskTop Publishing I for Advertising Art | 3 |          |
| ADA 232 | Computer 3D Modeling                     | 3 |          |
| ADA 233 | Computer Animation                       | 3 |          |

#### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| GRA 101 | Graphic Technology I                                     | 3 |          |
| MAN 110 | Human Relations in Business and Industry                 | 3 |          |
| MTH     | Determined by assessment test at the 100 level or higher | 3 |          |
| MTH     | Second course in sequence at the 100 level or higher     | 3 |          |
| SPE 120 | Business and Professional Communication                  | 3 |          |
| WRT 100 | Writing Fundamentals                                     |   | WRT 070* |
| or 101  | Writing I  | 3 | WRT 100* |
| or 102  | Writing II   |   | WRT 101* |
| or 154  | Technical Communications I                               | 3 | WRT 100* |

#### Suggested Course Sequence

See an advertising art faculty advisor.

\*For additional prerequisite information, check Course Section.

### Advertising Art and Computer Graphics—DeskTop Publishing For Advertising Art—Associate of Applied Science Degree For Direct Employment

#### 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.

|         |                           |   |
|---------|---------------------------|---|
| ADA 100 | Applied Computer Graphics | 3 |
| ADA 101 | Advertising Art I         | 3 |
| ADA 102 | Advertising Design I      | 3 |

|         |  |   |          |
|---------|--|---|----------|
| ADA 103 | Advertising Drawing I                      | 4 |          |
| ADA 106 | Advertising Drawing II                     | 4 | ADA 103  |
| ADA 111 | Production Techniques and Processes I      | 3 | MTH 060* |
| ADA 120 | Advertising Design II                      | 3 | ADA 102* |
| ADA 131 | Computer Painting                          | 3 | ADA 100* |
| ADA 205 | Advertising Drawing III                    | 4 | ADA 106* |
| ADA 211 | Production Techniques and Processes II     | 3 | ADA 111* |
| ADA 212 | Production Techniques and Processes III    | 3 | ADA 211  |
| ADA 215 | DeskTop Publishing I for Advertising Art   | 3 | ADA 100* |
| ADA 216 | DeskTop Publishing II for Advertising Art  | 3 |          |
| ADA 217 | DeskTop Publishing III for Advertising Art | 3 | ADA 216  |

#### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| GRA 101 | Graphic Technology I                                     | 3 |          |
| MAN 110 | Human Relations in Business and Industry                 | 3 |          |
| MTH     | Determined by assessment test at the 100 level or higher | 3 |          |
| MTH     | Second course in sequence at the 100 level or higher     | 3 |          |
| SPE 120 | Business and Professional Communication                  | 3 |          |
| WRT 100 | Writing Fundamentals                                     |   | WRT 070* |
| or 101  | Writing I  | 3 | WRT 100* |
| or 102  | Writing II   |   | WRT 101* |
| or 154  | Technical Communications I                               | 3 | WRT 100* |

#### Suggested Course Sequence

See an advertising art faculty advisor.

\*For additional prerequisite information, check Course Section.



## Advertising Art and Computer Graphics—Pre-Press Artist Option—Associate of Applied Science Degree For Direct Employment

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 or production artist trainees.

### 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.

|         |   |   |          |
|---------|---|---|----------|
| ADA 100 | Applied Computer Graphics                     | 3 |          |
| ADA 101 | Advertising Art                               | 3 |          |
| ADA 102 | Advertising Design I                          | 3 |          |
| ADA 103 | Advertising Drawing I                         | 4 |          |
| ADA 106 | Advertising Drawing II                        | 4 | ADA 103  |
| ADA 111 | Production Techniques and Processes I         | 3 | MTH 060* |
| ADA 120 | Advertising Design II                         | 3 | ADA 102* |
| ADA 211 | Production Techniques and Processes II        | 3 | ADA 111* |
| ADA 215 | Desktop Publishing I for Advertising Art      | 3 |          |
| 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 104* |

### General Education and Support Courses

|         |  |   |  |
|---------|--|---|--|
| MAN 110 | Human Relations in Business and Industry                 | 3 |  |
| MTH     | Determined by assessment test at the 100 level or higher | 3 |  |

|         |  |   |
|---------|--|---|
| MTH     | Second course in sequence at the 100 level or higher | 3 |
| SPE 120 | Business and Professional Communication              | 3 |
| WRT 150 | Practical Communication                              | 3 |

### Suggested course sequence (Read down.)

|                     |             |         |
|---------------------|-------------|---------|
| Reading requirement | ADA 103     | GRA 202 |
| ADA 100             | GRA 104     | ADA 120 |
| ADA 101             | ADA 106     | ADA 211 |
| GRA 101             | ADA 111     | GRA 221 |
| ADA 102             | ADA 215     | MAN 110 |
| GRA 102             | GRA 201     | SPE 120 |
| Math course         | Math course |         |
| WRT 150             |             |         |

\*For additional prerequisite information, check Course Section.

## Advertising Art and Computer Graphics—Illustration Option—Associate of Applied Science Degree For Direct Employment

### 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.

|         |                                       |   |          |
|---------|---------------------------------------|---|----------|
| ADA 100 | Applied Computer Graphics             | 3 |          |
| ADA 101 | Advertising Art I                     | 3 |          |
| ADA 102 | Advertising Design I                  | 3 |          |
| ADA 103 | Advertising Drawing I                 | 4 |          |
| ADA 104 | Illustration I                        | 3 |          |
| ADA 105 | Air Brush Techniques I                | 3 |          |
| ADA 106 | Advertising Drawing II                | 4 | ADA 103  |
| ADA 107 | Air Brush Techniques II               | 3 | ADA 105  |
| ADA 111 | Production Techniques and Processes I | 3 |          |
| ADA 131 | Computer Painting                     | 3 | ADA 100* |
| ADA 204 | Illustration II                       | 3 | ADA 104  |

|         |   |   |         |
|---------|---|---|---------|
| ADA 205 | Advertising Drawing III                   | 4 | ADA 106 |
| ADA 207 | Advertising Drawing IV                    | 4 | ADA 205 |
| ADA 216 | Desktop Publishing II for Advertising Art | 3 |         |
| ADA 218 | Illustration III                          | 3 | ADA 204 |

#### General Education and Support Courses

|                       |   |   |                                  |
|-----------------------|---|---|----------------------------------|
| MAN 110               | Human Relations in Business and Industry                        | 3 |                                  |
| MTH                   | Determined by assessment test at the 100 level or higher        | 3 |                                  |
| MTH                   | Second course in sequence at the 100 level or higher            | 3 |                                  |
| SPE 120               | Business and Professional Communication                         | 3 |                                  |
| WRT 100 or 101 or 154 | Writing Fundamentals<br>Writing I<br>Technical Communications I | 3 | WRT 070*<br>WRT 100*<br>WRT 100* |

#### Suggested Course Sequence

See an Advertising Art faculty advisor.

\*For additional prerequisite information, check Course Section.

### Advertising Art and Computer Graphics— Production Artist Option—Associate of Applied Science For Direct Employment

#### 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.

|         |                                       |   |          |
|---------|---------------------------------------|---|----------|
| ADA 101 | Advertising Art                       | 3 |          |
| ADA 102 | Advertising Design I                  | 3 |          |
| ADA 103 | Advertising Drawing I                 | 4 |          |
| ADA 106 | Advertising Drawing II                | 4 | ADA 103  |
| ADA 111 | Production Techniques and Processes I | 3 | MTH 060* |

|         |  |   |          |
|---------|--|---|----------|
| ADA 120 | Advertising Design II                    | 3 | ADA 102* |
| ADA 140 | Presentation Graphics                    | 3 | ADA 100* |
| ADA 205 | Advertising Drawing III                  | 4 | ADA 106  |
| ADA 211 | Production Techniques and Processes II   | 3 | ADA 111* |
| ADA 212 | Production Techniques and Processes III  | 3 | ADA 211  |
| ADA 213 | Production Techniques and Processes IV   | 3 | ADA 212  |
| ADA 215 | Desktop Publishing I for Advertising Art | 3 |          |

#### General Education and Support Courses

|                              |   |   |  |
|------------------------------|---|---|--|
| GRA 101                      | Graphic Technology I  | 3 |  |
| GRA 102                      | Graphic Technology II   | 3 | GRA 101                                      |
| MAN 110                      | Human Relations in Business and Industry                                      | 3 |  |
| MTH                          | Determined by assessment test at the 100 level or higher                      | 3 |  |
| MTH                          | Second course in sequence at the 100 level or higher                          | 3 |  |
| SPE 120                      | Business and Professional Communication                                       | 3 |  |
| WRT 100 or 101 or 102 or 154 | Writing Fundamentals<br>Writing I<br>Writing II<br>Technical Communications I | 3 | WRT 070*<br>WRT 100*<br>WRT 101*<br>WRT 100* |

#### Suggested Course Sequence

See an Advertising Art faculty advisor.

\*For additional prerequisite information, check Course Section.

### Advertising Art and Computer Graphics—Technical Illustration Options

The two technical illustration options, advanced certificate and an associate of applied science degree, prepare students for direct employment in the field. The training includes the drawing, inking and reproduction procedures for art work required in manufacturing operations, technical manuals and in-house publications including vu-graphs and slides. The art work will include charts, diagrams and isometric drawings of parts, assemblies and exploded views. Training will include freehand drawing, mechanical drawing, computer aided graphics, airbrush and production skills needed for printing.

## Advertising Art and Computer Graphics—Technical Illustration Option—Advanced Certificate For Direct Employment

### 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. |                                       |              |               |
| ADA 100  | Applied Computer Graphics             | 3            |               |
| ADA 103  | Advertising Drawing I                 | 4            |               |
| ADA 106  | Advertising Drawing II                | 4            | ADA 103       |
| ADA 111  | Production Techniques and Processes I | 3            | MTH 060*      |
| TIL 102  | Technical Illustration I              | 4            | DFT 101*      |

### General Education and Support Courses

|                   |  |   |          |
|-------------------|--|---|----------|
| DFT 101           | Blueprint Reading and Sketching          | 4 |          |
| DFT 150           | Technical Drafting I                     | 4 |          |
| GRA 101           | Graphic Technology I                     | 3 |          |
| MTH               | Determined by assessment test            | 3 |          |
| WRT 100<br>or 101 | Writing Fundamentals<br>Writing I        | 3 | WRT 070* |
| WRT 102<br>or 154 | Writing II<br>Technical Communications I | 3 | WRT 101* |

### Suggested Course Sequence

See an Advertising Art faculty advisor.

\*For additional prerequisite information, check Course Section.

## Advertising Art and Computer Graphics—Technical Illustration Option—Associate of Applied Science Degree For Direct Employment

### Required Courses (65-66 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.

|         |  |   |          |
|---------|--|---|----------|
| ADA 100 | Applied Computer Graphics              | 3 |          |
| ADA 103 | Advertising Drawing I                  | 4 |          |
| ADA 105 | Airbrush Techniques I                  | 3 |          |
| ADA 106 | Advertising Drawing II                 | 4 | ADA 103  |
| ADA 111 | Production Techniques and Processes I  | 3 | MTH 060* |
| ADA 140 | Presentation Graphics                  | 3 | ADA 100* |
| ADA 205 | Advertising Drawing III                | 4 | ADA 106  |
| ADA 207 | Advertising Drawing IV                 | 4 | ADA 205  |
| ADA 211 | Production Techniques and Processes II | 3 | ADA 111* |
| TIL 102 | Technical Illustration I               | 4 | DFT 101* |

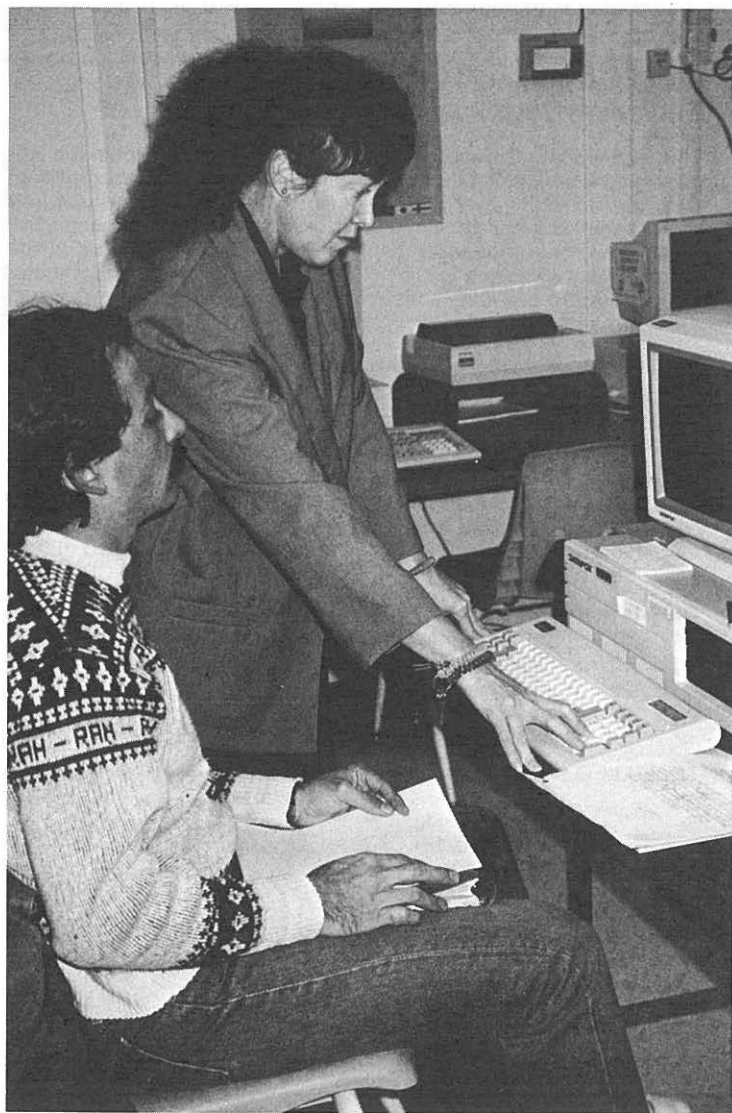
### General Education and Support Courses

|                   |  |     |          |
|-------------------|--|-----|----------|
| DFT 101           | Blueprint Reading and Sketching  | 4   |          |
| DFT 150           | Technical Drafting I   | 4   |          |
| DFT 180           | Computer Aided Drafting I  | 4   | DFT 150* |
| GRA 101           | Graphic Technology I   | 3   |          |
| MTH               | Determined by assessment test at the 100 level or higher                                       | 3   |          |
| MTH               | Second in course sequence at the 100 level or higher   | 3   |          |
| WRT 100<br>or 101 | Writing Fundamentals<br>Writing I  | 3   | WRT 070* |
| WRT 102<br>or 154 | Writing II<br>Technical Communications I   | 3   | WRT 100* |
| SOC/BEH           | Social & Behavioral Science Elective   | 3-4 | WRT 101* |
|                   | (See Graduation section of this catalog for associate of applied science degree course lists.) |     | WRT 100* |

### Suggested Course Sequence

See an Advertising Art faculty advisor.

\*For additional prerequisite information, check Course Section.



# Air Conditioning

This program area provides training in residential air conditioning and heating, commercial refrigeration and industrial air conditioning. Three programs are offered: a basic certificate specializing in residential home comfort; a technical certificate covering air conditioning, heating and ventilation; and an associate of applied science degree covering all aspects of air conditioning technology. Demand for air conditioning technicians is high, with over ninety percent of program graduates obtaining employment in this or a related field. Program courses and advising are available on the Downtown Campus. Good study habits are essential for success in this as in all college program areas.

## Air Conditioning—Basic Certificate For Direct Employment

This program provides entry-level skills and foundational training which permits advancement to higher levels in the job market. Graduates are qualified as refrigeration service helpers and service technicians. Good basic reading, writing, math and study skills are important for success in this program. Students planning to transfer to a four-year institution should take WRT 101 and 102 and transfer-level mathematics courses as required by that institution.

### 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. |                                     |              |               |
| ACD 101  | Principles and Psychrometrics       | 3            | MTH 060*      |
| ACD 120  | Electricity, Circuitry and Controls | 4            | ACD 101       |
| ACD 125  | Troubleshooting and Service         | 4            | ACD 120       |

### General Education and Support Courses

|         |                             |   |          |
|---------|-----------------------------|---|----------|
| DFT 101 | Blueprint Reading/Sketching | 4 |          |
| MTH 110 | Technical Mathematics I     | 3 | MTH 060* |

### Suggested Course Sequence (Read down.)

ACD 101  
DFT 101  
MTH 110  
ACD 120  
ACD 125

\*For additional prerequisite information, check Course Section.

## Air Conditioning, Heating and Ventilation—Technical Certificate For Direct Employment

This degree option provides all the skills of both the residential and light commercial programs plus those which qualify students for positions involving estimating and beginning management. Job placement from this program is excellent. Good basic reading, writing, math and study skills as well as good work habits are essential for success in this program. Students planning to transfer to a four-year institution should take WRT 101 and 102 and transfer-level mathematics courses as required by that institution.

### Required Courses (30-31 Credit Hours)

| Course Number  | Course Title                        | Credit Hours | Prerequisites |
|--|-------------------------------------|--------------|---------------|
| <b>Core Courses</b> - A grade of C or better is required for graduation. |                                     |              |               |
| ACD 101  | Principles and Psychrometrics       | 3            | MTH 060*      |
| ACD 120  | Electricity, Circuitry and Controls | 4            | ACD 101       |
| ACD 125  | Troubleshooting and Service         | 4            | ACD 120       |
| ACD 126  | Pneumatic HVAC Controls             | 3            | ACD 120*      |

### General Education and Support Courses

|         |                             |   |          |
|---------|-----------------------------|---|----------|
| DFT 101 | Blueprint Reading/Sketching | 4 |          |
| MTH 110 | Technical Mathematics I     | 3 | MTH 060* |
| MTH 120 | Technical Mathematics II    | 3 | MTH 110  |
| WRT 100 | Writing Fundamentals        |   | WRT 070* |
| or 154  | Technical Communications I  | 3 | WRT 100* |

|           |   |     |   |
|-----------|---|-----|---|
| TECH ELEC | Technical Elective                            |     |   |
|           | Complete 3-4 credit hours from the following: | 3-4 | * |
|           | DFT 150, 151, 180                             |     |   |
|           | MRE 112                                       |     |   |
|           | MAC 110                                       |     |   |
|           | PHY 101, 102                                  |     |   |
|           | SET 101, 102                                  |     |   |
|           | SML 101, 102, 103                             |     |   |
|           | WLD 110, 150                                  |     |   |
|           | ACD 199, 299                                  |     |   |

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

|         |                    |
|---------|--------------------|
| ACD 101 | MTH 120            |
| ACD 120 | WRT 100 or 154     |
| ACD 125 | DFT 101            |
| ACD 126 | Technical elective |
| MTH 110 |                    |

\*For additional prerequisite information, check Course Section.

## Air Conditioning Technology—Associate of Applied Science Degree For Direct Employment

Graduates of this program are prepared to become engineering helpers, service managers and contract estimators; in addition, they have a good background for movement into engineering or other professional programs. They will have excellent employment opportunities in virtually any locale. Good basic reading, writing, speaking, math and study skills as well as strong work habits and a liking for the air conditioning field are important for success in this program. Students planning to transfer to a four-year institution should take WRT 101 and 102 and transfer-level mathematics courses as required by that institution.

**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.

|         |                                       |   |          |
|---------|---------------------------------------|---|----------|
| ACD 101 | Principles and Psychrometrics         | 3 | MTH 060* |
| ACD 102 | Load Calculation and Air Distribution | 4 | MTH 110  |
| ACD 120 | Electricity, Circuitry and Controls   | 4 | ACD 101  |
| ACD 125 | Troubleshooting and Service           | 4 | ACD 120  |
| ACD 126 | Pneumatic HVAC Controls               | 3 | ACD 120* |
| ACD 210 | Commercial Refrigeration              | 4 | ACD 125* |
| ACD 250 | Estimating                            | 3 | ACD 210* |

**General Education and Support Courses**

|            |  |     |          |
|------------|--|-----|----------|
| DFT 101    | Blueprint Reading/Sketching                  | 4   |          |
| MTH 110    | Technical Mathematics I                      | 3   | MTH 060* |
| MTH 120    | Technical Mathematics II                     | 3   | MTH 110  |
| WRT 100    | Writing Fundamentals                         |     | WRT 070* |
| or 154     | Technical Communications I                   | 3   | WRT 100* |
| SPE 120    | Business and Professional Communication      |     |          |
| or WRT 101 | Writing I                                    |     | WRT 100* |
| or WRT 154 | Technical Communications I                   | 3   | WRT 100* |
| HUM/ART    | Humanities and Fine Arts Elective            |     |          |
|            | Complete one of the following:               | 3-4 |          |
|            | ART 130, 131, 132, 135                       |     |          |
|            | DRA 140, 141                                 |     |          |
|            | HUM 251, 252, 253                            |     |          |
|            | Foreign Language                             |     |          |
|            | LIT 260, 265                                 |     |          |
|            | MUS 151, 201, 202                            |     |          |
|            | PHI 101, 102, 120                            |     |          |
| SOC/BEH    | Social and Behavioral Sciences Elective      |     |          |
|            | Complete one of the following:               | 3-4 |          |
|            | ANT 101, 102, 200, 210, 215, 225             |     |          |
|            | ECE 107, 108, 117                            |     |          |
|            | ECO 100, 101                                 |     |          |
|            | GEO 103                                      |     |          |
|            | HIS 101, 102, 141, 142, 147                  |     |          |
|            | MAN 110                                      |     |          |
|            | POS 100, 110, 112, 120, 130                  |     |          |
|            | PSY 100A, 100B, 265                          |     |          |
|            | SOC 101, 121, 201, 204                       |     |          |
| TECH ELEC  | Technical Electives                          |     |          |
|            | Complete 13 credit hours from the following: | 13  |          |
|            | ACD 199, 299                                 |     |          |
|            | CSC 105                                      |     |          |
|            | DFT 150, 151, 180                            |     |          |
|            | MRE 112                                      |     |          |
|            | MAC 110                                      |     |          |
|            | PHY 101, 102                                 |     |          |
|            | SET 101, 102                                 |     |          |
|            | SML 101, 102, 103                            |     |          |
|            | WLD 110, 150, 160                            |     |          |



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

|                     |         |                       |
|---------------------|---------|-----------------------|
| Reading requirement | ACD 120 | Humanities and Fine   |
| WRT 100 or 154      | ACD 125 | Arts elective         |
| MTH 110             | ACD 126 | Social and Behavioral |
| ACD 101             | ACD 210 | Sciences elective     |
| ACD 102             | ACD 250 | SPE 120 or WRT 101    |
| DFT 101             | MTH 120 | or 154                |
|                     |         | Technical electives   |

\*For additional prerequisite information, check Course Section.

## **Allied Health**

The allied health program offers training for men and women in health-related fields. Programs are from one semester to two-and-one-half years. They prepare the graduate for certification, registry and/or licensure. Special refresher and continuing education courses and programs are also offered.

In some areas the student can complete a certification program and continue his/her studies at the advanced certification or associate degree levels.

Students can register at the beginning of each semester for the following courses: emergency medical technician, allied health services, and nursing assistant.

For allied health programs, students must apply to the selections committee by April 1. The student will know about his/her acceptance by June 3 for classes starting in the fall. The deadline for Nursing is April 1. The deadline for Radiologic Technology is April 15.

Some allied health programs can enroll only a certain number of students. This situation is due to the limited laboratory and clinical space and because of the number of jobs available in each health field. These special programs have admission requirements based on state and national standards for certification, registry, licensure, and program accreditation rules.

### **Admission Policies:**

Students who want to enroll in programs should:

1. Apply to the specific allied health program in addition to applying for admission to the college.
2. Show certain educational skills which may change from one program to another. Students should look at the part of the catalog which tells about the program and/or talk with the appropriate department chairperson for the allied health programs to learn the necessary program requirements.

The selections committee for allied health programs will select the students for each entering class. This method makes sure that the same selection practices and standards are used.

The application for admission is held for only one application period. If a student wants to be admitted to the next entering class, he/she must apply again.

The allied health admissions secretary must have the completed student application form by the deadline. Arizona residents of the Pima Community College District will be chosen first.

### **Admission Procedure:**

1. The student can obtain the application forms at the following career and advising district campus centers.

#### **Downtown Campus**

- Allied Health Service Programs-Beginning Level
- Nursing Assistant/Patient-Care Attendants
- Nursing Assistant
- Practical Nursing
- Practical Nursing Update
- Mental Health Technician

#### **East Campus**

- Emergency Medical Technology

#### **West Campus**

- Associate Degree Nursing
- Dental Assisting Education
- Dental Hygiene
- Dental Laboratory Technology
- Emergency Medical Technology
- Ophthalmic Dispensing
- Optical Laboratory Technician
- Pharmacy Technician
- Radiologic (X-ray) Technology
- Respiratory Therapy

2. The completed application must include all official high school and college transcripts. The admissions secretary must have the com-

pleted application by the deadline for the next entering class. The student must ask the Registrar's Office to send Pima Community College transcripts to the admissions secretary.

3. Students can obtain information about pre-entrance testing and interviews from the Career and Advising Center.
4. By the selection date for each application period, the selections committee will tell the student of his/her acceptance into the program, placement as an alternate or non-acceptance into the program.
5. If the student is accepted, he/she must send the admissions secretary a card showing that he/she will enroll in the program. No deposit is required. If a vacancy in the program occurs, an alternate will be enrolled. When the class is filled in each enrollment period, alternate placement will stop.

#### Health Core Curriculum:

There is a basic course of study in health services which will give the student the skills to follow a career in the health care profession. Two courses are offered in this core: Introduction to Health Care (HCA 154) and Independent Studies in Health Sciences (HCA 099). Look under Health Care for course descriptions.

### Allied Health Services—Basic Certificate For Direct Employment

This is a one-semester program of three courses which include lectures, laboratories, and clinical experience in community health facilities. When the student completes 12 credit hours, he/she will get a Pima Community College basic certificate.

This program will help the student to use basic health worker skills in many types of health-related jobs. When a student finishes the program, he/she can perform basic client care skills in hospitals and in long-term and home-care facilities as nursing assistants or patient hospital care attendants.

Graduates can perform beginning health worker skills when they are supervised by licensed health care personnel.

#### Acceptance Into Program:

1. The student must be accepted by the college.
2. The student must complete the special application for the program.
3. The student must complete placement examinations in mathematics and reading. (Note: Students must read at the twelfth grade level or higher.)

4. The student must have an interview with the Allied Health Services Review Committee or with an individual committee member.
5. The student must have a physical examination which includes documentation of current immunizations if she/he is accepted into the program.

#### General Requirements:

Total credits-12 semester hours.

The student must successfully complete all academic and clinical program requirements.

#### 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                            | 5            |               |

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

BIO 160  
HCA 154  
NRA 101

## 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.

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

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

### 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.

|         |   |   |
|---------|---|---|
| ANT 121 | Contemporary Indian Groups 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

|          |  |      |
|----------|--|------|
| FOR/LANG | Foreign Language: Completion of a language course numbered 211, fourth-semester level, or completion of SPA 202 or SLG 202.<br>Exceptions:<br>1. Bilingual or international students should consult an | 4-16 |
|----------|--|------|

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<br>(Complete MTH 150 or above.)   | 3   |
| Social and Behavioral Sciences<br>(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.<br>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.<br>HUM 260 in the core fulfills 3 of the 9 credits required.) | 9   |
| Other Requirement options   | 6   |
| 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** |

### Suggested Course Sequence

See an American Indian Studies faculty advisor.

\*For additional prerequisite information, check Course Section.

\*\* If selected, SPE 102 or 110 or 130 must be taken with SPE 136.

## 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

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.

### 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

|          |   |     |  |
|----------|---|-----|--|
| FOR/LANG | Foreign Language  | 4-8 |  |
|          | 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.) |     |  |

|              |   |     |
|--------------|---|-----|
| NON-WEST CIV | Non-Western Civilization  | 3   |
| ANT 205      | Complete one of the following:<br>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 lists.)

|  |     |
|--|-----|
| English Composition  | 6   |
| Humanities and Fine Arts<br>(See an anthropology faculty advisor for recommended courses.)   | 9   |
| Biological and Physical Sciences   | 8   |
| Mathematics (MTH 150 or above)   | 3   |
| Social and Behavioral Sciences<br>(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<br>(Support courses satisfy this requirement.)   | 5-6 |

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

| First Year:                          | Second Year:                          |
|--------------------------------------|---------------------------------------|
| Reading requirement                  | Biological and Physical Sciences req. |
| 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 req. |
| English composition                  | Humanities and Fine Arts requirement  |
| Foreign language                     | ANT elective                          |
| Humanities and Fine Arts requirement |                                       |

\*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 while enrolled in apprenticeship programs or after completing these apprenticeships.

**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 have earned 46 credit hours of apprentice-related instruction, and/or must have completed college technical courses as well as satisfy the college reading requirement. The specific requirements are shown below.

**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.

| General Education                        | Cr. Hrs. |
|--|----------|
| Communications Electives                 | 6        |
| Science and Mathematics Electives        | 6        |
| Social and Behavioral Sciences Electives | 3        |
| Humanities and Fine Arts Electives       | 3        |

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

### Required Courses (64-69 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.

Apprenticeship related instruction and/or technical courses with the approval of the Associate Dean of Occupational Programs. 46

### General Education and Occupational Courses

|           |  |   |
|-----------|--|---|
| COMM/ELEC | Communications Electives<br>Complete two of the following:<br>OED 151, 251<br>SPE 120<br>WRT 100, 101, 102, 150, 154 | 6 |
|-----------|--|---|

|         |  |
|---------|--|
| HUM/ART | Humanities and Fine Arts<br>Elective<br>Complete one of the following: 3<br>ART 130, 131, 132, 135<br>DRA 140, 141<br>HUM 110, 111<br>Foreign Language<br>LIT 260, 265<br>MUS 151, 201, 202<br>PHI 101, 120<br>SLG 101, 102, 201, 202, 203   |
| SCI/MTH | Science and Mathematics<br>Electives<br>Complete two of the following: 6-10<br>AST 101, 102, 111, 112<br>BUS 151<br>CHM 121, 130, 140, 141, 151, 152<br>GEO 101, 102<br>GLG 101, 102<br>BIO 101, 102, 160, 190, 195, 201,<br>202, 204, 205, 242, 243<br>MTH 110, 115, 120, 125, 130, 135,<br>140, 145, 150, 155, 160, 170, 175,<br>180, 185, 210, 215, 219<br>PHY 101, 102, 105, 121, 122, 131,<br>132, 210, 216, 221, 230 |
| SOC/BEH | Social and Behavioral Sciences<br>Electives<br>Complete one of the following: 3-4<br>ANT 101, 102, 200, 210, 215, 225<br>ECE 107, 108, 117<br>GEO 103<br>HIS 101, 102, 141, 142, 147<br>MAN 110<br>POS 100, 110, 112, 120, 130<br>PSY 100A, 100B, 265<br>SOC 101, 120  |

### 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

### 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

### 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                  |              | MTH 110       |
| or 130   | Elementary Surveying                    | 3            | MTH 150*      |
| GLG 101  | Introductory Geology I                  | 4            |               |
| MTH 120  | Technical Mathematics II                |              | MTH 110       |
| or 155   | Trigonometry                            | 3            | MTH 150*      |
| WRT 254  | Technical Communications II             | 3            | WRT 154*      |

## Suggested Course Sequence

See an archaeology faculty advisor.

\*For additional prerequisite information, check Course Section.

## Computer Archaeology and Cartography— Technical Certificate

### 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       |              | MTH 110       |
| or 130   | Elementary Surveying         | 3            | MTH 150*      |
| MTH 120  | Technical Mathematics II     |              | MTH 110       |
| or 155   | Trigonometry                 | 3            | MTH 150       |
| WRT 254  | Technical Communications II  | 3            | WRT 154*      |
| CSC**  | Programming Languages        | 3-6          |               |

### 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

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.

### 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. |              |               |
| <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            |               |
| 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            | **            |
| <b>Support Courses</b>   |   |              |               |
| FOR/LANG   | Foreign Language<br>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.)                      | 8            |               |
| 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            |               |
| MTH 150  | College Algebra   | 3            | MTH 130*      |
| MTH 155  | Trigonometry  | 3            | MTH 150*      |

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

|  |      |
|--|------|
| English Composition  | 6    |
| Humanities and Fine Arts<br>(See an anthropology faculty advisor for recommended courses.) | 6    |
| Biological and Physical Sciences<br>(Support courses satisfy this requirement.)            | 8-10 |
| Mathematics<br>(Support courses satisfy this requirement.)                                 | 6    |
| Social and Behavioral Sciences<br>(Core courses satisfy this requirement.)                 | 6    |
| Other Requirement options<br>(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            |
| MTH 150                              | MTH 155                              |
| 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.

## 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

**Required Courses (60-65 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.

|         |                    |   |         |
|---------|--------------------|---|---------|
| 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 |         |

**General Education and Support Courses**

|          |   |    |          |
|----------|---|----|----------|
| WRT 101  | Writing I   | 3  | WRT 100* |
| WRT 102  | Writing II  | 3  | WRT 101  |
| ART ELEC | Art Electives<br>Complete eight courses from any of the following categories: | 24 |          |



**Arts and Crafts:**

|         |  |   |          |
|---------|--|---|----------|
| ART 160 | Ceramics I                               | 3 | ART 100* |
| ART 170 | Metalwork I: Jewelry                     | 3 | ART 100  |
| ART 179 | Weaving I: Back-strap and Tapestry Looms | 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 160* |
| ART 270 | Metalwork II: Jewelry                    | 3 | ART 100* |
| 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 110* |
| ART 214 | Printmaking II    | 3 | ART 100* |
| ART 215 | Painting I        | 3 | ART 110* |
| ART 216 | Screenprinting I  | 3 | ART 100  |
| ART 217 | Painting II       | 3 | ART 110* |
| ART 218 | Screenprinting II | 3 | ART 100* |
| ART 220 | Sculpture II      | 3 | ART 120  |

|         |                                   |     |  |
|---------|-----------------------------------|-----|--|
| HUM/ART | Humanities and Fine Arts Elective |     |  |
|         | Complete one of the following:    | 6-8 |  |
|         | ART 130, 131, 132, 135            |     |  |
|         | DRA 140, 141                      |     |  |
|         | HUM 110, 111                      |     |  |
|         | Foreign Language                  |     |  |
|         | LIT 260, 265                      |     |  |
|         | MUS 151, 201, 202                 |     |  |
|         | PHI 101, 120                      |     |  |

**SCI/MTH****Science and Mathematics****Electives**

Complete two of the following: 3-5

ACC 100, 101, 102

AST 101, 102

BIO 101, 102, 160, 184, 190,

195, 201, 202, 204, 205

BUS 151

CHM 121, 130, 140, 141, 151, 152

GEO 101, 102

GLG 101, 102

MTH 110, 115, 120, 125, 130, 135,

140, 145, 150, 155, 160, 170, 175,

180, 185, 210, 215, 219

PHY 101, 102, 105, 121, 122,

131, 132, 210, 216, 221, 230

**SOC/BEH****Social and Behavioral Sciences****Elective**

Complete one of the following: 3-4

ANT 101, 102, 200, 210, 215, 225

ECE 107, 108, 117

ECO 100, 101

GEO 103

HIS 101, 102, 141, 142, 147

MAN 110

POS 100, 110, 112, 120, 130

PSY 100A, 100B, 265

SOC 101, 120

**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

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

### 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   |    |  |
|          | Complete five courses from any of the following categories: | 15 |  |

### Art in the Craft Media:

|         |  |   |          |
|---------|--|---|----------|
| ART 160 | Ceramics I                               | 3 | ART 100* |
| ART 170 | Metalwork I: Jewelry                     | 3 | ART 100  |
| ART 179 | Weaving I: Back-strap and Tapestry Looms | 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 160* |
| ART 270 | Metalwork II: Jewelry                    | 3 | ART 100* |
| 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 110* |
| ART 215 | Painting I   | 3 | ART 110* |
| ART 217 | Painting II  | 3 | ART 110* |
| ART 220 | Sculpture II | 3 | ART 120  |

### Printmaking:

|         |                   |   |          |
|---------|-------------------|---|----------|
| ART 212 | Printmaking I     | 3 | ART 100  |
| ART 214 | Printmaking II    | 3 | ART 100* |
| ART 216 | Screenprinting I  | 3 | ART 100  |
| ART 218 | Screenprinting II | 3 | ART 100* |

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

|  |     |
|--|-----|
| English Composition  | 6   |
| Humanities and Fine Arts   | 9   |
| (9 credit hours from ART 100, 110, 130 and 131 may be used to satisfy this requirement.) |     |
| Biological and Physical Sciences   | 8   |
| Mathematics (MTH 150 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.

## Asian Studies—Associate of Arts Degree for Transfer

### Required Courses (65-71 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.

|         |  |   |
|---------|--|---|
| GEO 103 | Cultural Geography   | 4 |
| HIS 113 | Asian Civilizations I  | 3 |
| HIS 114 | Asian Civilizations II   | 3 |
| HUM 260 | Intercultural Perspectives   | 3 |
| JPN 110 | Elementary Japanese  | 5 |
| JPN 111 | Elementary Japanese II   | 5 |
| JPN 210 | Intermediate Japanese I  | 5 |
| JPN 211 | Intermediate Japanese II   | 5 |
|         | (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 | Comparative Religions: Oriental  | 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 |
| 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<br>(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<br>(Complete MTH 150 or above.)   | 3 |
| Social and Behavioral Sciences<br>(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<br>(Core courses satisfy these requirements.)   | 6 |

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

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

\*For additional prerequisite information, check Course Section.

## 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

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 (17 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  | Automotive Engine Tune-up                | 4            |               |
| AUT 128  | Automotive Electrical Fundamentals       | 3            |               |
| <b>General Education Course</b>  |  |              |               |
| MAN 110  | Human Relations in Business and Industry | 3            |               |

**Suggested Course Sequence**

See an automotive technology faculty advisor.

**Automotive Tune-up and Air Conditioning—Basic Certificate For Direct Employment**

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 (20 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  | Automotive Engine Tune-up                             | 4            |               |
| AUT 128  | Automotive Electrical Fundamentals                    | 3            |               |
| AUT 129  | Automotive Electrical Component Repair and Adjustment | 3            |               |
| AUT 142  | Automotive Air Conditioning                           | 3            |               |
| <b>General Education Course</b>  |   |              |               |
| MAN 110  | Human Relations in Business and Industry              | 3            |               |

**Suggested Course Sequence**

See an automotive technology faculty advisor.

**Power Transmission—Basic Certificate For Direct Employment****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. |  |              |               |
| AUT 132  | Automotive Transmission Removal, Replacement and In-Car Repair | 4            |               |
| AUT 133  | Automotive Transmission Rebuilding                             | 4            |               |
| AUT 136  | Automotive Driveline   | 4            |               |
| <b>General Education Course</b>  |  |              |               |
| MAN 110  | Human Relations in Business and Industry                       | 3            |               |

**Suggested Course Sequence**

See an automotive technology faculty advisor.

**Suspension and Brakes—Basic Certificate For Direct Employment****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. |  |              |               |
| AUT 136  | Automotive Driveline                     | 4            |               |
| AUT 138  | Automotive Chassis                       | 4            |               |
| AUT 140  | Automotive Brakes                        | 4            |               |
| <b>General Education Course</b>  |  |              |               |
| MAN 110  | Human Relations in Business and Industry | 3            |               |

**Suggested Course Sequence**

See an automotive technology faculty advisor.

## Automotive Mechanics—Technical Certificate For Direct Employment

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 (52 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  | Automotive Engine Tune-up                                      | 4            |               |
| AUT 128  | Automotive Electrical Fundamentals                             | 3            |               |
| AUT 129  | Automotive Electrical Component Repair and Adjustment          | 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            |               |

### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| MAN 110 | Human Relations in Business and Industry | 3 |          |
| MTH 110 | Technical Mathematics I                  | 3 | MTH 060* |
| PHY 101 | Technical Physics I                      | 3 | MTH 060* |
| WRT 150 | Practical Communications                 | 3 |          |

### 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

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 (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.

|         |  |   |  |
|---------|--|---|--|
| AUT 120 | Internal Combustion Engines                                    | 4 |  |
| AUT 122 | Automotive Engine Service Repair                               | 3 |  |
| AUT 125 | Automotive Engine Tune-up                                      | 4 |  |
| AUT 128 | Automotive Electrical Fundamentals                             | 3 |  |
| AUT 129 | Automotive Electrical Component Repair and Adjustment          | 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 |  |

### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| MAN 110 | Human Relations in Business and Industry | 3 |          |
| MTH 110 | Technical Mathematics I                  | 3 | MTH 060* |
| MTH 120 | Technical Mathematics II                 | 3 | MTH 110  |
| PHY 101 | Technical Physics I                      | 3 | MTH 060* |
| PHY 102 | Technical Physics II                     | 3 | MTH 070* |
| WRT 150 | Practical Communications                 | 3 |          |
| WRT 154 | Technical Communications I               | 3 | WRT 100* |

|         |   |
|---------|---|
| HUM/ART | Humanities and Fine Arts<br>Elective<br>Complete one of the following: 3-4<br>ART 130, 131, 132, 135<br>DRA 140, 141<br>HUM 110, 111<br>Foreign Language<br>LIT 260, 265<br>MUS 151, 201, 202<br>PHI 101, 120 |
|---------|---|

#### Suggested Course Sequence

See an automotive technology faculty advisor.

\*For additional prerequisite information, check Course Section.

## Automotive Technology—Associate of Science Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

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 faculty advisor to select 22-25 credits from the following list of courses:<br>AUT 120, 122, 124, 125, 128,<br>129, 132, 133, 136, 138, 142 | 22-25 |
|-----|--|-------|

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

|                                  |      |
|----------------------------------|------|
| English Composition              | 6    |
| Humanities and Fine Arts         | 6    |
| Biological and Physical Sciences | 8-10 |
| Mathematics (MTH 150 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 Mechanics

The aviation mechanics 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

#### 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****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. |                                 |              |               |
| AVM 120  | Aviation Electricity I          | 4            |               |
| AVM 220  | Airframe Structures             | 6            | *             |
| AVM 221  | Airframe Systems and Components | 6            | *             |
| AVM 230  | Powerplant Mechanics            | 6            | *             |
| <b>General Education and Support Courses</b>                             |                                 |              |               |
| MTH  | Math course (MTH 110 or higher) | 3            |               |
| WLD 110  | Combination Welding             | 3            |               |
| WRT 100  | Writing Fundamentals            | 3            | WRT 070*      |

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

Math course            AVM 230  
AVM 120                WLD 110  
AVM 220                WRT 100  
AVM 221

\*For additional prerequisite information, check Course Section.

**Aviation Structural Repair—Technical Certificate For Direct Employment**

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            |               |
| AVM 203  | Structural Repair V                 | 4            | AVM 151*      |
| AVM 204  | Structural Repair VI                | 4            | AVM 203       |
| AVM 210  | Radome and Fiberglass Repair        | 5            | AVM 204       |
| AVM 250  | Structural Repair VII               | 4            | AVM 210       |
| AVM 260  | Aircraft Composite Repair           | 4            | AVM 250       |

**General Education**

|           |   |   |   |
|-----------|---|---|---|
| MTH 110   | Technical Mathematics I   | 3 | * |
| COMM/ELEC | Communications Elective<br>(See Graduation section of this catalog for technical certificate course lists.) | 3 |   |

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

Reading requirement    AVM 165  
AVM 101                    AVM 170  
AVM 102                    AVM 203  
AVM 110                    AVM 204  
MTH 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

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 (73-75 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.

|         |                                     |   |          |
|---------|-------------------------------------|---|----------|
| 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 & Metallurgy     | 3 |          |
| AVM 165 | Aircraft Hardware & 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 | Radome & Fiberglass Repair          | 5 | AVM 204  |
| AVM 250 | Structural Repair VII               | 4 | AVM 210  |
| AVM 260 | Aircraft Composite Repair           | 4 | AVM 250  |

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

|           |  |     |
|-----------|--|-----|
| COMM/ELEC | Communications Electives                 | 6   |
| HUM/ART   | Humanities and Fine Arts Electives       | 3-4 |
| SCI/MTH   | Science and Mathematics Electives        | 6   |
| SOC/BEH   | Social and Behavioral Sciences Electives | 3-4 |

### 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

#### Required Courses (15 Credit Hours)

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

## Biology

Biology associate of science degrees for transfer are offered in these areas:

|                 |   |
|-----------------|---|
| Biology         | Pre-Medical Technology and Microbiology |
| Pre-Agriculture | Pre-Pharmacy                            |
| Pre-Dental      | Pre-Veterinary                          |
| Pre-Medical     |   |

Students who plan to enter these fields should have finished two years of high school algebra, one year of geometry and, preferably, one year of trigonometry. Students who have not had these courses should complete them at Pima Community College.

Students who enter the biology program must take the math assessment test. The student should meet with a biology advisor to plan courses. Students who want course work in pre-dental hygiene, pre-forestry, pre-physical therapy and pre-optometry should also see an advisor regarding course selection.

The Association of American Medical Colleges and the Council of Medical Education of the American Medical Association sets minimum requirements for admission to medical school. The Council on Dental Education of the American Dental Association sets requirements for admission to dental school.

Most successful applicants to medical school have a bachelor's degree although the minimum stated requirements are less. Medical associations strongly urge students to get a broad, general education which includes the social or behavioral sciences and humanities as well as studies in the sciences.

Graduate veterinarian careers include private practice in animal clinics, college instruction, veterinary practice in the Agricultural Research Service or the U.S. Department of Agriculture, Livestock Management and Veterinary Microbiology and Pathology.

Students who plan to transfer to an upper division school to complete their pre-professional requirements should contact their chosen school for specific required courses.

## Biology, Pre-Dental, Pre-Medical, Pre-Veterinary—Associate of Science Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

Students in biology, pre-dental, pre-medical and pre-veterinary programs should consult the catalog of the school to which they plan to apply. The humanities requirement for a bachelor's degree is nine credit hours in philosophy, humanities or literature.

### Required Courses (66-69 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.

|                              |   |      |                     |
|------------------------------|---|------|---------------------|
| BIO 184                      | Plant Biology   | 4    | *                   |
| BIO 190                      | Animal Biology  | 4    | *                   |
| BIO 242                      | General Genetics  | 3    | BIO 190*            |
| CHM 151                      | General Chemistry I   | 5    | MTH 130*            |
| 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             |
| MTH 175 or 180               | Topics in Calculus<br>Analytic Geometry and Calculus I  | 3-4  | MTH 150*            |
| MTH 185 or 210               | Analytic Geometry and Calculus II<br>Introductory Statistics  | 3    | MTH 180<br>MTH 130* |
| MTH, PHY or Foreign Language | Select one option from the following:<br>1. MTH 215 and PHY 121, 122<br>2. Foreign Language (two transferable semesters in a single foreign language)<br>3. PHY 121 and 122 | 8-10 | *                   |

### Support Courses

|      |   |   |  |
|------|---|---|--|
| ELEC | Other Elective:<br>Complete one transferable elective course. (Consult the catalog of the biology, dental, medical, or veterinary school to which you plan to apply.) | 3 |  |
|------|---|---|--|

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

|  |      |
|--|------|
| English Composition  | 6    |
| Humanities and Fine Arts   | 6    |
| Biological and Physical Sciences<br>(Core courses satisfy this requirement.) | 8-10 |
| Mathematics (MTH 150 or above)<br>(Core courses satisfy this requirement.)   | 6    |
| Social and Behavioral Sciences   | 6    |
| Other Requirement options<br>(Core courses satisfy this requirement.)        | 8-10 |

### Suggested Course sequence (Read down.)

|                                       |   |   |
|---------------------------------------|---|---|
| Reading requirement                   | CHM 152                                 | WRT 102                                       |
| WRT 101                               | BIO 190                                 | CHM 235                                       |
| MTH 175 or 180                        | Social and Behavioral Sciences elective | BIO 242                                       |
| Humanities and Fine Arts elective     | Humanities and Fine Arts elective       | CHM 236                                       |
| CHM 151                               | MTH 215 or Physics elective or          | Physics elective or Foreign Language elective |
| Social & Behavioral Sciences elective | Foreign Language elective               | Other elective                                |
| BIO 184                               |   |   |
| MTH 185 or 210                        |   |   |

\*For additional prerequisite information, check Course Section.

## Pre-Agriculture—Associate of Science Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

Modern agriculture is a basic and complex industry with a wide range of career choices. The program in agriculture is designed to meet the needs of students by joining a broad knowledge of agriculture with elements of general education. Upon finishing a pre-agriculture program, a student might wish to pursue at a four-year college or university one of the fields of study listed below.

|                               |                              |
|-------------------------------|------------------------------|
| Agricultural Communications   | General Agriculture          |
| Agricultural Economics        | Horticulture                 |
| Agricultural Education        | Landscape Architecture       |
| Agri-Mechanics and Irrigation | Natural Resources Recreation |
| Agronomy                      | Nutritional Science          |
| Animal Health Science         | Plant Pathology              |
| Animal Sciences               | Plant Science                |
| Dietetics                     | Range Management             |
| Entomology                    | Soil and Water Science       |
| Fisheries Science             | Watershed Management         |
| Food Science                  | Wildlife Ecology             |

Check other sections of this catalog for further information on these areas.

### 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.

|         |                        |   |          |
|---------|------------------------|---|----------|
| BIO 184 | Plant Biology          | 4 | BIO 100* |
| BIO 190 | Animal Biology         | 4 | *        |
| CHM 151 | General Chemistry I    | 5 | MTH 130* |
| CHM 152 | General Chemistry II   | 5 | CHM 151  |
| GLG 101 | Introductory Geology I | 4 |          |
| MTH 150 | College Algebra        | 3 | MTH 130* |
| MTH 155 | Trigonometry           | 3 | MTH 150* |
| PHY 121 | Introductory Physics I | 5 | *        |

### Support Courses

|         |   |   |          |
|---------|---|---|----------|
| ECO 100 | Introduction to Microeconomics  | 3 | MTH 070  |
| SPE 102 | Introduction to Oral Communication  | 3 |          |
| WRT 254 | Technical Communications II   | 3 | WRT 154* |
| ELEC    | Other Electives<br>Complete three transferable elective courses. (Consult the catalog of the agricultural school to which you plan to apply.) | 9 |          |

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

|   |      |
|---|------|
| English Composition   | 6    |
| Humanities and Fine Arts  | 6    |
| Biological and Physical Sciences<br>(Core courses satisfy this requirement.)                                      | 8-10 |
| Mathematics (MTH 150 or above)<br>(Core courses satisfy this requirement.)  | 6    |
| Social and Behavioral Sciences<br>(ECO 100 satisfies 3 credits of this requirement. Select 3 additional credits.) | 6    |
| Other Requirement options<br>(Core courses satisfy this requirement.)   | 8-10 |

### Suggested Course Sequence (Read down.)

|                     |                       |                     |
|---------------------|-----------------------|---------------------|
| Reading requirement | MTH 155               | BIO 190             |
| WRT 101             | Other elective        | Humanities and Fine |
| MTH 150             | BIO 184               | Arts electives      |
| CHM 151             | PHY 121               | ECO 100             |
| GLG 101             | WRT 254               | Other elective      |
| Other elective      | Humanities and Fine   |                     |
| WRT 102             | Arts elective         |                     |
| CHM 152             | Social and Behavioral |                     |
| SPE 102             | Sciences electives    |                     |

\*For additional prerequisite information, check Course Section.

### Pre-Medical Technology and Microbiology—Associate of Science Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

Students who plan to pursue a course of study which leads to a medical technology degree should consider the courses which follow. Exact requirements of the school which grants the degree may vary and students should check with the school to which they plan to transfer. A background of high school algebra, biology and chemistry is recommended. BIO 201 and 202 (Human Anatomy and Physiology I and II) are not required of microbiology majors. They might substitute a foreign language for these courses.

**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.

|         |                                 |   |          |
|---------|---------------------------------|---|----------|
| BIO 201 | Human Anatomy and Physiology I  | 4 | BIO 100* |
| BIO 202 | Human Anatomy and Physiology II | 4 | BIO 201  |
| BIO 205 | Microbiology                    | 4 | *        |
| CHM 151 | General Chemistry I             | 5 | MTH 130* |
| 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  |
| MTH 150 | College Algebra                 | 3 | MTH 130* |
| MTH 155 | Trigonometry                    | 3 | MTH 150* |
| MTH 210 | Introductory Statistics         | 3 | MTH 130* |
| PHY 121 | Introductory Physics I          | 5 | *        |
| PHY 122 | Introductory Physics II         | 5 | PHY 121  |

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

|  |      |
|--|------|
| English Composition  | 6    |
| Humanities and Fine Arts   | 6    |
| Biological and Physical Sciences<br>(Core courses satisfy this requirement.) | 8-10 |
| Mathematics (MTH 150 or above)<br>(Core courses satisfy this requirement.)   | 6    |
| Social and Behavioral Sciences   | 6    |
| Other Requirement options<br>(Core courses satisfy this requirement.)        | 8-10 |

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

|                                      |                                   |   |
|--------------------------------------|-----------------------------------|---|
| Reading requirement                  | MTH 155                           | BIO 202                                 |
| WRT 101                              | CHM 152                           | CHM 236                                 |
| MTH 150                              | BIO 201                           | PHY 122                                 |
| CHM 151                              | Humanities and Fine Arts elective | Social and Behavioral Sciences elective |
| Social & Behavioral Science elective | MTH 210                           | Humanities and Fine Arts elective       |
| BIO 205                              | CHM 235                           |   |
| WRT 102                              | PHY 121                           |   |

\*For additional prerequisite information, check Course Section.

**Pre-Pharmacy—Associate of Science Degree For Transfer**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. **See a PCC faculty advisor prior to beginning this program.**

As one of the basic health careers, pharmacy offers a wide range of choices to the student. Career choices include community pharmacy (retail, independent and chain pharmacies), institutional pharmacy (hospital), Public Health Service, Indian Health Service, armed forces and manufacturing quality control.

The graduate pharmacist is also prepared to pursue further study leading to advanced degrees in the pharmaceutical and related biomedical sciences.

A six-year program is required for the pharmacy degree at the University of Arizona and some universities. Schools of pharmacy vary in requiring one or two years of pre-pharmacy before the student is admitted. The student should contact the school of his choice for exact pre-pharmacy requirements.

To enter the Pharmacy College at the University of Arizona, the student must complete the Pharmacy College Admission Test (PCAT). The PCAT is offered in November and February of each year. Prior to taking the PCAT, the student is advised to complete CHM 151, 152, BIO 184, and 190.

Chem 322 and 323 (for a total of 3 credit hours) must be taken at the University of Arizona during the fall semester of the second year or the first summer term prior to entrance into the junior year of the Pharmacy Program at the University of the Arizona.

**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.

|         |                              |   |          |
|---------|------------------------------|---|----------|
| BIO 184 | Plant Biology                | 4 | BIO 100* |
| BIO 190 | Animal Biology               | 4 | *        |
| BIO 205 | Microbiology                 | 4 | *        |
| CHM 151 | General Chemistry I          | 5 | MTH 130* |
| 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  |
| MTH 175 | Topics in Calculus           | 3 | MTH 150  |
| PHY 121 | Introductory Physics I       | 5 | *        |
| PHY 122 | Introductory Physics II      | 5 | PHY 121  |

**Support Courses**

|          |   |   |          |
|----------|---|---|----------|
| ECO 100  | Introduction to Microeconomics          |   | MTH 070* |
| or 101   | Introduction to Macroeconomics          | 3 | MTH 070  |
| HIS 101  | Introduction to Western Civilization I  | 3 |          |
| HIS 102  | Introduction to Western Civilization II | 3 |          |
| LIT ELEC | LIT 260 or above                        | 3 | *        |

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

|  |      |
|--|------|
| English Composition  | 6    |
| Humanities and Fine Arts<br>(Support courses satisfy this requirement.)  | 6    |
| Biological and Physical Sciences<br>(Core courses satisfy this requirement.)   | 8-10 |
| Mathematics (MTH 150 or above)<br>(MTH 175 satisfies 3 credits of this requirement.<br>Select 3 additional credits.) | 6    |
| Social and Behavioral Sciences<br>(Support courses satisfy this requirement.)  | 6    |
| Other Requirement options<br>(Core courses satisfy this requirement.)  | 8-10 |

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

| First Semester  | Third Semester                  |
|-----------------|---------------------------------|
| WRT 101         | PHY 121                         |
| CHM 151         | CHM 235                         |
| BIO 184         | ECO 100 or 101                  |
| MTH 175         | CHEM 322 AND 323<br>(AT U of A) |
| HIS 101         |                                 |
| Second Semester | Fourth Semester                 |
| WRT 102         | PHY 122                         |
| CHM 152         | CHM 236                         |
| BIO 190         | BIO 205                         |
| HIS 102         | LIT elective                    |
| Math elective   |                                 |

\*For additional prerequisite information, check Course Section.

## Business Administration

The business administration program offers basic and advanced certificates for direct employment; an associate of applied science degree designed for direct employment, with majors in management or marketing; and an associate of science degree designed for transfer to a four-year college or university. Students planning to transfer should follow the requirements and consult an advisor of the four-year institution they plan to attend.

### Business Administration—Basic Certificate For Direct Employment

**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  | Business Math                            | 3            |               |
| MAN 110  | Human Relations in Business and Industry | 3            |               |
| WRT  | Determined by assessment                 | 3            |               |



### Suggested Course Sequence

See a business administration faculty advisor.

\*For additional prerequisite information, check Course Section.

## Business Administration—Advanced Certificate For Direct Employment

### Required Courses (39-40 Credit Hours)

Students will receive a business administration advanced certificate for direct employment upon completion of the core courses, support courses, and humanities and fine arts electives listed in the business administration associate of applied science degree for direct employment program.

## Business Administration—Associate of Applied Science Degree For Direct Employment

This program is designed to provide instruction and optional on-the-job training to develop and improve the business knowledge and judgment of the following: (1) students not presently employed who are preparing for business careers, (2) students presently employed who desire to upgrade their business knowledge and (3) students desiring a career change. The program has been developed with the assistance and endorsement of the business community.

The degree is designed to provide a student with the following types of business knowledge as related to business management activities: sales, marketing, finance, production, human resources, materials management and international business commerce. The degree is also designed to apply to government as well as to the following industries: manufacturing, retailing, wholesaling, finance, hospitality, health care, non-profit, real estate, insurance, information, construction, promotion and advertising, and transportation.

The program has three parts: (1) thirteen required business courses (39 credit hours) that give the student a basic foundation in communications, mathematics, accounting, marketing, management and microcomputers; (2) six specialized business courses (18 credit hours) to be selected based on the student's career interests; and (3) three business electives (9 credit hours) to be selected by the student after consultation with a business advisor. For help in selecting specialized business courses and business electives, students should talk with a business advisor or counselor.

It is recommended that, before entering the program, students should be able to read at the 12th-grade level and have MTH 060 or the equivalent math skills. Skill assessment is available at each campus prior to

registration. Students applying for graduation in this program must have demonstrated reading competency at the 12th-grade level in both the vocabulary and comprehension sections of the assessment test or have successfully completed REA 112.

### Required Courses (66-67 Credit Hours)

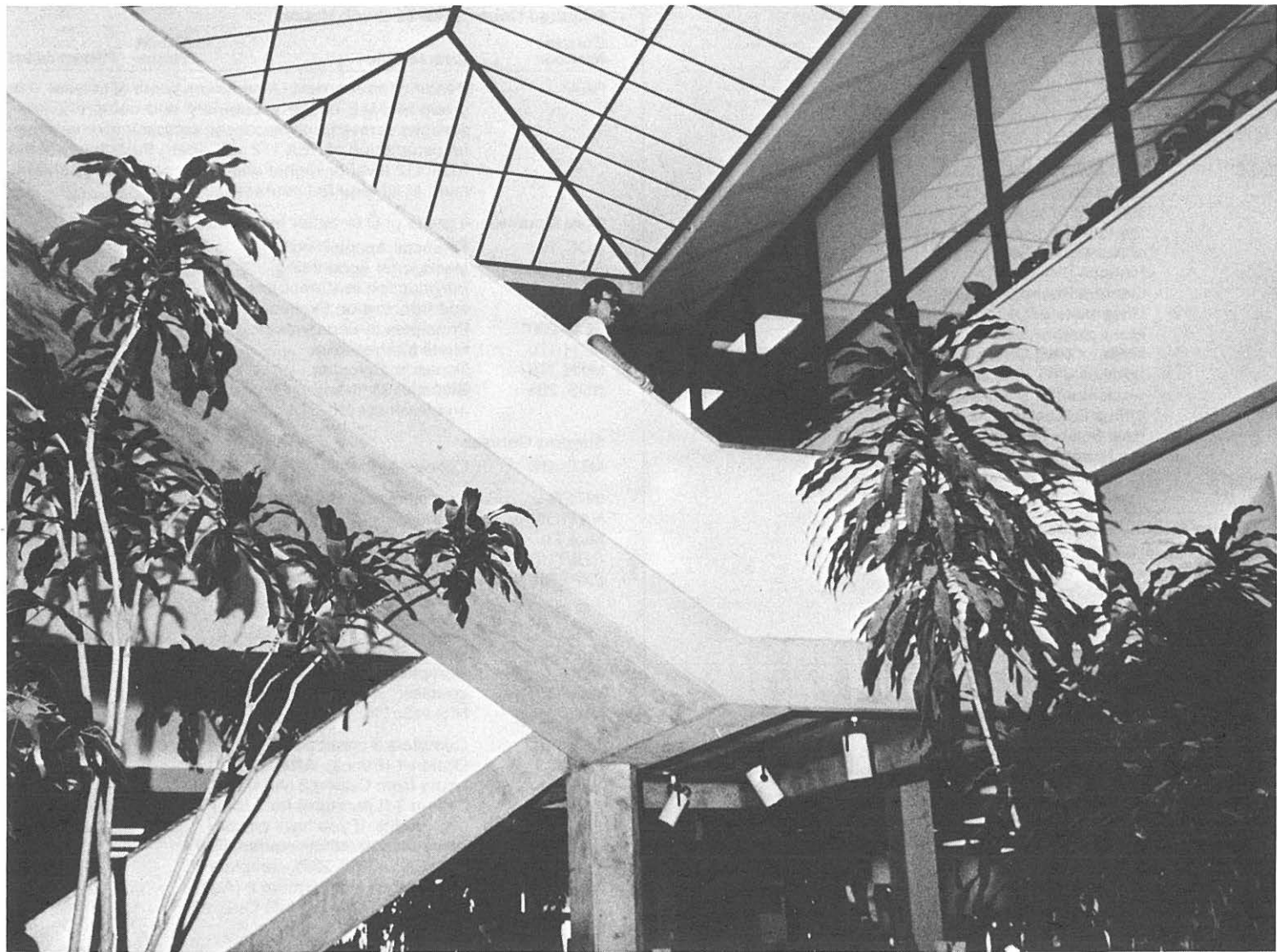
| Course Number | Course Title  | Credit Hours | Prerequisites |
|---------------|---|--------------|---------------|
| REA           | Reading requirement (A minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment or successful completion 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.

|         |  |   |         |
|---------|--|---|---------|
| 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 |         |

### General Education and Support Courses

|                   |   |     |          |
|-------------------|---|-----|----------|
| BUS 151<br>or MTH | Mathematics of Business<br>Determined by assessment test at the 100 level or higher   | 3   |          |
| BUS 100           | Introduction to Business  | 3   |          |
| BUS 105           | Survey of Microcomputer Uses  | 3   |          |
| BUS 200           | Business Law I  | 3   |          |
| MAN 280           | Business Organization and Management  | 3   | BUS 100* |
| OED 151           | Business English  | 3   |          |
| OED 251           | Business Communications   | 3   | OED 151  |
| SPE 120           | Business and Professional Communication   | 3   |          |
| HUM/ART           | Humanities and Fine Arts Electives<br>Complete one of the following:<br>ART 130, 131, 132, 133<br>DRA 140, 141<br>HUM 110, 111<br>Foreign Language<br>LIT 260, 265<br>MUS 151, 201, 202<br>PHI 101, 120 | 3-4 |          |



BUS ELEC Specialized Business Electives  
Complete any six of the  
following courses: 18  
BUS 295  
ECO 101, 230  
MAN 122, 124, 270, 276, 278  
MKT 113, 125, 139, 150

ELEC Other Business Electives  
Complete 9 credit hours at the  
100 level or higher from any of  
the following, with concurrence  
of a program advisor: 9  
Finance (FIN)  
General Business (GEB)  
Hospitality (HOS)  
Management (MAN)  
MAN or MKT Co-op Work in  
MAN or MKT 199, 299  
(maximum of 8 credit hours)  
Office Education (OED)  
Real Estate (RLS)  
Restaurant, Culinary and  
Foodservice Management (RCF)  
Traffic Management (TTM)

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

|                     |                      |
|---------------------|----------------------|
| Reading requirement | BUS 105              |
| BUS 151 or MTH      | BUS 100              |
| ACC 101             | MAN 280              |
| ACC 102             | MKT 111              |
| MAN 110             | BUS 200              |
| SPE 120             | BUS 100              |
| OED 151             | Specialized Business |
| OED 251             | electives            |
| Humanities and Fine | Other Business       |
| Arts elective       | electives            |

\*For additional prerequisite information, check Course Section.

## Business Administration—Associate of Science Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

### Required Courses (62-72 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.

|           |   |   |          |
|-----------|---|---|----------|
| ACC 101   | Financial Accounting                              | 3 |          |
| ACC 102   | Managerial Accounting                             | 3 | ACC 101  |
| CSC 100   | Introduction to Computers and Information Systems | 3 | MTH 070* |
| ECO 200** | Principles of Economics                           | 3 | MTH 070  |
| MTH 170   | Finite Mathematics                                | 3 | MTH 150  |
| MTH 175   | Topics in Calculus                                | 3 | MTH 150  |
| BUS 205   | Statistics Methods in Economics and Business I    | 3 | MTH 170  |

#### Support Courses

|  |  |     |          |
|--|--|-----|----------|
| MTH 150                                  | College Algebra  | 3   | MTH 130* |
| INTER-NATIONAL MULTI-CULTURAL EXPERIENCE | Complete one of the following options:<br><b>Option 1:</b><br>Two courses in a single foreign language at the 110 level or above.<br><b>Option 2:</b><br>POS 120   | 3-8 |          |
| NON-WESTERN CIV                          | Complete one of the following courses:<br>HIS 113, 114   | 3   |          |
| ARTS/LIT/ETHICS                          | Complete 3 credit hours from Option 1 (Ethics), <b>AND</b> 3 credit hours from Option 2 (Arts) <b>OR</b> Option 3 (Literature) for a total of 6 credits. If you have already completed an ethics course (PHI 101, 130 or PSY 265), complete 3 credit hours from Option 2 (Arts) <b>AND</b> 3 credit hours from Option 3 (Literature) for a total of 6 credits. | 6   |          |

**Option 1**

Ethics:

PHI 101, 130, or PSY 265

**Option 2**

Arts:

ART 130, 131, 135

DRA 140, 141

MUS 151

**Option 3**

Literature:

LIT 231, 260, 261, 265,

266, 267

SOC/BEH

Complete one option:

3-6

**Option 1**

Values, Culture and Change:

ANT 102, SOC 101

**Option 2**

Sociology and Organizations:

SOC 101, 121

**Option 3**

Basic Psychology:

PSY 101, 265

**Option 4**

Arizona and the Southwest:

ARC 205, ANT 206

**Option 5**

Political Institutions:

POS 110

**Option 6**

American Social Institutions:

POS 160 and 110 or 130

**Option 7**

Concepts in Ethics:

PHI 130

**Option 8**

International Business:

POS 140

**ELECTIVE**

Transferable electives:

3-6

BUS 220

CSC 160 (required of students  
intending to major in  
management information  
systems or operations  
management)**General Education Requirements** (See Graduation  
section of this catalog for associate of science  
degree course lists.)

English Composition

6

Humanities and Fine Arts

6

(Support courses satisfy 3 credits of this  
requirement. Select 3 additional credits.)

Biological and Physical Sciences

8-10

Mathematics (MTH 150 or above)

6

(Core courses satisfy this requirement.)

Social and Behavioral Sciences

6

(Support courses satisfy this requirement.)

Other Requirement options

8-10

(If you selected a foreign language as an option,  
this requirement is satisfied. If you did not select  
a language, you must select 3 additional credits.)**Suggested Course Sequence**

See a business administration program advisor.

\*For additional prerequisite information, check Course Section.

\*\*ECO 100 and 101 recommended in lieu of ECO 200.

## Chemistry

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 University of Arizona require-  
ments for the first two years of a bachelor of science degree. For course  
electives in humanities and social sciences, students should consult the  
catalog of the college or university to which they plan to transfer to make  
sure they are meeting the requirements of that institution.

## Chemistry—Associate of Science Degree For Transfer

### Required Courses (64-71 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.

|         |                                    |   |          |
|---------|------------------------------------|---|----------|
| CHM 151 | General Chemistry I                | 5 | MTH 130* |
| 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  |
| MTH 160 | Precalculus                        | 5 | MTH 130* |
| MTH 180 | Analytic Geometry and Calculus I   | 4 | MTH 150* |
| MTH 185 | Analytic Geometry and Calculus II  | 3 | MTH 180  |
| MTH 215 | Analytic Geometry and Calculus III | 4 | MTH 185  |
| PHY 121 | Introductory Physics I             | 5 | *        |
| PHY 122 | Introductory Physics II            | 5 | PHY 121  |

### Support Courses

|               |  |     |          |
|---------------|--|-----|----------|
| CSC 140<br>or | FORTTRAN Programming<br>Social and Behavioral Sciences<br>Elective | 3   | CSC 100* |
| GER 110<br>or | Elementary German I<br>Social and Behavioral Sciences<br>Elective  | 3-4 |          |

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

|  |      |
|--|------|
| English Composition  | 6    |
| Humanities and Fine Arts   | 6    |
| Biological and Physical Sciences<br>(Core courses satisfy this requirement.) | 8-10 |
| Mathematics (MTH 150 or above)<br>(Core courses satisfy this requirement.)   | 6    |

Social and Behavioral Sciences 6  
(Support course options may satisfy this requirement, if selected under support courses.)  
See an advisor.

Other Requirement options 8-10  
(Core and/or support courses satisfy this requirement.)

### Suggested Course Sequence (Read down.)

|                       |                       |                       |
|-----------------------|-----------------------|-----------------------|
| Reading requirement   | PHY 121               | CHM 236               |
| WRT 101               | CSC 140 or            | MTH 215               |
| CHM 151               | Social and Behavioral | Humanities and Fine   |
| MTH 160               | Sciences elective     | Arts elective         |
| Social and Behavioral | CHM 235               | GER 110 or            |
| Sciences elective     | MTH 185               | Social and Behavioral |
| WRT 102               | PHY 122               | Sciences elective     |
| CHM 152               | Humanities and Fine   |                       |
| MTH 180               | Arts elective         |                       |

\*For additional prerequisite information, check Course Section.

## 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
- Systems Programmer
  - Advanced Certificate For Direct Employment
- Computer Science for Industry
  - Associate of Applied Science Degree For Direct Employment
- Microcomputer Technician
  - Basic Certificate For Direct Employment
  - Advanced Certificate For Direct Employment
  - Associate of Applied Science Degree For Direct Employment

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. The microcomputer technician faculty advisors are located on the Downtown and West Campuses. (The display for the Microcomputer Technician Program is listed in the Electronics Technology section of this catalog.)

## Data Entry Operator—Basic Certificate For Direct Employment

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.

### Required Courses (16-17 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.

|         |   |   |         |
|---------|---|---|---------|
| CSD 124 | Data Entry Keystroke Development                  | 2 |         |
| CSD 125 | Data Entry Principles, Controls and Operations I  | 3 |         |
| CSD 126 | Data Entry Principles, Controls and Operations II | 3 | CSD 125 |
| CSC 195 | Job Entry Procedures                              | 1 |         |
| CSC 196 | Work Standards and Job Attitudes                  | 1 |         |

### General Education and Support Courses

|            |  |     |          |
|------------|--|-----|----------|
| REA 112    | Developmental Reading II   |     |          |
| or CSC 100 | Introduction to Computers and Information Systems (if reading requirement is met by assessment.) | 3-4 | MTH 070* |
| BUS 151    | Mathematics of Business  |     | MTH 060* |
| or MTH 070 | Algebra I or higher (based on assessment test if higher degree is being pursued)                 | 3   | MTH 060* |

### Suggested Course Sequence

See a data entry faculty advisor.

\*For additional prerequisite information, check Course Section.

## Data Entry Operator—Advanced Certificate For Direct Employment

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 data bases. Good reading and listening skills are essential for success in this program.

### Required Courses (31-32 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.

|         |  |   |         |
|---------|--|---|---------|
| CSD 124 | Data Entry Keystroke Development                   | 2 |         |
| CSD 125 | Data Entry Principles, Controls and Operations I   | 3 |         |
| CSD 126 | Data Entry Principles, Controls and Operations II  | 3 | CSD 125 |
| CSD 127 | Data Entry Principles, Controls and Operations III | 3 | CSD 126 |
| CSD 129 | Data Entry Software Procedures                     | 3 |         |
| CSC 195 | Job Entry Procedures                               | 1 |         |
| CSC 196 | Work Standards and Job Attitudes                   | 1 |         |

#### General Education and Support Courses

|                                    |  |     |                      |
|------------------------------------|--|-----|----------------------|
| ACC 100<br>or 101                  | Practical Accounting Procedures<br>Financial Accounting (if higher degree is being pursued)                                  | 3   |                      |
| REA 112<br>or CSC 100              | Developmental Reading II<br>Introduction to Computers and Information Systems (if reading requirement is met by assessment.) | 3-4 | MTH 070*<br>MTH 060* |
| BUS 151<br>or MTH 070<br>or higher | Mathematics of Business<br>Algebra I<br>(based on assessment test if higher degree is being pursued)                         | 3   | MTH 060*             |
| WRT 100<br>or higher               | Writing Fundamentals<br>(based on assessment test)   | 3   | WRT 070*             |
| CSD 199                            | Co-op Related Class in CSD   | 1   | *                    |
| CSD 199                            | Co-op Work in CSD  | 2   | *                    |

#### Suggested Course Sequence

See a data entry faculty advisor.

\*For additional prerequisite information, check Course Section.

### Small Business Computer Specialist—Associate of Applied Science Degree For Direct Employment

This program is designed to prepare students for employment in the microcomputer 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 (67-73 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.

|          |   |     |           |
|----------|---|-----|-----------|
| CSC 104A | Beginning Spreadsheets                        | 1   | CSC 105*  |
| CSC 104B | Intermediate Spreadsheets                     | 1   | CSC 104A  |
| CSC 104C | Advanced Spreadsheets                         | 1   | CSC 104B* |
| CSC 105  | Survey of Microcomputer Uses                  | 3   |           |
| CSC 106A | Data Base Concepts: Introduction              | 1   | CSC 105*  |
| CSC 106B | Data Base Concepts: Intermediate              | 1   | CSC 106A* |
| CSC 106C | Data Base Concepts: Advanced                  | 1   | CSC 106B  |
| CSC 108A | Microcomputer Operating Systems: Introduction | 1   |           |
| CSC 108B | Microcomputer Operating Systems: Intermediate | 1   | CSC 108A  |
| CSC 108C | Microcomputer Operating Systems: Advanced     | 1   | CSC 108B  |
| CSC 130  | Programming Fundamentals                      | 3   | CSC 100*  |
| CSC 136  | Microcomputer Components                      | 3   |           |
| CSC 195  | Job Entry Procedures                          | 1   |           |
| CSC 196  | Work Standards and Job Attitudes              | 1   |           |
| CSC 198  | Data Processing Projects I                    | 1-3 |           |
| CSC 204  | Advanced Spreadsheet Concepts                 | 3   | CSC 104*  |
| CSC 206  | Data Base Procedural Language Programming     | 3   | CSC 106C* |
| CSC 220  | Networking                                    | 3   | CSC 130*  |
| CSC 238  | Integrated Package Project                    | 4   | CSC 204*  |
| CSC 280  | Systems Analysis                              | 3   | CSC 160*  |

### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| ACC 100 | Practical Accounting Procedures          | 3 |          |
| ACC 200 | Accounting Practice on the Microcomputer | 3 | ACC 100* |
| BUS 151 | Mathematics of Business                  | 3 | MTH 060* |
| 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 two 100 level or above courses from within one of the following areas:

ACC, AJS, ANT, ARC, AST, BIO, BUS, CHM, DFT, ECO, ENG, ETR, MAN, MEC, MKT, MTH, NRS, OED, PHY, SOC, SPA, SSE, 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, 275

#### Option 4:

Machine Language Sequence  
Complete two of the four following CSC courses: 250, 265, 270, 274

|         |  |     |  |
|---------|--|-----|--|
| HUM/ART | Humanities and Fine Arts Elective          |     |  |
|         | Complete one of the following:             | 3-4 |  |
|         | ART 130, 131, 132, 135                     |     |  |
|         | DRA 140, 141                               |     |  |
|         | HUM 110, 111                               |     |  |
|         | Foreign Language (100 or above or grammar) |     |  |
|         | LIT 260, 265                               |     |  |
|         | MUS 151, 201, 202                          |     |  |
|         | PHI 101, 102, 120                          |     |  |

|         |   |     |  |
|---------|---|-----|--|
| SOC/BEH | Social and Behavioral Sciences Elective |     |  |
|         | Complete one of the following:          | 3-4 |  |
|         | ANT 101, 102, 200, 210, 215, 225        |     |  |
|         | ECE 107, 117                            |     |  |
|         | ECO 100, 101                            |     |  |
|         | GEO 103                                 |     |  |
|         | HIS 101, 102, 141, 142, 147             |     |  |
|         | MAN 110                                 |     |  |
|         | POS 100, 110, 112, 120, 130             |     |  |
|         | PSY 100A, 100B, 265                     |     |  |
|         | SOC 101, 120                            |     |  |

### 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

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 (65-72 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.

|         |                                     |     |          |
|---------|-------------------------------------|-----|----------|
| 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 170  | RPG Programming                     |     | CSC 130* |
| or 175  | Advanced BASIC Programming          | 3   | CSC 130* |
| CSC 160 | COBOL Programming                   | 3   | CSC 130* |
| CSC 195 | Job Entry Procedures                | 1   |          |
| CSC 196 | Work Standards and Job Attitudes    | 1   |          |
| CSC 198 | Data Processing Projects I          |     |          |
| or 298  | Data Processing Projects II         | 1-3 | *        |
| CSC 250 | Introduction to Assembly Language   | 3   | CSC 130* |
| CSC 260 | Advanced COBOL/File Management      | 4   | CSC 160* |
| CSC 265 | The C Programming Language          | 3   | *        |
| CSC 270 | IBM/310 Assembly Language (BAL)     |     | CSC 250  |
| or 274  | DEC Assembly Language (MACRO)       |     | CSC 250  |
| or 275  | Advanced 8088 Assembly Language     | 4   | CSC 250  |
| CSC 280 | Systems Analysis                    | 3   | CSC 160  |
| CSC 281 | Systems Design                      | 3   | CSC 280  |

**General Education and Support Courses**

|         |  |     |          |
|---------|--|-----|----------|
| ACC 101 | Financial Accounting                   | 3   |          |
| ACC 102 | Managerial Accounting                  | 3   | ACC 101  |
| MTH 130 | Algebra II                             |     | MTH 070* |
| or 150  | College Algebra                        | 3   | MTH 130* |
| WRT 101 | Writing I                              | 3   | WRT 100* |
| WRT 102 | Writing II                             | 3   | WRT 101* |
| HUM/ART | Humanities and Fine Arts Elective      |     |          |
|         | Complete one of the following:         | 3-4 |          |
|         | ART 130, 131, 132, 135                 |     |          |
|         | DRA 140, 141                           |     |          |
|         | HUM 110, 111                           |     |          |
|         | Foreign Language (100 level or higher) |     |          |
|         | LIT 260, 265                           |     |          |
|         | MUS 151, 201, 202                      |     |          |
|         | PHI 101, 120                           |     |          |

**SOC/BEH**

**Social and Behavioral Sciences Elective**

Complete one of the following: 3-4  
 ANT 101, 102, 200, 210, 215, 225  
 ECE 107, 117  
 GEO 103  
 HIS 101, 102, 141, 142, 147  
 MAN 110  
 POS 100, 110, 112, 120, 130  
 PSY 100A, 100B, 265  
 SOC 101, 120

**ELEC**

Choose any CSC 200 or higher level course. Also complete one of the following: 6-8  
 1. Choose any CSC 199 or higher level course  
 2. ECO 100, 101, 200, or 201  
 3. ETR 100 or higher course EXCEPT ETR 160 or 255  
 4. MTH 170, 175, or 230

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

|                     |                   |                       |
|---------------------|-------------------|-----------------------|
| Reading requirement | CSC 140 or 170    | CSC 260               |
| WRT 101             | or 175            | CSC 265               |
| MTH 130 or 150      | CSC 160           | CSC 280               |
| CSC 135             | ACC 102           | CSC 198 or 298        |
| CSC 130 or 131      | WRT 102           | CSC 195               |
| ACC 101             | Humanities & Fine | CSC 196               |
| Social & Behavioral | Arts elective     | CSC 270 or 274 or 275 |
| Sciences elective   | CSC 250           | CSC 281               |
|                     |                   | Other electives       |

\*For additional prerequisite information, check Course Section.

**Computer Science—Associate of Science Degree For Transfer**

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. **Please note that only 72 credits may transfer to the University of Arizona and only 64 credits may transfer to Arizona State University and 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 (62-67 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.

|         |                                       |   |          |
|---------|---------------------------------------|---|----------|
| CSC 131 | Computer Science Concepts             | 4 | CSC 100* |
| CSC 230 | Programming in Pascal                 | 4 | CSC 130* |
| CSC 250 | Introduction to Assembly Language     | 3 | CSC 130* |
| CSC 265 | The C Programming Language            | 4 | *        |
| CSC 296 | Machine Architecture and Organization | 3 | CSC 250  |

### Support Courses

|                    |  |      |          |
|--------------------|--|------|----------|
| CHM 151 or PHY 210 | General Chemistry I  |      |          |
| MTH 180            | Introductory Mechanics   | 5    | MTH 180* |
|                    | Analytic Geometry and Calculus I   | 4    | MTH 160* |
| MTH 185            | Analytic Geometry and Calculus II  | 3    | MTH 180  |
| MTH 230            | Discrete Mathematics in Computer Science   | 3-4  | MTH 150  |
| 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 |          |

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

|  |      |
|--|------|
| 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.

## Systems Programmer—Advanced Certificate For Direct Employment

This program provides upgrading of skills for currently employed programmers and prepares students for the position of systems programmer. The prerequisite for this is completion of the computer programmer/analyst associate of applied science degree or its equivalent. Students majoring in computer science with a non-business emphasis may substitute courses with approval of the department coordinator.

### Required Courses (30-32 Credit Hours)

| Course Number | Course Title   | Credit Hours | Prerequisites |
|---------------|--|--------------|---------------|
|               | Completion of Computer Programmer/Analyst Associate of Applied Science Degree. |              |               |

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

|         |                                       |     |          |
|---------|---------------------------------------|-----|----------|
| CSC 220 | Networking                            | 3   | CSC 130* |
| CSC 277 | Advanced Programming in C             | 4   | CSC 265  |
| CSC 294 | Current Topics in Computer Science    | 3-4 | *        |
| CSC 296 | Machine Architecture and Organization | 3   | CSC 250  |

**General Education and Support Courses**

|         |  |     |          |
|---------|--|-----|----------|
| CSC 140 | FORTAN Programming                       | 3   | CSC 100* |
| CSC 230 | Advanced Pascal and Data Structures      | 4   | CSC 130* |
| MTH 180 | Analytic Geometry and Calculus I         | 4   | MTH 150* |
| MTH 185 | Analytic Geometry and Calculus II        | 3   | MTH 180  |
| MTH 230 | Discrete Mathematics in Computer Science | 3-4 | MTH 150* |

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

|         |         |
|---------|---------|
| CSC 140 | MTH 185 |
| CSC 296 | CSC 294 |
| MTH 180 | MTH 230 |
| CSC 230 | CSC 220 |
| CSC 277 |         |

\*For additional prerequisite information, check Course Section.

## Computer Science for Industry—Associate of Applied Science Degree for Direct Employment

The Associate of Applied Science Degree in Computer Science for Industry is designed for students seeking a broad base of understanding of the operation and programming of large computer systems. This high-level computer degree provides a series of seven core courses including discrete mathematics, control structures, data abstractions, operating systems, software testing, and software engineering.

Two options are provided. The hardware option stresses computer organization and architecture, and program testing and validation. The software option includes structured analysis and design of programs, data organization, and improved programming technology. Other elective courses may be chosen from Computer Science courses at the 200 level or above.

The standard college general education courses are also required, including mathematics at the 180 level or above. Students should see an advisor early in the program to receive guidance regarding the Computer Science for Industry courses. Students planning to transfer to the University of Arizona, Arizona State University, or Northern Arizona University must see an advisor in the computer science area for information regarding requirements unique to each school.

**Required Courses (63-65 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.

|         |   |   |          |
|---------|---|---|----------|
| CSI 132 | Software Testing Concepts                         | 2 | *        |
| CSI 134 | Software Testing—Systems and Complex Applications | 2 | *        |
| CSI 136 | Principles of Software Engineering                | 3 | *        |
| CSI 138 | Control Structures, Verification and Complexity   | 2 | MTH 230* |
| CSI 200 | Data Abstraction                                  | 2 | CSI 138  |
| CSI 210 | Operating Systems Concepts                        | 3 | CSI 200  |
| MTH 230 | Discrete Math in Computer Science                 | 4 | MTH 150  |

**Hardware Option:**

|         |  |   |         |
|---------|--|---|---------|
| CSI 220 | Computer Hardware Fundamentals         | 3 | CSC 200 |
| CSI 222 | Computer Organization and Architecture | 3 | CSI 220 |
| CSI 224 | Program Testing and Validation         | 3 | CSI 200 |

**Software Option:**

|         |  |   |         |
|---------|--|---|---------|
| CSI 230 | Structured Analysis and Design Techniques  | 2 |         |
| CSI 232 | Improved Programming Technologies  | 2 |         |
| CSI 234 | Data Organization  | 3 | CSI 200 |
| ELEC    | Complete any Computer Science software course 200 level or above for 2 or more credits | 2 |         |

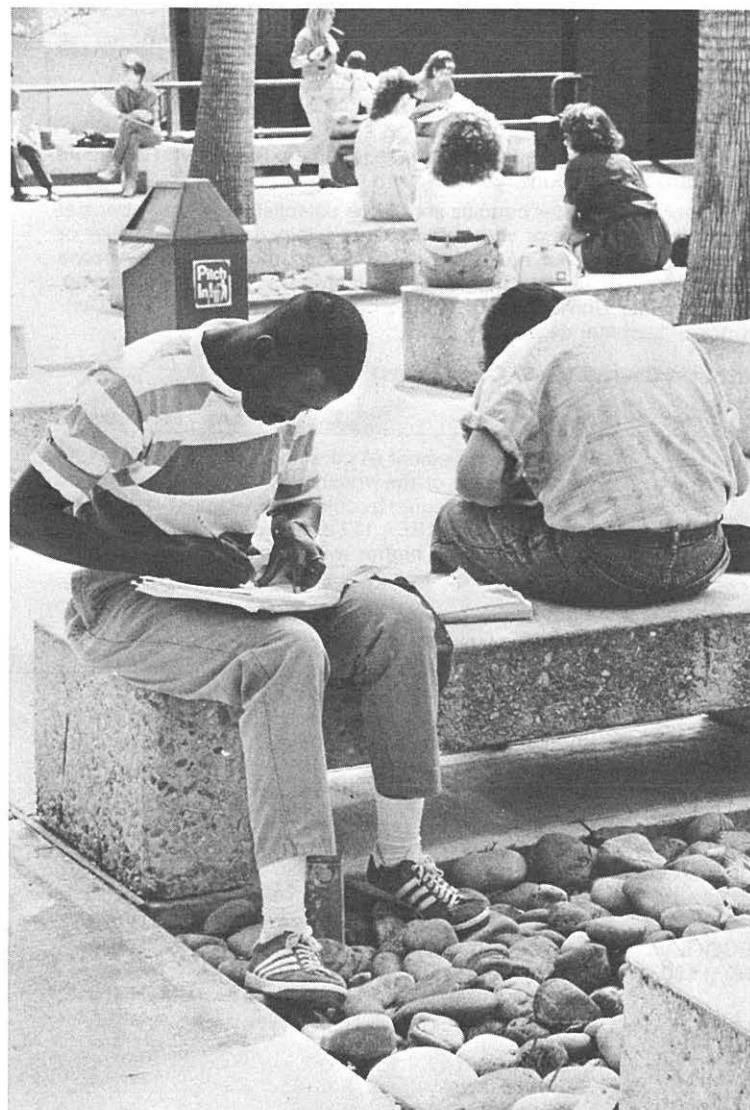
**General Education And Support Courses:**

|  |  |     |          |
|--|--|-----|----------|
| WRT 101  | Writing I                                | 3   | WRT 100* |
| WRT 102  | Writing II                               | 3   | WRT 101  |
| MAN 110  | Human Relations in Business and Industry | 3   |          |
| PHI 120  | An Introduction to Logic                 | 3   |          |
| PSY 101  | Introduction to Psychology               | 3-4 |          |
| or SPE 110   | Public Speaking                          | 3   |          |
| Humanities and Fine Arts   |  |     |          |
| (See Graduation section of this catalog for associate of applied science degree course lists.) |  |     |          |
| (Complete 3 credit hours, excluding PHI 120 and PSY 101.)                                      |  |     |          |
| Social and Behavioral Sciences   |  | 6   |          |
| (See Graduation section of this catalog for associate of applied science degree course lists.) |  |     |          |
| (Complete 6 credit hours, excluding MAN 110 and PSY 101.)                                      |  |     |          |
| Mathematics  |  | 12  |          |
| (Complete 12 credit hours at MTH 180 level or higher, excluding MTH 230)                       |  |     |          |

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

|                     |         |                       |
|---------------------|---------|-----------------------|
| Reading requirement | CSI 220 | PSY 101               |
| CSI 132             | or 230  | or SPE 110            |
| CSI 134             | CSI 222 | Math electives        |
| CSI 136             | or 232  | Humanities/Fine       |
| MTH 230             | CSI 224 | Arts elective         |
| CSI 138             | or 234  | Social and Behavioral |
| CSI 200             | WRT 101 | Science electives     |
| CSI 210             | WRT 102 |                       |
| PHI 120             | MAN 110 |                       |

\*For additional prerequisite information, check Course Section.





# Construction

## Construction—Associate of Science Degree for Transfer

This program is designed to meet the requirements for the first two years of a B.S. degree in Construction.

Verification of transfer courses should be established with the transfer university or college or with a Pima Community college counselor or faculty advisor. Please note that only 64 credits may transfer to Arizona State University and Northern Arizona University, without petitioning. Arizona State University and Northern Arizona University have Construction bachelor degree programs.

### Required Courses (65-67 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.

|         |   |   |          |
|---------|---|---|----------|
| CON 119 | Building Materials                        | 3 |          |
| CON 162 | Construction Drafting II                  | 4 | CON 112* |
| CON 210 | Building and Material Cost Estimating     | 3 | CON 119* |
| ENG 101 | Problem-solving and Engineering Computers | 3 |          |
| ENG 102 | Problem-solving and Engineering Design    | 3 | ENG 101  |
| ENG 130 | Elementary Surveying                      | 3 | MTH 150* |

### Support Courses:

|         |                                    |   |          |
|---------|------------------------------------|---|----------|
| ACC 101 | Financial Accounting               | 3 |          |
| ECO 100 | Introduction to Microeconomics     | 3 | MTH 070  |
| ECO 101 | Introduction to Macroeconomics     | 3 | MTH 070  |
| MTH 180 | Analytical Geometry and Calculus I | 4 | MTH 160* |

|         |                         |   |              |
|---------|-------------------------|---|--------------|
| MTH 210 | Introductory Statistics | 3 | MTH 130*     |
| PHY 121 | Introductory Physics I  | 5 | H.S. Algebra |
| 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 lists.):

|   |      |
|---|------|
| English Composition<br>(WRT 101 and 102 satisfy this requirement.)  | 6    |
| Humanities and Fine Arts<br>REL 125 is required and select 3 credits from the following:<br>ART 130, 131<br>DRA 140, 141<br>HUM 110, 111, 251, 252, 253<br>PHI 130<br>REL 120                 | 6    |
| Biological and Physical Sciences<br>(PHY 121 and 122 satisfy this requirement.)   | 8-10 |
| Mathematics<br>(MTH 180 and 210 satisfy this requirement.)  | 6    |
| Social and Behavioral Sciences<br>(ECO 100 and 101 satisfy this requirement.)   | 6    |
| Other Requirement Options<br>SPE 110 satisfies 3 credits and select 5-7 credits from the following:<br>ANT 102, 206<br>CSC 100, 140<br>MTH 150, 155, 160<br>POS 120, 130<br>SPE 102, 130, 136 | 8-10 |

### Suggested Course Sequence (Read down.)

|         |                                   |                                   |
|---------|-----------------------------------|-----------------------------------|
| WRT 101 | MTH 180                           | ECO 101                           |
| ENG 101 | SPE 110                           | CON 162                           |
| PHY 121 | ECO 100                           | Humanities and Fine Arts elective |
| ACC 101 | CON 210                           | ENG 130                           |
| WRT 102 | Humanities and Fine Arts elective |                                   |
| ENG 102 | Elective                          |                                   |
| PHY 122 | MTH 210                           |                                   |
| CON 119 |                                   |                                   |

\*For additional prerequisite information, check Course Section.

## 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):

|                  |                          |
|------------------|--------------------------|
| Air Conditioning | Environmental Technology |
| Applied Design   | Landscape Technician     |
| Engineering      |                          |

See Programs Section of this catalog for course requirements.

There are also areas with restricted enrollment, which include Apprentice Related Instruction and Fire Science courses (taught for local fire-fighters). The Skill Center 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             | HOS Housekeeping, Executive     |
| ENV Environmental Technology | PBM Public Building Maintenance |
| GTC General Technology       | SET Solar Energy Technology     |
| SML Sheet Metal              |                                 |

\*For course descriptions and prerequisite information, check Course Section.

## 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

### 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*      |

### Support Courses

Complete 9 credit hours at the 100 level or higher from any of the following:  
CON, DES, DFT, 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

### Required Courses (29 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*      |

### Support Courses

Complete 12 credit hours at the 100 level or higher from any of the following:  
CON, DES, DFT, ENG OR LTP courses.

**General Education Courses**

|          |   |   |          |
|----------|---|---|----------|
| WRT 101  | Writing I   |   | WRT 100* |
| or 150   | Practical Communications  | 3 |          |
| CSC 105  | Survey of Microcomputer Uses  | 3 |          |
| MTH/ELEC | Mathematics Elective  | 3 |          |
|          | Complete three credit hours from the following (take math assessment for placement):              |   |          |
|          | MTH 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 225 |   |          |

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

|                      |                |
|----------------------|----------------|
| CON 112              | CON 162        |
| Mathematics elective | CSC 105        |
| WRT 101 or 150       | Support course |
| Support course       | Support course |
| Support course       |                |

\*For additional prerequisite information, check Course Section.

## Construction Drafting—Associate of Applied Science Degree For Direct Employment

**Required Courses (63-64 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.**

|         |  |   |          |
|---------|--|---|----------|
| CON 100 | Principles of Construction                                   | 4 |          |
| CON 112 | Construction Drafting I                                      | 4 |          |
| CON 119 | Building Materials   | 3 | CON 100* |
| 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 | *        |
| CON 215 | Introduction to Microcomputers for the Construction Industry | 3 | CON 112* |
| CON 222 | Site Development Drafting                                    | 4 | CON 112* |
| CON 265 | Computer-Aided Construction Drafting                         | 4 | CON 215  |

**General Education and Support Courses**

|         |  |   |          |
|---------|--|---|----------|
| SPE 120 | Business and Professional Communication  | 3 |          |
| 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* |
| ENG 110 | Construction Surveying   | 3 | MTH 110  |
| ELEC    | Complete any 6 credits at the 100 level or higher from the following:<br>Construction, Drafting, Engineering or Landscape Technician   | 6 |          |
| HUM/ART | Humanities and Fine Arts Elective<br>Complete one of the following:<br>ART 130, 131, 132, 135<br>DRA 140, 141<br>HUM 251, 252, 253<br>Foreign Language<br>LIT 260, 265<br>MUS 151, 201, 202<br>PHI 101, 102, 120 | 3 |          |

|          |   |     |
|----------|---|-----|
| MTH/ELEC | Mathematics Electives<br>Complete 6 credit hours<br>from the following (take math<br>assessment for placement):<br>MTH 110, 115, 120, 125,<br>130, 135, 140, 145, 150, 155,<br>160, 170, 175, 180, 185, 210,<br>215, 219, 225   | 6   |
| SOC/BEH  | Social and Behavioral Sciences<br>Elective<br>Complete one of the following:<br>ANT 101, 102, 200, 210, 215, 225<br>ECE 107, 108, 117<br>ECO 100, 101, 117<br>GEO 103<br>HIS 101, 102, 141, 142, 147<br>MAN 110<br>POS 100, 110, 112, 120, 130<br>PSY 100A, 100B, 265<br>SOC 101, 120 | 3-4 |

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

|                      |                       |
|----------------------|-----------------------|
| Reading requirement  | ENG 110               |
| CON 100              | CON 212 or 199        |
| CON 112              | CON 215               |
| Mathematics elective | CON 222               |
| WRT 101 or 150       | SPE 120               |
| Elective             | CSC 105               |
| CON 119              | CON 265               |
| CON 162              | Elective              |
| Mathematics elective | Humanities and Fine   |
| WRT 102 or 154       | Arts elective         |
|                      | 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

#### 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. |   |              |               |
| CON 100  | Principles of Construction  | 4            |               |
| CON 119  | Building Materials  | 3            | CON 100*      |
| CON 130  | Construction: Piping Systems  | 3            |               |
| CON 140  | Construction Electricity  | 2            |               |
| <b>General Education and Support Courses</b>                             |   |              |               |
| CON 112  | Construction Drafting I   | 4            |               |
| CON 162  | Construction Drafting II  | 4            | CON 112*      |
| CON 111  | Construction: Commercial Blueprint Reading                                    | 3            |               |
| SPE 120  | Business and Professional Communication                                       | 3            |               |
| MTH ELEC   | Mathematics Electives<br>6 credit hours of math<br>at the 110 level or higher | 6            |               |

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

|               |               |
|---------------|---------------|
| CON 100       | CON 119       |
| 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

**Required Courses (62-63 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 119 | Building Materials                    | 3 | CON 100*           |
| CON 130 | Construction: Piping Systems          | 3 |                    |
| CON 140 | Construction: Electricity             | 2 |                    |
| CON 150 | Construction: Concrete/Masonry        | 3 |                    |
| CON 200 | Soil Mechanics                        | 3 | CON 119*           |
| CON 210 | Building and Material Cost Estimating | 3 | CON 119<br>CON 210 |
| CON 220 | Construction: Management              | 3 |                    |

**General Education and Support Courses**

|         |   |   |          |
|---------|---|---|----------|
| BUS 100 | Introduction to Business                          | 3 |          |
| CSC 100 | Introduction to Computers and Information Systems | 3 | MTH 070* |
| CON 112 | Construction Drafting I                           | 4 |          |
| CON 162 | Construction Drafting II                          | 4 | CON 112* |
| ENG 110 | Construction Surveying                            | 3 | MTH 110* |
| CON 111 | Construction: Commercial Blueprint Reading        | 3 |          |

|                |  |     |          |
|----------------|--|-----|----------|
| 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* |
| HUM/ART        | Humanities and Fine Arts Elective<br>Complete one of the following:<br>ART 130, 131, 132, 135<br>DRA 140, 141<br>HUM 110, 111<br>Foreign Language<br>LIT 260, 265<br>MUS 151, 201, 202<br>PHI 101, 120 | 3-4 |          |
| MTH ELEC       | Mathematics Electives<br>6 credit hours of math at the 110 level or higher   | 6   |          |

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

|                     |         |                                   |
|---------------------|---------|-----------------------------------|
| Reading requirement | SPE 120 | WRT 101 or 150                    |
| CON 100             | CON 162 | CON 220                           |
| Math elective       | CON 140 | Humanities and Fine Arts elective |
| CON 112             | CON 200 | CSC 100                           |
| CON 130             | CON 210 | MAN 110                           |
| CON 111             | BUS 100 |                                   |
| CON 119             | CON 150 |                                   |
| Math elective       | ENG 110 |                                   |

\*For additional prerequisite information, check Course Section.

## Construction Technology—Basic Certificate for Direct Employment

### 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                        | 3            |               |
| CON 171  | Leadership and Motivation                           | 1            |               |
| CON 172  | Oral and Written Communications                     | 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            |               |

### Support Courses

|          |   |   |  |
|----------|---|---|--|
| MTH ELEC | Mathematics Elective<br>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

### Required Courses (36 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  | Construction: Piping Systems   | 3            |               |
| CON 140  | Construction: Electricity      | 2            |               |
| CON 150  | Construction: Concrete/Masonry | 3            |               |
| CON 160  | Construction: Carpentry I      | 3            |               |
| CON 170  | Construction: Carpentry II     | 3            | CON 160       |

### General Education and Support Courses

|          |   |   |  |
|----------|---|---|--|
| MTH ELEC | Mathematics Elective<br>3 credit hours of MTH at the 120 level or higher                                    | 3 |  |
| ELEC     | Communication Elective<br>Select 3 credit hours from the following:<br>OED 151, WRT 101, WRT 150 or SPE 120 | 3 |  |

### Suggested Course Sequence (Read down.)

|               |                        |
|---------------|------------------------|
| Math elective | CON 160                |
| CON 130       | CON 170                |
| CON 140       | Communication elective |
| CON 150       |                        |

\*For additional prerequisite information, check Course Section.

## Construction Technology—Commercial Building Option—Associate of Applied Science Degree

### Required Courses (67 Credit Hours)

| Course Number                           | Course Title | Credit Hours | Prerequisites |
|---|--------------|--------------|---------------|
| Commercial Building Construction Option |              |              |               |
| Advanced Certificate Requirements.      |              | 36           |               |



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

|         |   |   |         |
|---------|---|---|---------|
| ENG 110 | Construction Surveying                        | 3 | MTH 110 |
| CON 112 | Construction Drafting I                       | 4 | MTH 070 |
| MAN 280 | Business Organization and Management          | 3 | BUS 100 |
| CON 200 | Soil Mechanics                                | 3 | CON 119 |
| CON 206 | Construction: Commercial Blueprint Reading II | 3 | CON 111 |
| CON 210 | Building and Material Cost Estimating         | 3 | CON 119 |

**General Education and Support Courses**

|         |   |   |          |
|---------|---|---|----------|
| CSC 105 | Survey of Microcomputers  | 3 |          |
| OED 251 | Business Communications   |   | OED 151  |
| or      |   |   |          |
| WRT 101 | Writing I   |   | WRT 100  |
| or 154  | Technical Communications I  | 3 | WRT 100* |
| HUM/ART | Humanities and Fine Arts Electives  |   |          |
|         | Complete one of the following:  | 3 |          |
|         | ART 130, 131, 132, 135  |   |          |
|         | DRA 140, 141  |   |          |
|         | ECE 108, 112  |   |          |
|         | HUM 110, 111  |   |          |
|         | Foreign Language  |   |          |
|         | LIT 260, 265  |   |          |
|         | MUS 151, 210, 202   |   |          |
|         | PHI 101, 120  |   |          |
| SOC/BEH | Social and Behavioral Sciences Elective (See Graduation section of this catalog for associate of applied science degree course list.) | 3 |          |

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

|                     |   |
|---------------------|---|
| Reading requirement | CSC 105                                 |
| ENG 110             | WRT 101 or 154 or OED 251               |
| CON 112             | Humanities and Fine Arts elective       |
| CON 200             | Social and Behavioral Sciences elective |
| CON 206             |   |
| MAN 210             |   |
| MAN 280             |   |

\*For additional prerequisite information, check Course Section.

## Construction Technology—Grading and Paving Option—Advanced Certificate for Direct Employment

**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 110  | Construction: Civil Blueprint Reading I | 3            |               |
| CON 130  | Construction: Piping Systems            | 3            |               |
| CON 140  | Construction: Electricity               | 2            |               |
| CON 150  | Construction: Concrete/Masonry          | 3            |               |
| CON 160  | Construction: Carpentry I               | 3            |               |
| CON 170  | Construction: Carpentry II              | 3            | CON 160       |

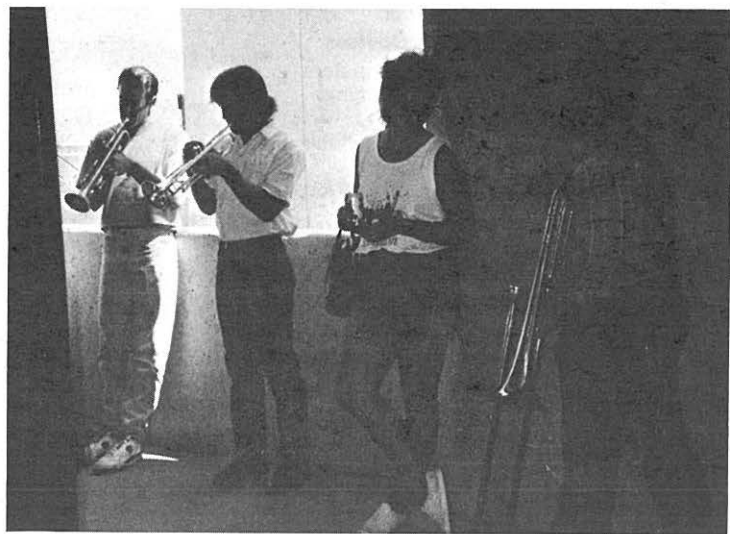
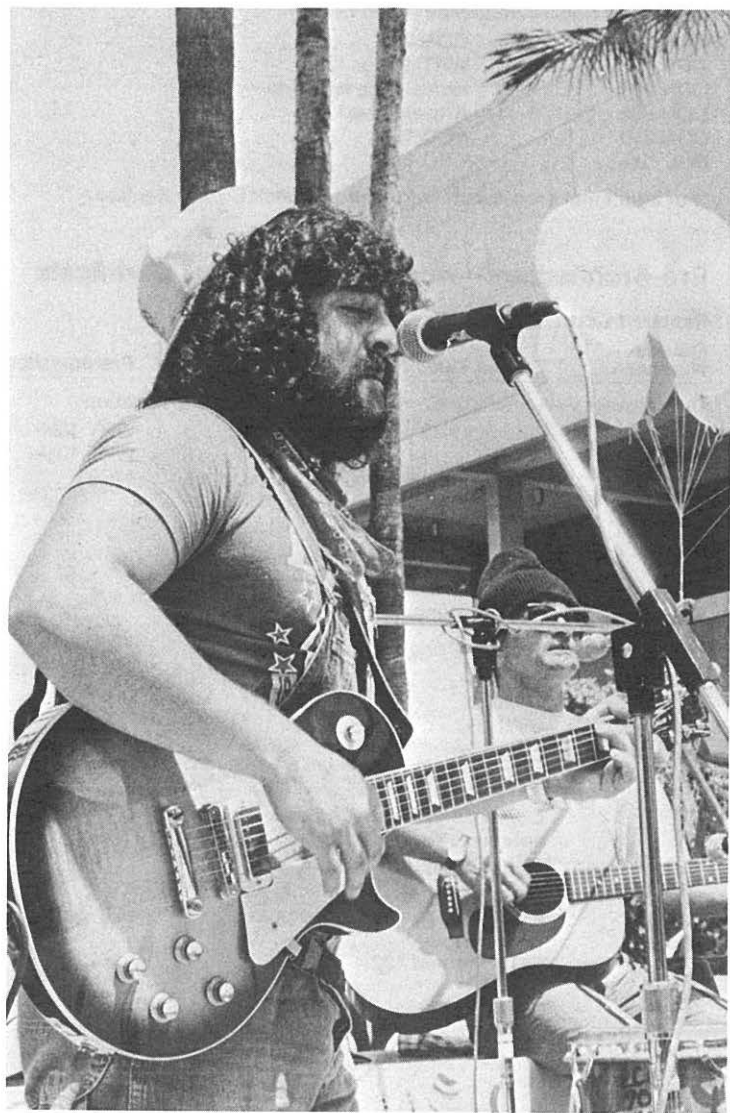
**General Education and Support Courses**

|          |  |   |  |
|----------|--|---|--|
| MAN 110  | Human Relations in Business and Industry                 | 3 |  |
| SPE 120  | Business and Professional Communication                  | 3 |  |
| MTH ELEC | Mathematics Electives                                    |   |  |
|          | 6 credit hours of mathematics at the 110 level or higher | 6 |  |

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

|               |               |
|---------------|---------------|
| CON 100       | SPE 120       |
| CON 160       | CON 170       |
| 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

### Required Courses (63-64 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 33

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

|         |  |   |          |
|---------|--|---|----------|
| BUS 100 | Introduction to Business                 | 3 |          |
| ECO 100 | Introduction to Microeconomics           | 3 | MTH 070  |
| CON 200 | Soil Mechanics                           | 3 | CON 119* |
| CON 205 | Construction: Civil Blueprint Reading II | 3 | CON 110  |
| CON 210 | Building and Material Cost Estimating    | 3 | CON 119* |
| CON 220 | Construction: Management                 | 3 | CON 210  |

### General Education and Support Courses

|                   |  |     |                      |
|-------------------|--|-----|----------------------|
| CSC 100           | Introduction to Computers and Information Systems  | 3   | MTH 070*<br>WRT 100* |
| WRT 101<br>or 150 | Writing I<br>Practical Communications  | 3   |                      |
| WRT 102<br>or 154 | Writing II<br>Technical Communications I   | 3   | WRT 101<br>WRT 100*  |
| HUM/ART           | Humanities and Fine Arts Elective<br>Complete one of the following:<br>ART 130, 131, 132, 135<br>DRA 140, 141<br>HUM 110, 111<br>Foreign Language<br>LIT 265, 272<br>MUS 151, 201, 202<br>PHI 101, 120 | 3-4 |                      |

### Suggested Course Sequence (Read down.)

|                     |                                   |
|---------------------|-----------------------------------|
| Reading requirement | CON 220                           |
| WRT 101 or 150      | WRT 102 or 154                    |
| CON 200             | Humanities and Fine Arts elective |
| CON 205             | ECO 100                           |
| CON 210             | CSC 100                           |
| BUS 100             |                                   |

\*For additional prerequisite information, check Course Section.

## Pre-Architecture—Advanced Technical Certificate

### Required Courses (30-31 Credit Hours)

| Course Number  | Course Title   | Credit Hours | Prerequisites |
|--|--|--------------|---------------|
| <b>Core Courses - A grade of C or better is required for graduation.</b> |  |              |               |
| WRT 101**  | Writing I  | 3            | WRT 100*      |
| WRT 102**  | Writing II   | 3            | WRT 101       |
| PHY 121  | Introductory Physics I   | 5            | *             |
| HUM/ART  | Humanities and Fine Arts Electives<br>(See Graduation section of this catalog for associate of science degree course list.)  | 6            |               |
| MTH**  | Complete one of the following options:<br><b>Option 1:</b><br>MTH 160<br><b>Option 2:</b><br>MTH 150 and 155   | 5-6          |               |
| ELEC   | Complete one of the following options:<br><b>Option 1:</b> Drafting.<br>Recommended for students who wish to prepare for techniques in drafting.<br>CON 112 and 162. | 8            |               |

**Option 2:** Science and Technology.

Select from any transferable courses in AST, BIO, CHM, CSC, GEO 101, GEO 102, GLG, MTH (courses numbered higher than 160), PHY 122 or 132, 210, 216, 221, 230.

ARCH ARCH 112, 114, 118 and 124 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 (U of A)                     | ARCH (U of A)                     |
| ARCH (U of A)                     | ARCH (U of A)                     |

\*For additional prerequisite information, check Course Section.

\*\*Students meeting writing and/or Mathematics requirements must substitute three (3) or six (6) credits from the following list: CON 100, 119, 215, ENG 130 OR any transferable courses in BUS, ECO, MAN, MKT, PAD, POS.

## Dental Assisting Education

Theoretical and practical preparation is provided to qualify graduates for immediate employment as 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 from Pima Community College and will be eligible to take the national certification examination and state oral radiography licensure examination.

**Acceptance Into Program:**

- Completion of college and health related professions program acceptance requirements.
- One semester of high school or college biology or zoology.
- Receipt of placement examination results (General Aptitude Test Battery, GATB).
- Personal interview with the program coordinator.

**General Requirements:**

- Total credit: 32 credit hours.
- Work in residence: Minimum, 29 credit hours of major (DAE) courses to be completed in residence or challenged. (Approval required by program coordinator.)

**Restrictions:**

- Correspondence study: Maximum, 9 credit hours.
- Extension study: Maximum, 6 credit hours (including correspondence study).

**Minimal Grade Achievement:**

- All DAE and general education courses in the certificate program must be completed with a "C" grade or better.

## Dental Assisting Education—Advanced Certificate For Direct Employment

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 (38-40 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**

|         |   |     |  |
|---------|---|-----|--|
| WRT 150 | Practical Communications  | 3   |  |
| SCI/MTH | Mathematics or Science Elective<br>Complete at least 3 credit<br>hours from the following:                                | 3-5 |  |
|         | ACC 100, 101, 102   |     |  |
|         | AST 101, 102, 111, 112  |     |  |
|         | BIO 101, 102, 160, 184, 190, 195,<br>201, 202, 204, 205   |     |  |
|         | BUS 151   |     |  |
|         | CHM 121, 130, 140, 141, 151, 152  |     |  |
|         | GEO 101, 102  |     |  |
|         | GLG 101, 102  |     |  |
|         | MTH 060, 065, 070, 090, 110, 115,<br>120, 125, 130, 135, 140, 145, 150,<br>155, 160, 170, 175, 180, 185, 210,<br>215, 219 |     |  |
|         | PHY 101, 102, 105, 121, 122, 131,<br>132, 210, 216, 221, 230  |     |  |

**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<br>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 college has applied for accreditation for this program with the Commission on Dental Accreditation, a specialized accrediting body recognized by the Council of Post-secondary Accreditation and the United States Department of Education. Accreditation will enable graduates to take the written and practical examinations for licensure in this jurisdiction and in others. Graduates receive an Associate of Applied Science Degree.

**Requirements for entry into the program**

- Completion of Pima Community College application.
- Completion of Dental Hygiene application.
- High School transcript or G.E.D. scores and, if applicable, *official* college transcripts.
- Minimum college-defined competency in reading of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment.
- At least MTH 070 or equivalent.
- Completion of the following courses with a GPA of 2.5 or above prior to entry into the Dental Hygiene Program. Course numbers and titles apply to Pima Community College.  
 BIO 100 - Biology Concepts  
 BIO 201 - Human Anatomy and Physiology I  
 BIO 202 - Human Anatomy and Physiology II  
 BIO 205 - Microbiology  
 CHM 140 - Fundamentals of Organic and Biochemistry  
 (Requires CHM 130, high school Chemistry within the last 3 years or consent of instructor.)
- Attend any required orientation/information session.
- Interview and acceptance by the Health Related Professions Selections Committee.

Applicants are responsible for submitting application materials to:

Admissions Secretary For Allied Health Programs  
 Pima County Community College District  
 2202 West Anklam Road  
 Tucson, Arizona 85709

**General Requirements**

Total required credits: 64-65 credit hours

Work in residence: Minimum of 46 credit hours in the major (DHE) course to be completed in residence.

### Restrictions

Correspondence and extension study from an accredited institution is limited and subject to approval by the program director.

### Minimal Grade Achievement and Program Progression

All required DHE courses must be completed successfully each semester to be permitted to enroll in the next semester's DHE courses.

## Dental Hygiene—Associate of Applied Science Degree For Direct Employment

### Required Courses (64-65 Credit Hours)

| Course Number  | Course Title                          | Credit Hours | Prerequisites |
|--|---------------------------------------|--------------|---------------|
| <b>Core Courses</b> - A grade of C or better is required for graduation. |                                       |              |               |
| DHE 101  | Dental Care Basics                    | 3            | *             |
| DHE 104  | Dental And Oral Morphology            | 2            | *             |
| DHE 107  | Oral Embryology And Histology         | 2            | *             |
| DHE 110  | Computers And Dental Practice         | 2            | *             |
| DHE 113  | Pre-Clinical Dental Hygiene I         | 4            | DHE 101*      |
| DHE 116  | Oral Radiography                      | 3            | DHE 101*      |
| DHE 119  | Periodontology                        | 1            | DHE 101*      |
| DHE 121  | Nutrition & Preventive Dentistry      | 3            | DHE 101*      |
| 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 207  | Pharmacology and Pain Control         | 4            | *             |
| 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*      |
| <b>General Education and Support Courses</b>                             |                                       |              |               |
| WRT 101  | Writing I                             | 3            | WRT 100*      |
| WRT 102  | Writing II                            | 3            | WRT 101*      |
| SOC 100  | Introduction to Sociology             | 3            |               |
| SPE 102  | Introduction to Oral Communication    | 3            |               |
| PSY 100A   | Psychology I                          | 3            |               |

### HUM/ART

### Humanities and Fine Arts

3-4

### Elective

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

### Suggested Course Sequence (Read Down.)

|         |         |                                   |
|---------|---------|-----------------------------------|
| WRT 101 | DHE 116 | DHE 201                           |
| DHE 101 | DHE 119 | DHE 204                           |
| DHE 104 | DHE 121 | DHE 207                           |
| DHE 107 | DHE 124 | PSY 100A                          |
| DHE 110 | DHE 127 | DHE 210                           |
| WRT 102 | SOC 100 | DHE 213                           |
| DHE 113 | SPE 102 | DHE 216                           |
|         |         | Humanities and Fine Arts elective |

\*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 will be allowed 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 will be allowed to take the Certified Dental Technician practical exam given by the National Board for Certification in Dental Laboratory Technology.

Prospective candidates seeking admission into the dental laboratory technology program are required to complete the following application procedure prior to entry into the program:

1. Complete Pima Community College application.
2. Complete program application.
3. Submit high school transcript or GED and, if applicable, official college transcripts. Candidates must be high school graduates to meet the requirements of the Council on Education and Accreditation of the American Dental Association.
4. Complete general aptitude test battery, administered and interpreted in Student Development and the Reading Department.



- When steps 1 through 4 are completed, a conference with the program facilitator is recommended to review the results and, if necessary, the alternatives available.
- All completed applications will be dated and the first 16 who meet minimum established requirements of steps 4 and 5 above will be accepted.
- All additional qualified applicants will be placed, by date of completed application, on an alternate list and will be accepted in the event that previously accepted applicants do not take their seats in the class. All alternates not accepted into the program must re-submit and update their program application for the following year.

Applicants must demonstrate reading competency at the level of REA 112 (12th grade level) or higher to qualify for graduation from the DLT program.

## Dental Laboratory Technology—Associate of Applied Science Degree For Direct Employment

### 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.

|         |   |   |          |
|---------|---|---|----------|
| DLT 101 | Dental Morphology                           | 3 | *        |
| DLT 102 | Nonmetallic Dental Materials                | 3 | *        |
| DLT 103 | Complete Dentures                           | 4 | *        |
| 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 201* |
| DLT 206 | Dental Ceramics                             | 4 | DLT 201* |
| DLT 207 | Advanced Dental Laboratory Technology       | 6 | DLT 201* |

### General Education and Support Courses:

|         |  |     |          |
|---------|--|-----|----------|
| MAN 124 | Small Business Management                | 3   |          |
| CHM 130 | Fundamentals of Chemistry                | 5   |          |
| MAN 110 | Human Relations in Business and Industry | 3   |          |
| PHY 101 | Technical Physics I                      | 3   |          |
| WRT 101 | Writing I                                | 3   | WRT 100* |
| WRT 102 | Writing II                               | 3   | WRT 101  |
| HUM/ART | Humanities and Fine Arts Elective        |     |          |
|         | Complete one of the following:           | 3-4 |          |
|         | ART 130, 131, 132, 135                   |     |          |
|         | DRA 140, 141                             |     |          |
|         | HUM 110, 111, 251, 252, 253              |     |          |
|         | Foreign Language                         |     |          |
|         | LIT 260, 265                             |     |          |
|         | MUS 151, 201, 202                        |     |          |
|         | PHI 101, 120                             |     |          |

### Suggested Course Sequence (Read down.)

|                     |         |                                   |
|---------------------|---------|-----------------------------------|
| Reading requirement | DLT 104 | DLT 203                           |
| WRT 101             | DLT 105 | MAN 110                           |
| CHM 130             | DLT 106 | Humanities and Fine Arts elective |
| PHY 101             | DLT 108 | DLT 204                           |
| DLT 101             | MAN 124 | DLT 206                           |
| DLT 102             | DLT 201 | DLT 207                           |
| DLT 103             | DLT 202 | WRT 102                           |

\*For additional prerequisite information, check Course Section.

# Design

The Pima Community College Design Program offers a series of highly practical courses that may lead to apprenticeship and direct employment in the professional fields of Industrial Design and Interior Design.

The design educational experience is articulated through a four semester, two-track, pre-professional system which offers degree certification through a "Basic Certificate" in Industrial/Interior Design, available after the successful completion of two semesters of study. An "Advanced Certificate" in either Industrial or Interior Design is available after the successful completion of three semesters of study and finally, an "Associates of Arts Degree" in either Industrial or Interior Design is available after the successful completion of four semesters of study.

The pre-professional Industrial Design Program track provides the industrial design student with the skills, techniques and experiences needed to acquire professional employment. The educational process of experience will include addressing issues involving the design, specification and manufacture of products. Included topics for discussion are contract administration, programming, conceptual design, contract documentation, project management and evaluation. Industrial designers combine artistic talents with the development of innovative materials and methods of production to improve and enhance the appearance and usability of products.

The pre-professional Interior Design Program track also provides the interior design student with the skills, techniques and experiences needed to acquire professional employment. The educational process of experience will include addressing issues involving the design, specification and construction of interior spaces, furnishings and accessories. Included topics for discussion are contract administration, programming, conceptual design, contract documentation, project management and evaluation. Interior designers help create aesthetic and functional living, working and playing conditions through the use of color, furnishings, fabrics, finishes, daylighting and landscaping.

Both the Industrial and Interior Design programs are designed primarily to prepare students for professional placement but also provide supplemental educational enhancement, cultural enrichment and personal interest development. In addition, all course work is designed to interface and augment extended study in related design disciplines such as pre-architectural drafting, advertising graphics, and fashion design.

## Industrial/Interior Design—Basic Certificate

### 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. |                           |              |               |
| DES 111  | Fundamentals of Design    | 3            |               |
| DES 150  | Functional Design         | 3            |               |
| DES 151  | Structural Concepts       | 3            |               |
| DES 152  | Color and Lighting Theory | 3            |               |
| DES 156  | Design for Living         | 3            |               |
| DES 211  | Graphic Communication I   | 3            | DES 111*      |

### Suggested Course Sequence (Read down.)

|         |         |
|---------|---------|
| DES 111 | DES 152 |
| DES 150 | DES 156 |
| DES 151 | DES 211 |

\*For additional prerequisite information, check Course Section.

## Industrial Design—Advanced Certificate

### Required Courses (45-47 Credit Hours)

| Course Number  | Course Title                     | Credit Hours | Prerequisites |
|--|----------------------------------|--------------|---------------|
| <b>Core Courses</b> - A grade of C or better is required for graduation. |                                  |              |               |
| DES 111  | Fundamentals of Design           | 3            |               |
| DES 150  | Functional Design                | 3            |               |
| DES 151  | Structural Concepts              | 3            |               |
| DES 152  | Color and Lighting Theory        | 3            |               |
| DES 156  | Design for Living                | 3            |               |
| DES 211  | Graphic Communication I          | 3            | DES 111*      |
| DES 212  | History of Design                | 3            |               |
| DES 221  | Industrial Methods and Materials | 3            |               |
| DES 222  | Graphic Communication II         | 3            | DES 211       |
| DES 230  | Business/Professional Practices  | 3            |               |
| or 210   | Marketing for Designers          | 3            |               |
| DES 250  | Industrial Design                | 3            | DES 150*      |
| DES 251  | Computer Communications/         |              |               |
|  | Applications                     | 3            | DES 211       |
| DES 256  | Human/Environmental Factors      |              | DES 211*      |
| or 260   | Transportation Design            | 3            |               |

**General Education and Support Courses**

|           |   |     |
|-----------|---|-----|
| COMM/ELEC | Communication Elective<br>Complete one of the following:              | 3   |
|           | OED 151, 251  |     |
|           | SPE 120   |     |
|           | WRT 100, 101, 102, 150, 154   |     |
| SCI/MTH   | Science and Mathematics<br>Elective<br>Complete one of the following: | 3-5 |
|           | ACC 100, 101, 102   |     |
|           | AST 101, 102  |     |
|           | BIO 101, 102, 160, 184, 190, 195,<br>201, 202, 204, 205               |     |
|           | BUS 151   |     |
|           | CHM 121, 130, 140, 141, 151, 152                                      |     |
|           | GEO 101, 102  |     |
|           | GLG 101, 102  |     |
|           | MTH (any 100 level or above)  |     |
|           | PHY 101, 102, 105, 121, 122, 131,<br>132, 210, 216, 221, 230          |     |
| ELEC      | Electives (optional)<br>CON 112<br>DFT 149, 150                       |     |

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

|         |         |                           |
|---------|---------|---------------------------|
| DES 111 | DES 212 | DES 230 or 210            |
| DES 150 | DES 251 | DES 256 or 260            |
| DES 151 | DES 222 | General elective          |
| DES 211 | DES 221 | Science/Mathematics       |
| DES 152 | DES 250 | elective                  |
| DES 156 |         | Communication<br>elective |

\*For additional prerequisite information, check Course Section.

**Interior Design—Advanced Certificate****Required Courses (45-47 Credit Hours)**

| Course Number  | Course Title                             | Credit Hours | Prerequisites |
|--|--|--------------|---------------|
| <b>Core Courses</b> - A grade of C or better is required for graduation. |  |              |               |
| DES 111  | Fundamentals of Design                   | 3            |               |
| DES 150  | Functional Design                        | 3            |               |
| DES 151  | Structural Concepts                      | 3            |               |
| DES 152  | Color and Lighting Theory                | 3            |               |
| DES 156  | Design for Living                        | 3            |               |
| DES 211  | Graphic Communication I                  | 3            | DES 111*      |
| DES 212  | History of Design                        | 3            |               |
| DES 220  | Interior Methods and Materials           | 3            |               |
| DES 222  | Graphic Communication II                 | 3            |               |
| DES 230  | Business/Professional Practices          | 3            |               |
| or 210   | Marketing for Designers                  | 3            |               |
| DES 251  | Computer Communications/<br>Applications | 3            | DES 211       |
| DES 255  | Spatial Design Concepts                  | 3            | DES 211*      |
| DES 256  | Human/Environmental Factors              | 3            | DES 211*      |

**General Education and Support Courses**

|           |   |     |
|-----------|---|-----|
| COMM/ELEC | Communication Elective<br>Complete one of the following:              | 3   |
|           | OED 151, 251  |     |
|           | SPE 120   |     |
|           | WRT 100, 101, 102, 150, 154   |     |
| SCI/MTH   | Science and Mathematics<br>Elective<br>Complete one of the following: | 3-5 |
|           | ACC 100, 101, 102   |     |
|           | AST 101, 102  |     |
|           | BIO 101, 102, 160, 184, 190, 195,<br>201, 202, 204, 205               |     |
|           | BUS 151   |     |
|           | CHM 121, 130, 140, 141, 151, 152                                      |     |
|           | GEO 101, 102  |     |
|           | GLG 101, 102  |     |
|           | MTH (any 100 level or above)  |     |
|           | PHY 101, 102, 105, 121, 122, 131,<br>132, 210, 216, 221, 230          |     |

ELEC Electives (optional)  
CON 112  
DFT 149, 150

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

|         |         |                     |
|---------|---------|---------------------|
| DES 111 | DES 212 | DES 230 or 210      |
| DES 150 | DES 251 | DES 256             |
| DES 151 | DES 222 | General elective    |
| DES 152 | DES 220 | Mathematics/Science |
| DES 156 | DES 255 | elective            |
| DES 211 |         | Communication       |
|         |         | elective            |

\*For additional prerequisite information, check Course Section.

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

### Required Courses (66-70 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.

|         |                                  |   |          |
|---------|----------------------------------|---|----------|
| DES 111 | Fundamentals of Design           | 3 |          |
| DES 150 | Functional Design                | 3 |          |
| DES 151 | Structural Concepts              | 3 |          |
| DES 152 | Color and Lighting Theory        | 3 |          |
| DES 156 | Design for Living                | 3 |          |
| DES 211 | Graphic Communication I          | 3 | DES 111* |
| DES 212 | History of Design                | 3 |          |
| DES 221 | Industrial Methods and Materials | 3 |          |
| DES 222 | Graphic Communication II         | 3 | DES 211  |
| DES 250 | Industrial Design                | 3 | DES 150* |
| DES 260 | Transportation Design            | 3 |          |

### Support Courses:

|            |                                 |   |
|------------|---------------------------------|---|
| DES 215    | Interior Plantscape Design      |   |
| or FDC 126 | Textiles                        | 3 |
| DES 210    | Marketing for Designers         | 3 |
| DES 230    | Business/Professional Practices | 3 |

|           |                                       |     |          |
|-----------|---------------------------------------|-----|----------|
| DES 251   | Computer Communications/ Applications | 3   | DES 211  |
| DES 256   | Human Environmental Factors           | 3   | DES 211* |
| DES 199** | Co-op Related Class in DES            | 1   | *        |
| DES 199** | Co-op Work in DES                     | 1-8 | *        |
| DES 299** | Co-op Related Class in DES            | 1   | *        |
| DES 299** | Co-op Work in DES                     | 1-8 | *        |

### General Education and Support Courses

|         |   |     |          |
|---------|---|-----|----------|
| MAN 110 | Human Relations in Business and Industry                  | 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* |
| HUM/ART | Humanities and Fine Arts Elective                         |     |          |
|         | Complete two of the following:                            | 6-8 |          |
|         | ART 130, 131, 132, 135                                    |     |          |
|         | DRA 140, 141  |     |          |
|         | HUM 251, 252, 253   |     |          |
|         | Foreign Language  |     |          |
|         | LIT 260, 265  |     |          |
|         | MUS 151, 201, 202   |     |          |
|         | PHI 101, 120  |     |          |
| SCI/MTH | Science and Mathematics Electives                         |     |          |
|         | Complete one of the following:                            | 3-5 |          |
|         | ACC 100, 101, 102   |     |          |
|         | AST 101, 102  |     |          |
|         | BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205      |     |          |
|         | BUS 151   |     |          |
|         | CHM 121, 130, 140, 141, 151, 152                          |     |          |
|         | GEO 101, 102  |     |          |
|         | GLG 101, 102  |     |          |
|         | MTH (Any 100 level course or above)                       |     |          |
|         | PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230 |     |          |
| ELEC    | Electives (optional)                                      |     |          |
|         | DES 140, 149, 198, DFT 149, 150                           |     |          |

### Suggested Course Sequence (Read down.)

|                     |                                   |                                   |
|---------------------|-----------------------------------|-----------------------------------|
| Reading requirement | DES 251                           | DES 210                           |
| DES 111             | WRT 102 or 154                    | DES 256                           |
| WRT 101 or 150      | Humanities and Fine Arts elective | DES 260                           |
| DES 211             | DES 222                           | DES 199                           |
| DES 150             | DES 221                           | DES 299                           |
| DES 151             | DES 250                           | Humanities and Fine Arts elective |
| DES 215 or FDC 126  | DES 230                           | MAN 110                           |
| DES 152             | Science/Mathematics elective      |                                   |
| DES 156             |                                   |                                   |
| DES 212             |                                   |                                   |

\*For additional prerequisite information, check Course Section.

\*\*Optional. Recommended but not required.

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

### Required Courses (66-70 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.

|         |                                |   |          |
|---------|--------------------------------|---|----------|
| DES 111 | Fundamentals of Design         | 3 |          |
| DES 150 | Functional Design              | 3 |          |
| DES 151 | Structural Concepts            | 3 |          |
| DES 152 | Color and Lighting Theory      | 3 |          |
| DES 156 | Design for Living              | 3 |          |
| DES 211 | Graphic Communication I        | 3 | DES 111* |
| DES 212 | History of Design              | 3 |          |
| DES 220 | Interior Methods and Materials | 3 |          |
| DES 222 | Graphic Communication II       | 3 | DES 211  |
| DES 255 | Spatial Design Concepts        | 3 | DES 211* |
| DES 256 | Human/Environmental Factors    | 3 | DES 211* |

### General Education and Support Courses

|            |                                      |     |         |
|------------|--------------------------------------|-----|---------|
| DES 215    | Interior Plantscape Design           |     |         |
| or FDC 126 | Textiles                             | 3   |         |
| DES 210    | Marketing for Designers              | 3   |         |
| DES 230    | Business/Professional Practices      | 3   |         |
| DES 251    | Computer Communications/Applications | 3   | DES 211 |
| DES 199**  | Co-op Related Class in DES           | 1   | *       |
| DES 199**  | Co-op Work in DES                    | 1-8 | *       |
| DES 299**  | Co-op Related Class in DES           | 1   | *       |
| DES 299**  | Co-op Work in DES                    | 1-8 | *       |

### General Education and Support Courses

|         |   |     |          |
|---------|---|-----|----------|
| MAN 110 | Human Relations in Business and Industry                  | 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* |
| HUM/ART | Humanities and Fine Arts Elective                         |     |          |
|         | Complete two of the following:                            | 6-8 |          |
|         | ART 130, 131, 132, 135                                    |     |          |
|         | DRA 140, 141  |     |          |
|         | HUM 251, 252, 253   |     |          |
|         | Foreign Language  |     |          |
|         | LIT 260, 265  |     |          |
|         | MUS 151, 201, 202   |     |          |
|         | PHI 101, 120  |     |          |
| SCI/MTH | Science and Mathematics Electives                         |     |          |
|         | Complete one of the following:                            | 3-5 |          |
|         | ACC 100, 101, 102   |     |          |
|         | AST 101, 102  |     |          |
|         | BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205      |     |          |
|         | BUS 151   |     |          |
|         | CHM 121, 130, 140, 141, 151, 152                          |     |          |
|         | GEO 101, 102  |     |          |
|         | GLG 101, 102  |     |          |
|         | MTH (Any 100 level course or above)                       |     |          |
|         | PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230 |     |          |

ELEC Electives (optional)  
CON 112, DES 140, 149, 198,  
DFT 149

### Suggested Course Sequence (Read down.)

|                     |                     |                     |
|---------------------|---------------------|---------------------|
| Reading requirement | DES 212             | Science/Mathematics |
| DES 111             | DES 251             | elective            |
| WRT 101 or 150      | WRT 102 or 154      | DES 210             |
| DES 211             | Humanities and Fine | DES 256             |
| DES 150             | Arts elective       | DES 199             |
| DES 151             | DES 222             | DES 299             |
| DES 215 or          | DES 220             | Humanities and Fine |
| FDC 126             | DES 255             | Arts elective       |
| DES 152             | DES 230             | MAN 110             |

\*For additional prerequisite information, check Course Section.

\*\*Optional. Recommended but not required.

## 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

#### 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. |                           |              |               |
| DFT 150  | Technical Drafting I      | 4            |               |
| DFT 151  | Technical Drafting II     | 4            | DFT 150       |
| DFT 154**  | Electronic Drafting       | 4            | ETR 100*      |
| DFT 180  | Computer Aided Drafting I | 4            | DFT 150*      |
| DFT 240  | Manufacturing Processes I | 3            |               |

### General Education and Support Courses:

|         |                              |   |          |
|---------|------------------------------|---|----------|
| ETR     | Any ETR course 100 or higher | 4 |          |
| MTH 110 | Technical Mathematics I      | 3 | MTH 060* |
| WRT 101 | Writing I                    |   | WRT 100* |
| or 150  | Practical Communications     | 3 |          |
| MTH 120 | Technical Mathematics II     | 3 | MTH 110  |

### Suggested Course Sequence (Read down.)

|                   |         |
|-------------------|---------|
| WRT 101 or 150    | DFT 151 |
| MTH 110           | DFT 180 |
| DFT 150           | DFT 154 |
| DFT 240           | MTH 120 |
| ETR 100 or higher |         |

\*For additional prerequisite information, check Course Section.

\*\*Drafting majors must complete DFT 150 and any ETR course 100 or higher before taking DFT 154.

### Drafting, Electro-Mechanical/Mechanical— Associate of Applied Science Degree

#### 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.

|           |   |   |          |
|-----------|---|---|----------|
| DFT 150   | Technical Drafting I                                | 4 |          |
| DFT 151   | Technical Drafting II                               | 4 | DFT 150  |
| DFT 154** | Electronic Drafting                                 | 4 | ETR 100* |
| 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 155 Electro-Mechanical Design I 4 DFT 151\*

DFT 170 Microelectronic Drafting 4 DFT 155\*

**Option 2:**

For Mechanical Drafting Majors:

DFT 256 Mechanical Design I 4 DFT 151

DFT 257 Mechanical Design II 4 DFT 256

**General Education and Support Courses:**

ETR Any ETR course 100 or higher 4

MAN 110 Human Relations in Business and Industry 3

MTH 110 Technical Mathematics I 3 MTH 060\*

MTH 120 Technical Mathematics II 3 MTH 110

PHY 101 Technical Physics I 3

WRT 101 Writing I 3 WRT 100\*

or 150 Practical Communications 3

WRT 102 Writing II 3 WRT 101

or 154 Technical Communications I 3 WRT 100\*

HUM/ART Humanities and Fine Arts Elective

Complete one of the following: 3

ART 130, 131, 132, 135

DRA 140, 141

HUM 110, 111

Foreign Language

LIT 260, 265

MUS 151, 201, 202

PHI 101, 120

TECH/ELEC Technical Elective

Complete one of the following: 3

DES 111, 150

DFT (Any course including

Co-op)

MAC 110

ETR (Any course 100 or higher)

ENG (Any course)

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

**First Semester**

Reading requirement

DFT 150

MTH 110

WRT 101 or 150

ETR 100 or higher

**Third Semester**

DFT 155

DFT 256

DFT 240

DFT 211

PHY 101

**Second Semester**

DFT 151

DFT 154

DFT 180

MTH 120

WRT 102 or 154

**Fourth Semester**

DFT 170

DFT 257

DFT 245

MAN 110

Humanities and Fine

Arts elective

Technical elective

\*For additional prerequisite information, check Course Section.

\*\*Drafting majors must complete DFT 150 and any ETR course 100 or higher before taking DFT 154.

## 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

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. 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 lists.)

|                                  |     |
|----------------------------------|-----|
| English Composition              | 6   |
| Humanities and Fine Arts         | 9   |
| Biological and Physical Sciences | 8   |
| Mathematics (MTH 150 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

### 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<br>or 117  | The Growing Years<br>Child Growth and Development | 3            |               |
| ECE 108  | Literature/Social Studies for Children            | 3            |               |
| ECE 110  | Communication Skills for Children                 | 3            |               |
| ECE 112  | Music/Art for Children                            | 3            |               |
| ECE 118  | Introduction to Education                         | 3            |               |
| ECE 124  | Math/Science for Children                         | 3            |               |
| ECE 126  | Teaching Techniques                               | 3            |               |
| ECE 128  | Preschool Education                               | 3            |               |
| ECE 199  | Co-op Related Class in ECE                        | 1            | *             |
| ECE 199  | Co-op Work in ECE                                 | 2            | *             |

### General Education and Support Courses:

|         |   |   |          |
|---------|---|---|----------|
| WRT 100 | Writing Fundamentals  | 3 | WRT 070* |
| SCI/MTH | Science and/or Mathematics Elective.<br>(See Graduation section in this catalog for Advance/Technical Certificate Course list.) | 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

### 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.

|                   |   |   |          |
|-------------------|---|---|----------|
| ECE 106<br>or 117 | The Growing Years<br>Child Growth and Development | 3 |          |
| ECE 107           | Human Development and Relations                   | 3 |          |
| ECE 108           | Literature/Social Studies for Children            | 3 |          |
| ECE 110           | Communication Skills for Children                 | 3 |          |
| ECE 111           | Techniques for the Special Child                  | 3 |          |
| ECE 112           | Music/Art for Children                            | 3 |          |
| ECE 114           | Effective Parenthood                              | 3 |          |
| ECE 118           | Introduction to Education                         | 3 |          |
| ECE 120           | Supervision and Administration                    | 3 |          |
| ECE 124           | Math/Science for Children                         | 3 |          |
| ECE 126           | Teaching Techniques                               | 3 |          |
| 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* |

### General Education and Support Courses:

|           |   |   |          |
|-----------|---|---|----------|
| FSN 124   | Nutrition for the Young Child   | 3 |          |
| WRT 101   | Writing I   | 3 | WRT 100* |
| COMM/ELEC | Communication Elective<br>Complete one of the following:<br>OED 151, 251<br>SPE 120<br>WRT 100, 102, 150, 154 | 3 |          |

|         |  |      |
|---------|--|------|
| SCI/MTH | Science and Mathematics Elective   |      |
|         | Complete one of the following:   | 6-10 |
|         | ACC 100, 101, 102  |      |
|         | AST 101, 102   |      |
|         | BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205   |      |
|         | BUS 151  |      |
|         | CHM 121, 130, 140, 141, 151, 152   |      |
|         | GEO 101, 102   |      |
|         | GLG 101, 102   |      |
|         | MTH 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219 |      |
|         | PHY 101, 102, 105, 122, 131, 132, 210, 216, 221, 230   |      |

|         |  |     |
|---------|--|-----|
| HUM/ART | Humanities and Fine Arts Elective. (See Graduation section of this catalog for associate of applied science degree course list). | 3-4 |
|---------|--|-----|

### Suggested Course Sequence

See an early childhood education faculty advisor.

\*For additional prerequisite information, check Course Section.

## Education

### Education—Associate of Arts Degree For Transfer

This associate of arts degree is for students planning to enter one of the fields of education: elementary, early childhood, special or secondary (and at the University of Arizona, Rehabilitation). **It is important to begin your foreign language, writing, and mathematics courses in your first semester. See an Education Faculty advisor.**

**If you do not plan to complete an associates of arts degree in education from Pima Community College prior to transferring to a College of Education at a university, please see an Education Faculty advisor and obtain a transfer guide.**

Although special attention was given to this degree program for transfer to the University of Arizona, it will transfer to Arizona State University and Northern Arizona University as well. Students should follow the requirements of the upper division school to which they plan to transfer. **ADMISSION TO THE COLLEGE OF EDUCATION AT THE UNIVERSITY OF ARIZONA IS COMPETITIVE. STUDENTS SHOULD MEET WITH THE EDUCATION FACULTY ADVISOR TO OBTAIN TRANSFER INFORMATION FOR THE UNIVERSITY OF THEIR CHOICE.** Students may transfer 72 credits to the University of Arizona but may only transfer 64 credits to Arizona State University and Northern Arizona University.

Students must also pass the Pre-Professional Skills Test (PPST) to enroll in Arizona State University, Northern Arizona University, or the University of Arizona College of Education.

### 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.

|            |  |   |   |
|------------|--|---|---|
| ECE 118    | Introduction to Education                        | 3 |   |
| or ECE 296 | Independent Studies in Early Childhood Education | 3 | * |
| ECE 126    | Teaching Techniques                              | 3 |   |

### Support Courses

|          |  |      |  |
|----------|--|------|--|
| FOR/LANG | Foreign Language: Completion of four semesters of a transferable language course is required by all three state universities. Bilingual or international students should consult an advisor concerning exceptions to this requirement. See an Education faculty advisor. | 4-16 |  |
|----------|--|------|--|

|                  |  |     |  |
|------------------|--|-----|--|
| ART REQUIRE-MENT | <b>All Education students</b> , select one course from the following:<br>ART 100, 110, 115, 120, 130, 131<br>MUS 102, 104, 105, 108, 109, 116, 117, 120, 121, 125 and 127, 130, 131, 151 | 3-6 |  |
|------------------|--|-----|--|

|                                       |  |   |
|---------------------------------------|--|---|
|                                       | <b>Elementary Education students only</b> must complete 6 credits in this category. Elementary education students should see an advisor prior to selecting one additional course from:<br>ART 100, 110, 115, 120, 130, 131;<br>MUS 130, 131, 151 |   |
| SPEECH REQUIRE-MENT                   | The following speech courses meet general education requirements at Arizona State University, Northern Arizona University, and University of Arizona. Select one course from the following list:<br>SPE 136 <b>AND</b> 102 or 110 or 136         | 6 |
| NON-WESTERN CIVILIZATION REQUIRE-MENT | Select one course from the following list:<br>ANT 205, 206; ARC 205;<br>HIS 122, 124, 148, 170;<br>REL 125   | 3 |

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

|   |   |
|---|---|
| English Composition   | 6 |
| Humanities and Fine Arts<br>(Support course fulfills 3 credits of this requirement. Select two courses from the following list. <b>Elementary Education students</b> select only one course):<br>ART 130, 131; HIS 101 or 102;<br>HUM 251, 252, 253; HUM 110, 111 | 9 |

|  |   |
|--|---|
| Biological and Physical Sciences<br><b>Elementary education majors</b> are required to complete at least 8 credits from two of three categories: | 8 |
|--|---|

1) Biology  
2) Chemistry and Physics  
3) Astronomy, Geography, and Geology.  
**Secondary and Rehabilitation education majors** are encouraged to complete all 8 credit hours (both classes) in the same lab science. See an advisor.

|   |   |
|---|---|
| Mathematics<br>(Complete MTH 150 or above.) | 3 |
|---|---|

|  |   |
|--|---|
| Social and Behavioral Sciences<br>(Select three courses from social and behavioral sciences section under the Graduation section of this catalog.) | 9 |
|--|---|

The following are suggestions:

1. For Teacher certification at any university, complete either POS 110 and 130 (6 credits) or POS 112 (3 credits).
2. If the student plans to transfer to the University of Arizona, one course must include unique content in matters of gender, class, race, or ethnicity. Currently HIS 105, 127, 150, SOC 201, 204 fulfill this requirement.
3. If the student plans to attend Northern Arizona University, 4 of the 9 credits must be PSY 101.
4. See an advisor.

|  |     |
|--|-----|
| Other Requirement options<br>(Support courses fulfill this requirement.) | 5-6 |
|--|-----|

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

Foreign Language course  
Math course  
Writing course

For the remaining sequence, see an Education faculty advisor.

\*For additional prerequisite information, check Course Section.

## Electronics Technology

The electronics technology curriculum offers many opportunities for students. The certificate program enables students to develop basic electronic skills needed to enter the job market. These credits may be applied towards the AAS degree. The Electronics Technology two-year

associate of applied science degree program is for present job skills, preparing for a job and qualifying for a better job. In addition, certificates of competency in several areas of the electronics industry can be earned. The Microcomputer Technician basic and advanced certificates and the associate of applied science degree for direct employment are designed for an entry-level job with skills in the areas of microcomputer installation and maintenance.

Throughout the program, emphasis is placed on practical professional training. Extensive laboratory experiences are offered to reinforce classroom theory and develop skills in the use of basic test equipment. Up-to-date trainers and test equipment are available for use by students in advanced and specialized courses. Advisors for the Electronic Technology programs are available on the West Campus and advisors for the Microcomputer Technician programs are available on both West Campus and Downtown Campus to assist students in planning their course schedules.

Students should plan to take their assessment tests in reading, writing and mathematics prior to registering. Students not qualified to enroll in MTH 115 shall be considered to have preprogram status and may wish to consider ETR 100, Exploring Electronics, as a complementary course during this period. The Pima College reading requirement must be completed prior to the beginning of the second year. (See graduation requirements in this catalog.)

Program options available:

ELECTRONICS TECHNOLOGY—Basic Certificate For Direct Employment

ELECTRONICS TECHNOLOGY—Associate of Applied Science Degree For Direct Employment

MICROCOMPUTER TECHNICIAN—Basic Certificate For Direct Employment

MICROCOMPUTER TECHNICIAN—Advanced Certificate For Direct Employment

MICROCOMPUTER TECHNICIAN—Associate of Applied Science Degree For Direct Employment

## Electronics Technology—Basic Certificate For Direct Employment

The Basic Certificate program is designed to prepare students for the Electronics Technology Associate of Applied Science Degree or to enable students to obtain limited entry level positions in some electronics or electronics-related industries.

### 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.

|         |   |   |          |
|---------|---|---|----------|
| ETR 101 | Basic DC Circuit Analysis                 | 3 | MTH 115* |
| ETR 102 | Basic AC Circuit Analysis                 | 3 | ETR 101* |
| ETR 105 | Electronic Circuits                       | 6 | ETR 102* |
| ETR 110 | Digital Electronics                       | 3 | MTH 115  |
| ETR 122 | Electronic Construction and Assembly      | 3 | ETR 102* |
| ETR 124 | Electronic Measurements                   | 3 | ETR 105* |
| ETR 160 | Microcomputers and Programming Techniques | 3 | MTH 070  |

### General Education and Support Courses

|                |                                      |   |          |
|----------------|--------------------------------------|---|----------|
| MTH 115        | Electronics Mathematics              | 3 | MTH 070  |
| MTH 125        | Electronics Mathematics Applications | 3 | MTH 115  |
| WRT 101 or 150 | Writing I Practical Communications   | 3 | WRT 100* |

### Suggested Course Sequence (Read down.)

|                     |         |
|---------------------|---------|
| Reading requirement | MTH 125 |
| WRT 101 or 150      | ETR 102 |
| MTH 115             | ETR 105 |
| ETR 101             | ETR 124 |
| ETR 110             | ETR 122 |
| ETR 160             |         |

\*For additional prerequisite information, check Course Section.

\*\*College reading requirement recommended for students planning to enter the Electronics Technology Associate of Applied Science Degree program.



## Electronics Technology—Associate of Applied Science Degree For Direct Employment

The Electronics Technology degree program allows the student to concentrate studies in a broad area of electronics. Certificates of competency can be earned in Communications, Digital, Instrumentation and Process Control, and Home Entertainment Equipment Repair. The Communications emphasis is designed for students interested in the area of microwave transmission and reception. In addition, this emphasis will also allow the student to prepare for the National A.R.T.E. certification. The Digital emphasis is designed for students interested in the area of microcomputer operations, peripheral equipment, data transmission and electrical characteristics associated with all aspects of digital electronics. The Instrumentation and Process Control emphasis is designed for students interested in the area of mechanical and electronic interfacing of components such as servos, stepper motors and linear actuators. The Home Entertainment Repair emphasis is designed for students interested in repairing home entertainment equipment such as televisions, turntables and tape decks.

### Required Courses (63-70 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. |              |               |
| <b>Core Courses</b> - A grade of C or better is required for graduation. |   |              |               |
| ETR 101  | Basic DC Circuit Analysis   | 3            | MTH 115*      |
| ETR 102  | Basic AC Circuit Analysis   | 3            | ETR 101*      |
| ETR 105  | Electronic Circuits   | 6            | ETR 102*      |
| ETR 110  | Digital Electronics   | 3            | MTH 115       |
| ETR 122  | Electronic Construction and Assembly  | 3            | ETR 102*      |
| ETR 124  | Electronic Measurements   | 3            | ETR 105*      |
| ETR 160  | Microcomputers and Programming Techniques   | 3            | MTH 070       |
| ETR 230  | Linear Integrated Circuits  | 6            | ETR 105       |
| ETR 250  | Digital Devices   | 4            | ETR 105*      |
| ETR 251  | Analog Circuits   | 4            | ETR 230*      |

### ETR ELEC

### Electronic Electives\*\*

7-12 \*

Complete at least two of the following:

ETR 104, 133, 143, 150 or any 200 level course.

(\*If the student desires to receive an associate of science degree with emphasis on Communications, Digital, Instrumentation and Process Control or Home Entertainment Equipment Repair, the applicable ETR electives shown below must be taken.)

Communications: ETR 133, 235, 266, (ETR 290 recommended)

Digital: ETR 255, 256

Instrumentation and Process Control: ETR 270, 276, MAC 110

Home Entertainment Equipment Repair: ETR 143, 150

### General Education and Support Courses

|                |                                       |     |                     |
|----------------|---------------------------------------|-----|---------------------|
| MTH 115        | Electronic Mathematics                | 3   |                     |
| MTH 125        | Electronic Mathematics Applications   | 3   | MTH 115             |
| WRT 101 or 150 | Writing I Practical Communications    | 3   |                     |
| WRT 102 or 154 | Writing II Technical Communications I | 3   | WRT 101<br>WRT 100* |
| HUM/ART        | Humanities and Fine Arts Elective     |     |                     |
|                | Complete one of the following:        | 3-4 |                     |
|                | ART 130, 131, 132, 135                |     |                     |
|                | DRA 140, 141                          |     |                     |
|                | HUM 251, 252, 253                     |     |                     |
|                | Foreign Language                      |     |                     |
|                | LIT 260, 265                          |     |                     |
|                | MUS 151, 201, 202                     |     |                     |
|                | PHI 101, 120                          |     |                     |

|         |   |     |
|---------|---|-----|
| SOC/BEH | Social and Behavioral Sciences Elective |     |
|         | Complete one of the following:          | 3-4 |
|         | ANT 101, 102, 200, 210, 215, 225        |     |
|         | ECE 107, 108, 112, 117                  |     |
|         | ECO 100, 101                            |     |
|         | GEO 103                                 |     |
|         | HIS 101, 102, 141, 142, 147             |     |
|         | MAN 110                                 |     |
|         | POS 100, 110, 112, 120, 130             |     |
|         | PSY 100A, 100B, 265                     |     |
|         | SOC 101, 120                            |     |

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

|                     |                          |   |
|---------------------|--------------------------|---|
| Reading requirement | ETR 102                  | ETR 230                                 |
| WRT 101 or 150      | ETR 105                  | ETR 250                                 |
| MTH 115             | ETR 124                  | ETR 251                                 |
| ETR 101             | ETR 122                  | Social and Behavioral Sciences elective |
| ETR 110             | WRT 102 or 154           | ETR electives                           |
| ETR 160             | Humanities and Fine Arts |   |
| MTH 125             | elective                 |   |

\*For additional prerequisite information, check Course Section.

### Microcomputer Technician - Basic Certificate For Direct Employment

This certificate provides entry level skills and foundational training which permits advancement to higher levels in the job market. Good basic reading, math and study skills as well as good work habits are essential for success in this program. Program courses and advising are available on the Downtown Campus and 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            | MTH 070*      |
| CSC 105  | Survey of Microcomputer Uses                      | 3            |               |
| CSC 108  | Microcomputer Operating Systems                   | 3            |               |
| ETR 130  | Basic Microcomputer Repair                        | 4            |               |
| ETR 132  | Microcomputer Peripheral Repair                   | 3            | ETR 130       |

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

CSC 100  
CSC 105  
CSC 108  
ETR 130  
ETR 132

\*For additional prerequisite information, check Course Section.

### Microcomputer Technician-Advanced Certificate For Direct Employment

This certificate provides the skills for entry level microcomputer installation and maintenance job opportunities. Good basic reading, math and study skills as well as good work habits are essential for success in this program. Program courses and advising are available on the Downtown Campus and the West Campus.

#### 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. |   |              |               |
| CSC 100  | Introduction to Computers and Information Systems | 3            | MTH 070*      |
| CSC 105  | Survey of Microcomputer Uses                      | 3            |               |
| CSC 108  | Microcomputer Operating Systems                   | 3            |               |
| CSC 136  | Microcomputer Components                          | 2            |               |
| ETR 130  | Basic Microcomputer Repair                        | 4            |               |
| ETR 132  | Microcomputer Peripheral Repair                   | 3            | ETR 130       |
| ETR 205  | Advanced Microcomputer Repair                     | 3            | ETR 130       |

#### General Education and Support Courses:

|                |   |   |          |
|----------------|---|---|----------|
| SPE 120        | Business and Professional Communication | 3 |          |
| WRT 101 or 154 | Writing I                               |   | WRT 100  |
|                | Technical Communications I              | 3 | WRT 100* |
| MTH 115        | Electronic Mathematics                  | 3 | MTH 070  |
| ETR 294        | Microcomputer Repair Internship I       |   | ETR 130* |
| or 199         | Coop Related Class in ETR               |   |          |
|                | Coop Work in ETR                        | 2 | *        |

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

|         |         |                |
|---------|---------|----------------|
| CSC 100 | ETR 130 | ETR 294 or 199 |
| CSC 105 | MTH 115 | SPE 120        |
| CSC 108 | ETR 132 | WRT 101 or 154 |
| CSC 136 | ETR 205 |                |

\*For additional prerequisite information, check Course Section.

## Microcomputer Technician - Associate of Applied Science Degree For Direct Employment

Graduates of this program are prepared to become microcomputer installation and maintenance technicians. They will have excellent skills for employment opportunities in large and small companies and micro-computer repair facilities. Good reading, writing and math skills as well as good work habits are essential for success in this program. Program courses and advising are available on the Downtown Campus and West Campus.

**Required Courses (63-65 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 | MTH 070 |
| CSC 105 | Survey of Microcomputer Uses                      | 3 |         |
| CSC 108 | Microcomputer Operating Systems                   | 3 |         |
| CSC 136 | Microcomputer Components                          | 2 |         |
| ETR 130 | Basic Microcomputer Repair                        | 4 |         |
| ETR 132 | Microcomputer Peripheral Repair                   | 3 | ETR 132 |
| ETR 205 | Advanced Microcomputer Repair                     | 3 | ETR 130 |

**General Education and Support Courses:**

|         |                                      |   |          |
|---------|--------------------------------------|---|----------|
| ETR 101 | Basic DC Electronic Circuit Analysis | 3 | MTH 115* |
| ETR 102 | Basic AC Electronic Circuit Analysis | 3 | ETR 101  |

|         |   |     |          |
|---------|---|-----|----------|
| ETR 105 | Electronic Circuits   | 6   | ETR 102* |
| ETR 110 | Digital Electronics   | 3   | MTH 115* |
| ETR 250 | Digital Devices   | 4   | ETR 105* |
| ETR 294 | Microcomputer Repair Internship   | 2   | ETR 130* |
| or 199  | Coop Related Class in ETR   |     |          |
| and 199 | Coop Work in ETR  |     | *        |
| ETR 299 | Coop Related Class in ETR   | 1   |          |
| ETR 299 | Coop Work in ETR  | 2   | *        |
| COMM    | Communications  |     |          |
| SPE 120 | Business and Professional Communications  | 3   |          |
| WRT 101 | Writing I   |     | WRT 100  |
| or 154  | Technical Communications I  | 3   | WRT 100* |
| SCI/MTH | Science and Mathematics   |     |          |
| MTH 115 | Electronics Mathematics   | 3   | MTH 070  |
| MTH 125 | Electronics Mathematics Applications  | 3   | MTH 115  |
| HUM/ART | Humanities and Fine Arts Elective   | 3-4 |          |
|         | (See Graduation Section of this catalog for Associate of Applied Science course lists.) |     |          |
| SOC/BEH | Social and Behavioral Sciences Elective   | 3-4 |          |
|         | (See Graduation Section of this catalog for Associate of Applied Science course lists.) |     |          |

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

|         |   |
|---------|---|
| CSC 100 | ETR 294 or 199                          |
| CSC 105 | MTH 125                                 |
| CSC 108 | ETR 110                                 |
| CSC 136 | ETR 205                                 |
| ETR 130 | ETR 250                                 |
| MTH 115 | ETR 299                                 |
| ETR 132 | SPE 120                                 |
| ETR 101 | WRT 101 or 154                          |
| ETR 102 | Humanities and Fine Arts elective       |
| ETR 105 | Social and Behavioral Sciences elective |

\*For additional prerequisite information, check Course Section.

# 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

### 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

### 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       |

### General Education and Support Courses:

|         |   |     |          |
|---------|---|-----|----------|
| WRT 100 | Writing Fundamentals  | 3   | WRT 070* |
| SCI/MTH | Choose one of the following:<br>BIO 101, 102, 160<br>CHM 121, 130<br>CSC 105<br>MTH 070<br>MTH 100 level or higher ** | 3-5 |          |

\*\*Students must see an EMT advisor before selecting a MTH course at the 100 level or higher.

### 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.

## Emergency Medical Technology—Advanced Paramedic Certificate For Direct Employment

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 |
|--|--|--------------|---------------|
| <b>Core Courses</b> - 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            | *             |

#### General Education and Support Courses:

|         |                                |     |          |
|---------|--------------------------------|-----|----------|
| WRT 101 | Writing I                      | 3   | WRT 100* |
| SCI/MTH | Complete one of the following: | 3-5 |          |
|         | BIO 101, 102, 160              |     |          |
|         | CHM 121, 130                   |     |          |
|         | CSC 105                        |     |          |
|         | MTH 070                        |     |          |
|         | MTH 100 level or higher**      |     |          |

\*\*Students must see an EMT advisor if they wish to choose a MTH 100 level or higher course.

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

|                     |         |         |
|---------------------|---------|---------|
| WRT 101             | EMT 204 | EMT 210 |
| Science/Mathematics | EMT 205 | EMT 211 |
| elective            | EMT 206 | EMT 212 |
| EMT 201             | EMT 207 | EMT 213 |
| EMT 202             | EMT 208 | EMT 214 |
| EMT 203             | EMT 209 | EMT 215 |

\*For additional prerequisite information, check Course Section.

## Engineering

### Engineering—Associate of Science Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

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 (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. |   |              |               |
| CHM 151  | General Chemistry I   | 5            | MTH 130*      |
| CHM 152  | General Chemistry II  | 5            | CHM 151       |
| ENG 101  | Problem-Solving Using Computers   | 3            | MTH 180*      |
| ENG 102  | Problem-Solving and Engineering Design  | 3            | ENG 101*      |
| MTH 180  | Analytical Geometry and Calculus I  | 4            | MTH 150*      |
| MTH 185  | Analytical Geometry and Calculus II   | 3            | MTH 180       |
| MTH 215  | Analytical Geometry and Calculus III  | 4            | MTH 185       |
| MTH 219  | Differential Equations  | 3            | MTH 215       |
| PHY 210  | Introductory Mechanics  | 5            | MTH 180*      |
| PHY 216  | Introductory Electricity and Magnetism  | 5            | PHY 210*      |

### Support Courses

|           |   |    |  |
|-----------|---|----|--|
| TECH/ELEC | Technical Electives:<br>(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 students specific engineering discipline.) | 10 |  |
| 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 220 | Engineering Mechanics: Dynamics             |  |  |
| ENG 230 | Mechanics of Materials                      |  |  |
| ENG 240 | Introduction to Digital Systems             |  |  |
| ENG 241 | Microprocessors                             |  |  |
| ENG 250 | Numerical Analysis for Engineers            |  |  |
| ENG 260 | Elements of Electrical Engineering          |  |  |
| ENG 261 | Elements of Electronics                     |  |  |
| 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    |  |  |
| MTH 210 | Introductory Statistics                     |  |  |
| MTH 225 | Linear Algebra                              |  |  |
| MTH 230 | Discrete Mathematics in Computer Science    |  |  |
| PHY 221 | Introduction to Waves and Heat              |  |  |
| PHY 230 | Introduction to Modern Physics              |  |  |

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

|  |      |
|--|------|
| English Composition  | 6    |
| Humanities and Fine Arts   | 6    |
| Biological and Physical Sciences<br>(Core courses satisfy this requirement.) | 8-10 |
| Mathematics (MTH 150 or above)<br>(Core courses satisfy this requirement.)   | 6    |
| Social and Behavioral Sciences   | 6    |
| Other Requirement options<br>(Core courses satisfy this requirement.)        | 8-10 |

### Suggested Course Sequence

See an engineering faculty advisor.

\*For additional prerequisite information, check Course Section.



# 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 program is offered through the Arizona State Environmental Technology Training (ASETT) Center located on the East Campus. The Center, which is the U.S. Environmental Protection Agency's designated state training center, offers statewide education and training programs.

## Hazardous Materials Management—Advanced Certificate For Direct Employment

### Required Courses (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.

|         |  |   |   |
|---------|--|---|---|
| ENV 100 | Introduction to Environmental Technology   | 4 | * |
| ENV 150 | Introduction to Hazardous Materials        | 3 | * |
| ENV 151 | OSHA-Hazardous Materials Health and Safety | 3 | * |
| ENV 153 | Chemistry of Hazardous Materials           | 3 | * |
| ENV 155 | Site Investigation I                       | 3 | * |
| ENV 157 | DOT-Hazardous Materials Transportation     | 3 | * |
| ENV 159 | Hazard Communications                      | 3 | * |

### General Education and Support Courses:

|         |  |   |   |
|---------|--|---|---|
| MAN 110 | Human Relations in Business and Industry | 3 |   |
| MTH 070 | Algebra I                                | 3 | * |
| WRT 100 | Writing Fundamentals                     | 3 | * |
| WRT 101 | Writing I                                | 3 | * |

### Suggested Course Sequence (Read down.)

|         |         |         |
|---------|---------|---------|
| ENV 100 | ENV 150 | ENV 155 |
| MAN 110 | ENV 151 | ENV 157 |
| MTH 070 | WRT 101 | ENV 159 |
| WRT 100 | ENV 153 |         |

\*For additional prerequisite information, check Course Section.

## Wastewater Technology—Advanced Certificate For Direct Employment

### Required Courses (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.

|          |   |   |   |
|----------|---|---|---|
| ENV 100  | Introduction to Environmental Technology  | 4 | * |
| ENV 102  | Hydraulics  | 3 | * |
| ENV 106  | Chemistry of Water/Wastewater Treatment   | 3 | * |
| ENV 120  | Introduction to Wastewater Treatment  | 3 | * |
| ENV 122  | Municipal Collection Systems  | 3 | * |
| ENV 200  | Industrial/Workplace Safety   | 3 | * |
| ENV ELEC | Environmental Electives<br>Select 3 credits from Associate Degree in ENV with approval of an ENV program advisor. | 3 |   |

**General Education and Support Courses:**

|         |  |   |   |
|---------|--|---|---|
| MAN 110 | Human Relations in Business and Industry | 3 |   |
| MTH 070 | Algebra I                                | 3 | * |
| WRT 100 | Writing Fundamentals                     | 3 | * |
| WRT 101 | Writing I                                | 3 | * |

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

|         |         |              |
|---------|---------|--------------|
| ENV 100 | ENV 102 | WRT 101      |
| MAN 110 | ENV 106 | ENV 200      |
| MTH 070 | ENV 120 | ENV elective |
| WRT 100 | ENV 122 |              |

\*For additional prerequisite information, check Course Section.

## Water Technology—Advanced Certificate For Direct Employment

**Required Courses (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.

|          |  |   |   |
|----------|--|---|---|
| ENV 100  | Introduction to Environmental Technology   | 4 | * |
| ENV 102  | Hydraulics   | 3 | * |
| ENV 106  | Chemistry of Water/Wastewater Treatment  | 3 | * |
| ENV 140  | Introduction to Water Treatment  | 3 | * |
| ENV 142  | Water Distribution Systems   | 3 | * |
| ENV 200  | Industrial/Workplace Safety  | 3 | * |
| ENV ELEC | Environmental Electives<br>Select 3 credits from Associate Degree in ENV with approval of ENV program advisor. | 3 |   |

**General Education and Support Courses:**

|         |  |   |   |
|---------|--|---|---|
| MAN 110 | Human Relations in Business and Industry | 3 |   |
| MTH 070 | Algebra I                                | 3 | * |
| WRT 100 | Writing Fundamentals                     | 3 | * |
| WRT 101 | Writing I                                | 3 | * |

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

|         |         |              |
|---------|---------|--------------|
| ENV 100 | ENV 102 | WRT 101      |
| MAN 110 | ENV 106 | ENV 200      |
| MTH 070 | ENV 140 | ENV elective |
| WRT 100 | ENV 142 |              |

\*For additional prerequisite information, check Course Section.

## Environmental Technology—Associate of Applied Science Degree For Direct Employment

**Required Courses (69-70 Credit Hours)**

| Course Number  | Course Title                            | Credit Hours | Prerequisites |
|--|---|--------------|---------------|
| Advanced Certificate requirements  |   | 34           |               |
| <b>Core Courses</b> - A grade of C or better is required for graduation.<br>Select 26 credits from the following with the approval of advisor: |   |              |               |
| ENV 102  | Hydraulics                              | 3            | *             |
| ENV 106  | Chemistry of Water/Wastewater Treatment | 3            | *             |
| ENV 108  | Electrical and Mechanical Maintenance   | 3            | *             |
| ENV 120  | Introduction to Wastewater Treatment    | 3            | *             |
| ENV 122  | Municipal Collection Systems            | 3            | *             |
| ENV 140  | Introduction to Water Treatment         | 3            | *             |
| ENV 142  | Water Distribution Systems              | 3            | *             |
| ENV 150  | Introduction to Hazardous Materials     | 3            | *             |
| ENV 151  | OSHA-Hazardous Materials Health Safety  | 3            | *             |
| ENV 153  | Chemistry of Hazardous Materials        | 3            | *             |
| ENV 155  | Site Investigation I                    | 3            | *             |
| ENV 157  | DOT-Hazardous Materials Transportation  | 3            | *             |

Environmental Technology continued next page

|         |  |     |   |
|---------|--|-----|---|
| ENV 159 | Hazard Communication                       | 3   | * |
| ENV 200 | Industrial/Workplace Safety                | 3   | * |
| ENV 202 | Environmental Sampling and Monitoring      | 3   | * |
| ENV 208 | Environmental Laboratory Analysis          | 3   | * |
| ENV 210 | Special Topics in Environmental Technology | 1-4 | * |
| ENV 220 | Biological Wastewater Treatment            | 3   | * |
| ENV 222 | Physical/Chemical Treatment of Wastewater  | 3   | * |
| ENV 240 | Advanced Water Treatment                   | 3   | * |
| ENV 242 | Cross-Connection Control                   | 3   | * |
| ENV 299 | Co-op Related Class in ENV                 | 1   | * |
| ENV 299 | Co-op Work in ENV                          | 1-8 | * |

**Utilization of the following course work as core courses for graduation requires written permission from an ENV faculty.**

|          |   |   |          |
|----------|---|---|----------|
| BIO 105  | Environmental Biology                             | 4 |          |
| CHM 125  | Applied Industrial Chemistry I                    | 5 |          |
| CHM 151  | General Chemistry I                               | 5 | *        |
| CHM 152  | General Chemistry II                              | 5 | CHM 151  |
| CON 130  | Construction: Piping Systems                      | 3 |          |
| CSC 100  | Introduction to Computers and Information Systems | 3 | MTH 070* |
| CSC 105  | Survey of Microcomputer Uses                      | 3 |          |
| CSC 108  | Microcomputer Operating Systems                   | 3 |          |
| DFT 101  | Blueprint Reading/Sketching                       | 4 |          |
| ETR 100  | Fundamentals of Electronics                       | 6 | *        |
| EMT 151  | Basic Emergency Medical Technology                | 5 |          |
| 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 | MTH 060* |
| PHY 102  | Technical Physics II                              | 5 | MTH 070* |
| PHY 121  | Introductory Physics I                            | 5 | *        |
| PHY 122  | Introductory Physics II                           | 5 | PHY 121  |
| QCT 101  | Quality Control I                                 | 3 | MTH 070  |
| QCT 102  | Quality Control II                                | 3 | QCT 101  |
| WLD 110  | Combination Welding                               | 3 |          |

### General Education and Support Courses:

|   |                                   |     |         |
|---|-----------------------------------|-----|---------|
| MTH 130   | Algebra II                        | 3   | MTH 070 |
| MAN 122   | Supervision                       | 3   |         |
| HUM/ART   | Humanities and Fine Arts Elective | 3-4 |         |
| (See graduation section of this catalog for Associate of Applied Science degree course list.) |                                   |     |         |

### 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

#### 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 |          |
| ECO 101                         | Introduction to Macroeconomics   | 3 | MTH 070  |
| FIN 102                         | Principles of Bank Operations  | 3 |          |
| FIN 203<br>or 208<br>or MAN 280 | Bank Management<br>Installment Credit<br>Business Organization<br>and Management | 3 | BUS 100* |

**General Education and Support Courses:**

|         |   |   |          |
|---------|---|---|----------|
| BUS 200 | Business Law I  | 3 |          |
| MAN 122 | Supervision   | 3 |          |
| ACC 102 | Managerial Accounting                                       | 3 |          |
| ECO 100 | Introduction to Microeconomics                              | 3 | MTH 070* |
| MAN 110 | Human Relations in Business<br>and Industry                 | 3 |          |
| MTH     | Determined by assessment test<br>at the 100 level or higher | 3 |          |
| WRT 100 | Writing Fundamentals or above                               | 3 | WRT 070* |

|           |  |    |  |
|-----------|--|----|--|
| BANK ELEC | Banking Electives<br>Complete 12 credit hours from<br>FIN courses and/or other<br>courses relating to the banking<br>industry. | 12 |  |
|-----------|--|----|--|

|           |  |     |  |
|-----------|--|-----|--|
| COMM/ELEC | Communication Elective<br>Complete one of the following:<br>OED 151, 251<br>SPE 120<br>WRT 100, 101, 102, 150, 154 | 3-4 |  |
|-----------|--|-----|--|

|         |  |     |  |
|---------|--|-----|--|
| HUM/ART | Humanities and Fine Arts<br>Elective<br>Complete one of the following:<br>ART 130, 131, 132, 135<br>DRA 140, 141<br>HUM 110, 111<br>Foreign Language<br>LIT 260, 265<br>MUS 151, 201, 202<br>PHI 101, 120<br>SLG 101, 102, 201, 202, 203 | 3-4 |  |
|---------|--|-----|--|

|      |  |   |  |
|------|--|---|--|
| ELEC | Other Electives<br>Complete 9 credit hours<br>at the 100 level or higher<br>from anthropology, history,<br>humanities, philosophy,<br>psychology or sociology. | 9 |  |
|------|--|---|--|

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

|                     |                  |                  |
|---------------------|------------------|------------------|
| Reading requirement | ACC 101          | BUS 200          |
| Math course         | MAN 110          | Other elective   |
| WRT 100 or above    | Communication    | FIN 203 or       |
| FIN 102             | elective         | FIN 208 or       |
| ECO 100             | Banking elective | MAN 280          |
| Humanities and Fine | ECO 101          | Other electives  |
| Arts elective       | ACC 102          | Banking elective |
| Banking elective    | MAN 122          |                  |

\*For additional prerequisite information, check Course Section.

**Credit Union—Basic Certificate For Direct Employment**

**Required Courses (12 Credit Hours)**

| Course Number | Course Title | Credit Hours | Prerequisites |
|---------------|--------------|--------------|---------------|
|---------------|--------------|--------------|---------------|

**Core Courses** - 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<br>Complete any course (other than<br>one of those listed above) from<br>Credit Union AAS Degree. | 3 |  |
|------|--|---|--|

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

|                |
|----------------|
| FIN 131        |
| FIN 139        |
| FIN 208        |
| Other elective |

## Credit Union—Advanced Certificate For Direct Employment

### Required Courses (30-31 Credit Hours)

| Course Number  | Course Title  | Credit Hours | Prerequisites |
|--|---|--------------|---------------|
| Basic Certificate requirements   |   | 12           |               |
| <b>Core Courses</b> - A grade of C or better is required for graduation. |   |              |               |
| FIN 239  | Credit Union Financial Management   | 3            | FIN 139*      |
| <b>General Education and Support Courses:</b>                            |   |              |               |
| ACC 101  | Financial Accounting  | 3            |               |
| ECO 101  | Introduction to Macroeconomics  | 3            | MTH 070       |
| COMM/ELEC  | Complete one of the following:<br>OED 151, 251<br>SPE 120<br>WRT 100, 101, 102, 150, 154  | 3-4          |               |
| ELEC   | Other Electives<br>Complete two courses at the 100 level or higher (other than one of those listed above) from Credit Union AAS Degree program. | 6            |               |

### Suggested Course Sequence (Read down.)

Basic Certificate requirements  
ECO 101  
ACC 101  
FIN 239  
Other electives  
Communication elective

\*For additional prerequisite information, check Course Section.

## Credit Union—Associate of Applied Science Degree For Direct Employment

### 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. |              |               |
| <b>Core Courses</b> - 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*      |

### General Education and Support Courses:

|                   |  |     |          |
|-------------------|--|-----|----------|
| ACC 102<br>or FIN | Managerial Accounting<br>FIN course at the 100 level or higher   | 3   | ACC 101* |
| BUS 200           | Business Law I   | 3   |          |
| MAN 110           | Human Relations in Business and Industry   | 3   |          |
| MAN 122           | Supervision  | 3   |          |
| MKT 111           | Marketing  | 3   |          |
| ACC 101           | Financial Accounting   | 3   |          |
| ECO 100           | Introduction to Microeconomics   | 3   | MTH 070* |
| ECO 101           | Introduction to Macroeconomics   | 3   | MTH 070* |
| MTH               | Determined by assessment test at the 100 level or higher   | 3   |          |
| WRT 100           | Writing Fundamentals or above  | 3   | WRT 070* |
| COMM/ELEC         | Communication Elective<br>Complete one of the following:<br>OED 151, 251<br>SPE 120<br>WRT 100, 101, 102, 150, 154 | 3-4 |          |

|         |   |
|---------|---|
| HUM/ART | Humanities and Fine Arts<br>Elective<br>Complete one of the following: 3-4<br>ART 130, 131, 132, 135<br>DRA 140, 141<br>HUM 110, 111<br>Foreign Language<br>LIT 260, 265<br>MUS 151, 201, 202<br>PHI 101, 102, 120<br>SLG 101, 102, 201, 202, 203 |
|---------|---|

|      |  |
|------|--|
| ELEC | Other Elective<br>Complete two courses at the<br>100 level or higher from<br>anthropology, history,<br>philosophy, political<br>science, psychology or<br>sociology. 6 |
|------|--|

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

|                     |                     |                |
|---------------------|---------------------|----------------|
| Reading requirement | ECO 101             | Communication  |
| Math course         | Humanities and Fine | elective       |
| WRT 100 or above    | Arts elective       | FIN 136        |
| FIN 131             | FIN 239             | FIN 231        |
| FIN 208             | ACC 101             | ACC 102        |
| MAN 110             | ECO 100             | Other elective |
| FIN 139             | BUS 200             | Other elective |
| MAN 122             | MKT 111             |                |

\*For additional prerequisite information, check Course Section.

### Professional Financial Planning (PFP) Program— Associate of Applied Science Degree

The professional financial planning program includes risk management, investments, tax and retirement planning, employee benefits, estate planning, an integrated financial plan, case studies and work experience.

The PFP program enables the student to develop comprehensive financial plans; implement the plan with client approval; and monitor, maintain and modify the plans as changing economic, financial and personal circumstances dictate.

#### 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.

|         |  |   |          |
|---------|--|---|----------|
| FIN 121 | Introduction to Financial Planning             | 3 |          |
| FIN 122 | Personal Risk Management                       | 3 | FIN 121  |
| FIN 123 | Personal Investment Strategies                 | 3 | FIN 121  |
| FIN 124 | Tax Management and Planning                    | 3 | FIN 121  |
| FIN 245 | Retirement Planning and Employee Benefits      | 3 | FIN 121  |
| FIN 246 | Estate Planning                                | 3 | FIN 121* |
| FIN 247 | Financial Planning and Case Studies            | 3 | FIN 121* |
| FIN 199 | Co-op Related Class in FIN                     | 1 | *        |
| FIN 199 | Co-op Related Work in FIN                      | 2 | *        |
| OED 298 | Special Topics: Financial Planning Calculators | 1 | *        |

#### General Education and Support Courses:

|             |  |   |          |
|-------------|--|---|----------|
| ACC 101     | Financial Accounting                     | 3 |          |
| ACC 102     | Accounting II                            | 3 | ACC 101* |
| BUS 200     | Business Law I                           | 3 |          |
| BUS/CSC 105 | Survey of Microcomputer Uses             |   |          |
| or MAP 106  | Introduction to Microcomputers           | 3 |          |
| MAN 124     | Small Business Management                | 3 |          |
| MKT 113     | Salesmanship                             | 3 |          |
| BUS 151     | Mathematics of Business                  |   |          |
| or MTH 130  | Algebra II                               | 3 | MTH 070* |
| SPE 120     | Business and Professional Communications | 3 |          |
| WRT 150     | Practical Communications                 |   |          |
| or 101      | Writing I                                |   | WRT 100* |
| or OED 151  | Business English                         | 3 | *        |
| WRT 102     | Writing II                               |   | WRT 101  |
| or 154      | Technical Communications I               |   | WRT 101* |
| or OED 251  | Business Communications                  | 3 | OED 151  |



|         |   |     |
|---------|---|-----|
| SOC/BEH | Social and Behavioral Sciences Elective | 3   |
| HUM/ART | Humanities and Fine Arts Elective       | 3-4 |

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

|                    |                       |                     |
|--------------------|-----------------------|---------------------|
| FIN 121            | FIN 122               | SPE 120             |
| WRT 150 or 101 or  | FIN 123               | ACC 102             |
| OED 151            | FIN 124               | BUS 200             |
| BUS 151 or MTH 130 | WRT 102 or 154 or     | FIN 247             |
| OED 298            | OED 251               | FIN 199             |
| ACC 101            | Social and Behavioral | Humanities and Fine |
| BUS/CSC 105 or     | Science elective      | Arts elective       |
| MAP 106            | FIN 245               | MAN 124             |
|                    | FIN 246               | MKT 113             |

\*For additional prerequisite information, check Course Section.

### Savings Bank—Basic Certificate For Direct Employment

#### 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<br>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

#### 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<br>Complete one of the following:<br>OED 151, 251<br>SPE 120<br>WRT 100, 101, 102, 150, 154  | 3            |               |
| SCI/MTH  | Science and Mathematics Elective<br>Complete one of the following:<br>ACC 100, 101, 102<br>AST 101, 102, 111, 112<br>BUS 151<br>BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205<br>CHM 121, 130, 140, 141, 151, 152<br>GEO 101, 102<br>GLG 101, 102<br>MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219<br>PHY 101, 102, 105, 121, 122, 131, 132, 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.

\*For additional prerequisite information, check Course Section.

## Savings Bank—Associate of Applied Science Degree For Direct Employment

### 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. |              |               |
| <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       |

|           |   |   |
|-----------|---|---|
| COMM/ELEC | Communication Electives<br>Complete two of the following:<br>OED 151, 251<br>SPE 120<br>WRT 100, 101, 102, 150, 154   | 6 |
| HUM/ART   | Humanities and Fine Arts<br>Elective<br>Complete one of the following:<br>ART 130, 131, 132, 135<br>DRA 140, 141<br>HUM 110, 111<br>Foreign Language<br>LIT 260, 265<br>MUS 151, 201, 202<br>PHI 101, 102, 120<br>SLG 101, 102, 201, 202, 203   | 3 |
| SCI/MTN   | Science and Mathematics<br>Electives<br>Complete two of the following:<br>ACC 100, 101, 102<br>AST 101, 102, 111, 112<br>BIO 101, 102, 160, 184, 190,<br>195, 201, 202, 204, 205<br>BUS 151<br>CHM 121, 130, 140, 141, 151, 152<br>GEO 101, 102<br>GLG 101, 102<br>MTH 110, 115, 120, 125, 130, 135,<br>140, 145, 150, 155, 160, 170, 175,<br>180, 185, 210, 215, 219<br>PHY 101, 102, 105, 121, 122,<br>131, 132, 210, 216, 221, 230 | 6 |
| SOC/BEH   | Social and Behavioral Sciences<br>Elective<br>Complete one of the following:<br>ANT 101, 102, 200, 210, 215, 225<br>ECE 107, 108, 117<br>ECO 100, 101<br>GEO 103<br>HIS 101, 102, 141, 142, 147<br>MAN 110<br>POS 100, 110, 112, 120, 130<br>PSY 100A, 100B, 265<br>SOC 101, 120  | 3 |

|      |   |   |
|------|---|---|
| ELEC | Other Electives:<br>Select 14 to 18 credit hours<br>with a finance faculty advisor. 14-18<br>(If the reading requirement is<br>met by assessment, the student<br>must complete an additional four<br>credit hours of other<br>electives.) | 4 |
|------|---|---|

### Suggested Course Sequence

See a finance faculty advisor.

\*For additional prerequisite information, check Course Section.

## Fire Science

The fire science program provides pre-service and in-service training in fire fighting. The program deals with the technical, managerial and human aspects of fire fighting. It also teaches modern methods of fire prevention and suppression. More than half of the 62 credit hours required for a degree in fire science are in courses which relate to the field. These courses prepare the student to become fully qualified for service in municipal, rural, governmental, industrial, or private fire departments and other agencies in the fire protection field. It also prepares the student to move toward managerial and command positions.

### Fire Science—Basic Certificate

#### 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. |   |              |               |
| FSC 149  | Fire Operations I                                   | 3            |               |
| FSC 151  | Introduction to Fire Science                        | 3            |               |
| FSC 152  | Fundamentals of Fire Prevention                     | 3            |               |
| FSC 163  | Fire Apparatus and Equipment                        | 3            | *             |
| FSC 175  | Fire Investigation: Origin and Recognition of Arson | 3            |               |

### Suggested Course Sequence

See a fire science faculty advisor.

\*For additional prerequisite information, check Course Section.

### Fire Science—Advanced Certificate

#### Required Courses (39-41 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. |                                    |              |               |
| FSC 150  | Fire Operations II                 | 3            | FSC 149       |
| FSC 154  | Advanced Fire Prevention           | 3            |               |
| FSC 161  | Hazardous Materials II             | 3            | FSC 153       |
| FSC 162  | Hydraulics and Fire Suppression    | 3            | MTH 070*      |
| FSC 164  | Fire Protection Systems            | 3            |               |
| FSC 185  | Advanced Fire Investigation: Arson | 3            |               |

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

|           |                                 |     |  |
|-----------|---------------------------------|-----|--|
| COMM/ELEC | Communication Elective          | 3   |  |
| SCI/MTH   | Science or Mathematics Elective | 3-5 |  |

### Suggested Course Sequence

See a fire science faculty advisor.

\*For additional prerequisite information, check Course Section.

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

#### Required Courses (62-65 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.

|         |   |   |          |
|---------|---|---|----------|
| FSC 149 | Fire Operations I                                   | 3 |          |
| FSC 152 | Fundamentals of Fire Prevention                     | 3 |          |
| FSC 153 | Hazardous Materials I                               | 3 |          |
| FSC 162 | Hydraulics and Fire Suppression                     | 3 | MTH 070* |
| FSC 163 | Fire Apparatus and Equipment                        | 3 | *        |
| FSC 164 | Fire Protection Systems                             | 3 |          |
| FSC 166 | Fire Suppression, Strategy and Tactics              | 3 |          |
| FSC 165 | Building Construction for Fire Protection           | 3 |          |
| FSC 175 | Fire Investigation: Origin and Recognition of Arson | 3 |          |
| EMT 100 | Basic Cardiac Life Support                          | 1 |          |
| EMT 151 | Basic Emergency Medical Technology                  | 5 | *        |
| HDE 170 | Dynamics of Leadership                              | 2 |          |

**General Education and Support Courses**

|         |   |     |          |
|---------|---|-----|----------|
| WRT 101 | Writing I   | 3   | WRT 100* |
| WRT 102 | Writing II  |     | WRT 101  |
| or 154  | Technical Communications                            | 3   | WRT 100  |
| MTH     | Determined by assessment at the 100 level or higher | 3   |          |
| PHY 101 | Technical Physics I                                 | 3   |          |
| ELEC    | Electives   |     |          |
|         | Complete three courses from the following:          | 9   |          |
|         | FSC 150, 151, 154, 161, 168, 155, 156, 185          |     |          |
|         | MAN 122   |     |          |
| HUM/ART | Humanities and Fine Arts                            |     |          |
|         | Elective  |     |          |
|         | Complete one course from the following:             | 3-5 |          |
|         | ART 130, 131, 132, 135                              |     |          |
|         | DRA 140, 141  |     |          |
|         | HUM 251, 252, 253                                   |     |          |
|         | Foreign Language                                    |     |          |
|         | LIT 260, 265  |     |          |
|         | MUS 151, 201, 202                                   |     |          |
|         | PHI 101, 120  |     |          |

**SOC/BEH**

**Social and Behavioral Sciences**

|   |     |
|---|-----|
| Elective                                |     |
| Complete one course from the following: | 3-4 |
| ANT 101, 102, 200, 210, 215, 225        |     |
| ECE 107, 108, 117                       |     |
| ECO 100, 101                            |     |
| GEO 103                                 |     |
| HIS 101, 102, 141, 142, 147             |     |
| MAN 110                                 |     |
| POS 100, 110, 130                       |     |
| PSY 100A, 100B, 265                     |     |
| SOC 101, 120                            |     |

**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 four areas of study: the Fitness Technician program, a general activity program for all students, the Associate of Arts degree in Fitness and Sport Sciences, and a Basic Certificate, Associate of Applied Science degree, or Associate of Arts degree in Leisure Studies, with emphasis in either Recreation Organization/Administration or Therapeutic Recreation. The Fitness Technician program offers an advanced certificate. This program is intended primarily for students preparing for direct employment in commercial and corporate fitness facilities.

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.

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 Arts degree in Leisure Studies is for students interested in pursuing a four-year degree. This degree allows students to direct their emphasis either in the area of Recreation Organization/Administration or Therapeutic Recreation. Graduates who complete a 200-hour internship will qualify to be certified as a Therapeutic Recreation Assistant by the National Council on Therapeutic Recreation Certification (NCTRC) and will also qualify for certification by the National Certification Council For Activity Professionals (NCCAP).

Students should check the requirements of the college or university to which they intend to transfer.

Program options available:

**FITNESS TECHNICIAN—ADVANCED CERTIFICATE FOR DIRECT EMPLOYMENT**

**FITNESS AND SPORT SCIENCES—ASSOCIATE OF ARTS DEGREE FOR TRANSFER**

**LEISURE STUDIES—ASSOCIATE OF ARTS DEGREE FOR TRANSFER**

## Fitness Technician—Advanced Certificate for Direct Employment

### Required Courses (36-37 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            |               |
| FSS 276  | Designed Exercise                                   | 3            |               |
| FSS 208  | Aerobics  | 1            |               |
| FSS 218  | Weight Training                                     | 1            |               |
| FSS 199  | Co-op Related Class in Fitness                      | 1            |               |
| FSS 199  | Co-op Work in Fitness                               | 3            |               |
| FSS 237  | Fitness Facilities: Care and Maintenance            | 2            |               |
| FSS 238  | Introduction to Sports Injury Management            | 2            |               |
| HED 140A   | First Aid   | 1            |               |
| HED 140B   | Cardiopulmonary Resuscitation                       | 1            |               |
| FSS 236  | Motivation and Human Relations in Motor Performance | 3            |               |

|         |                                |     |
|---------|--------------------------------|-----|
| FSS 223 | Racquetball                    |     |
| or 230  | Tennis                         | 1-2 |
| FSS 299 | Co-op Related Class in Fitness | 1   |
| FSS 299 | Co-op Work in Fitness          | 3   |

### General Education and Support Courses:

|         |   |   |          |
|---------|---|---|----------|
| WRT 154 | Technical Communications I              |   | WRT 100* |
| or 150  | Practical Communications                | 3 |          |
| SPE 120 | Business and Professional Communication | 3 |          |
| MKT 113 | Salesmanship                            | 3 |          |

### Suggested Course Sequence

See a fitness and sport sciences faculty advisor.

\*For additional prerequisite information, check Course Section.

## Fitness and Sport Sciences—Associate of Arts Degree for Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

### Required Courses (68-75 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.

|             |   |      |  |
|-------------|---|------|--|
| FSS 279     | Motor Development                         | 2    |  |
| FSS 288     | History of Physical Education             | 2    |  |
| FSS 289     | Philosophy of Sport in Physical Education | 2    |  |
| FSS 208-232 | Professional Activities (choose 7):       | 8-13 |  |
| FSS 208     | Aerobics                                  | 1    |  |
| FSS 211     | Badminton                                 | 1    |  |
| FSS 213     | Basketball                                | 2    |  |
| FSS 217     | Folk and Square Dance                     | 2    |  |
| FSS 218     | Weight Training                           | 1    |  |

|         |                 |   |  |
|---------|-----------------|---|--|
| FSS 223 | Racquetball     | 1 |  |
| FSS 224 | Self Defense    | 1 |  |
| FSS 225 | Soccer          | 2 |  |
| FSS 227 | Softball        | 1 |  |
| FSS 230 | Tennis          | 2 |  |
| FSS 231 | Track and Field | 2 |  |
| FSS 232 | Volleyball      | 2 |  |

#### Support Courses:

|         |   |      |          |
|---------|---|------|----------|
| BIO 201 | Human Anatomy and Physiology I  | 4    | BIO 100* |
| BIO 202 | Human Anatomy and Physiology II   | 4    | BIO 201  |
| CHM 151 | General Chemistry I   | 5    | MTH 130* |
| CHM 152 | General Chemistry II  | 5    | CHM 151  |
| POS 112 | National and State Constitutions  | 3    |          |
| PSY 101 | Introduction to Psychology  | 4    |          |
| LANG    | Foreign Language Completion of two semesters of a language course at 100 or higher level. | 8-10 |          |

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

|   |      |
|---|------|
| English Composition   | 6    |
| Humanities and Fine Arts  | 9    |
| Biological and Physical Sciences (CHM 151 and 152 satisfy this requirement.)                | 8-10 |
| Mathematics (MTH 150 or above)  | 3    |
| Social and Behavioral Sciences (POS 112 and PSY 101 fulfill 7 credits of this requirement.) | 9    |
| Other Requirement options (Foreign language support courses fulfill this requirement.)      | 5-6  |

#### FSS Electives:

|         |   |   |
|---------|---|---|
| FSS 236 | Motivation and Human Relations in Motor Performance | 3 |
| FSS 237 | Fitness Facilities: Care and Maintenance            | 2 |
| 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    | Designed Exercise                                | 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.

\*\*Required for K-12 certification.

### Leisure Studies—Associate of Arts Degree for Transfer

(WITH EMPHASIS IN EITHER RECREATION LEADERSHIP/ADMINISTRATION OR THERAPEUTIC RECREATION)

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College leisure studies advisor.

A 200-hour internship (or equivalency requirement of a one year paid clinical, residential, or community based Therapeutic Recreation Program) is required for national certification in addition to satisfactory completion of the A.A. degree program. See Leisure Studies advisor for pertinent information.

#### Required Courses (70-75 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.

|           |   |     |         |
|-----------|---|-----|---------|
| REC 101   | Introduction to Recreation  | 3   |         |
| REC 102   | Recreation Leadership and Group Dynamics                                    | 3   |         |
| REC 119   | Recreational Games  | 2   |         |
| REC 120   | Introduction to Therapeutic Recreation                                      | 3   | REC 101 |
| REC 121   | Recreation Needs for Special Populations                                    | 3   | REC 101 |
| REC 201   | Principles of Recreation  | 3   | REC 101 |
| REC 202   | Recreation Program Organization   | 3   | REC 101 |
| REC 220   | Program Planning in Therapeutic Recreation                                  | 3   | REC 120 |
| REC 221   | Principles and Procedures of Therapeutic Recreation                         | 3   | REC 202 |
| Fieldwork | (Recreation course work must be completed prior to starting the Fieldwork.) |     |         |
| REC 225   | Fieldwork   | 4-8 | *       |

**General Education Requirements** (See a Leisure Studies Advisor for courses that are transferable.)

|  |     |
|--|-----|
| English Composition (WRT 101 and WRT 102)                                | 6   |
| Humanities and Fine Arts (Recommended: MUS 151 and 6 other credit hours) | 9   |
| Biological and Physical Sciences (Recommended: BIO 100 or 101, 201)      | 8   |
| Mathematics (MTH 150 or above)   | 3   |
| Social and Behavioral Sciences (Recommended: ANT 102, SOC 101, 120)      | 9   |
| Other Requirement Options (See advisor for suggestions)                  | 5-6 |

### Suggested Course Sequence

See a Leisure Studies faculty advisor.

\*For additional prerequisite information, check Course Section.

## Foods, Clothing, Family and Consumer Resources

The following objectives are offered to students in Foods, Clothing, Family and Consumer Resources:

1. Completion of transfer courses to colleges and universities.
2. Career preparation for direct employment.
3. Personal development for home and family living.

For transfer programs, students should be guided by the catalog from the school of their choice regarding prerequisites for the bachelors degree desired. PLEASE SEE AN ADVISOR IN THIS AREA FOR ASSISTANCE IN TRANSFERRING TO A 4-YEAR PROGRAM.

Fashion Design and Clothing Program:

- Advanced Certificate: Alteration Specialist
- Associate of Applied Science: Professional Seamstress
- Associate of Applied Science: Fashion Design

Courses are offered in the following areas:

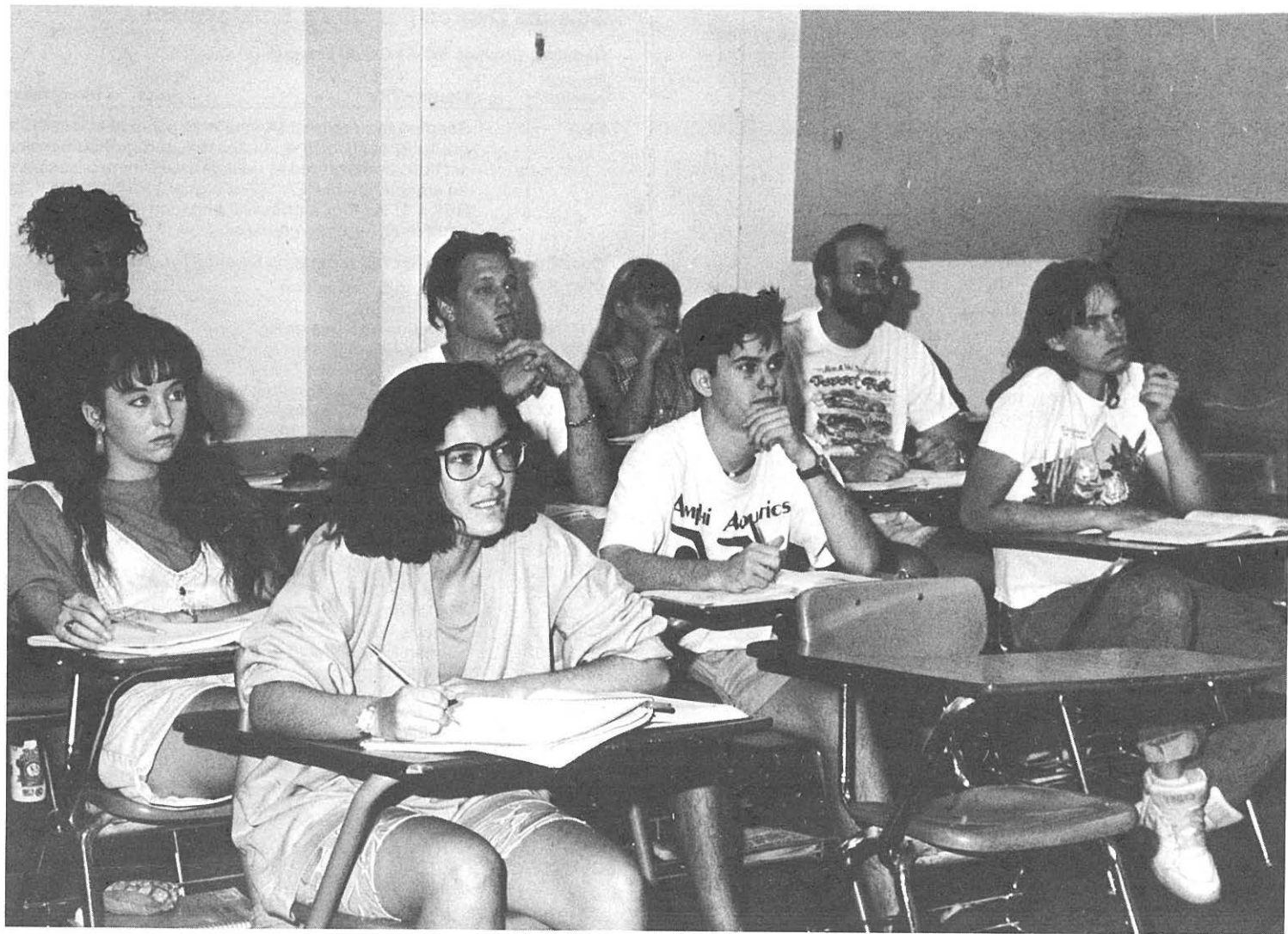
1. Food, Human Nutrition and Dietetics
2. General Home Economics

Skills gained in these areas enhance living in a modern society through better utilization of resources and an understanding of purchasing power; courses have an emphasis on health maintenance, nutrition, skill techniques in clothing and personal development.

### Alteration Specialist—Advanced Certificate For Direct Employment

**Required Courses (30-32 Credit Hours)**

| Course Number  | Course Title                        | Credit Hours | Prerequisites |
|--|-------------------------------------|--------------|---------------|
| <b>Core Courses</b> - A grade of C or better is required for graduation. |                                     |              |               |
| FDC 111  | Clothing Construction (Beginning) I | 3            |               |
| FDC 112  | Alteration and Designing            | 3            |               |
| FDC 126  | Textiles                            | 3            |               |
| FDC 131  | Clothing Selection                  | 3            |               |
| FDC 142  | Alteration and Repair               | 3            |               |



**General Education and Support Courses:**

|         |                         |   |          |
|---------|-------------------------|---|----------|
| FDC 122 | History of Fashion      | 3 |          |
| OED 151 | Business English        |   | WRT 100* |
| or 251  | Business Communications | 3 | OED 151  |

|         |  |     |  |
|---------|--|-----|--|
| SCI/MTH | Science and Mathematics Elective   |     |  |
|         | Complete one of the following:   | 3-5 |  |
|         | ACC 100, 101, 102  |     |  |
|         | AST 101, 102   |     |  |
|         | BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205   |     |  |
|         | BUS 151  |     |  |
|         | CHM 121, 130, 140, 141, 151, 152   |     |  |
|         | GEO 101, 102   |     |  |
|         | GLG 101, 102   |     |  |
|         | MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219 |     |  |
|         | PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230  |     |  |

|      |                                |   |  |
|------|--------------------------------|---|--|
| ELEC | Other Electives                |   |  |
|      | Complete two of the following: | 6 |  |
|      | ART 100, 115                   |   |  |
|      | MAN 110, 124                   |   |  |

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

|                |                              |
|----------------|------------------------------|
| OED 151 or 251 | FDC 131                      |
| FDC 111        | FDC 142                      |
| FDC 112        | FDC 126                      |
| FDC 122        | Science/Mathematics elective |
| Other elective | Other elective               |

\*For additional prerequisite information, check Course Section.

**Professional Seamstress—Associate of Applied Science Degree For Direct Employment****Required Courses (60-61 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.

|         |                                     |   |          |
|---------|-------------------------------------|---|----------|
| FDC 111 | Clothing Construction (Beginning) I | 3 |          |
| FDC 112 | Alteration and Designing            | 3 |          |
| FDC 121 | Applied Dress Design                | 3 |          |
| FDC 126 | Textiles                            | 3 |          |
| FDC 131 | Clothing Selection                  | 3 |          |
| FDC 142 | Alteration and Repair               | 3 |          |
| FDC 211 | Clothing Construction (Advanced) II | 3 | FDC 111* |

**General Education and Support Courses:**

|            |                                       |     |          |
|------------|---------------------------------------|-----|----------|
| ART 130    | Art and Culture I                     |     |          |
| or 131     | Art and Culture II                    | 3   |          |
| FDC 122    | History of Fashion                    | 3   |          |
| FDC 132    | Psychology of Dress                   | 3   |          |
| FDC 212    | Clothing Construction (Tailoring) III | 3   | FDC 211* |
| HEC 137    | Today's World                         | 3   |          |
| ECE 107    | Human Development and Relations       |     |          |
| or PSY 100 | Psychology I                          | 3   |          |
| OED 151    | Business English                      |     | WRT 100* |
| or 251     | Business Communications               | 3   | OED 151  |
| COMM/ELEC  | Communication Elective                |     |          |
|            | Complete one of the following:        | 3-4 |          |
|            | OED 151, 251                          |     |          |
|            | SPE 120                               |     |          |
|            | WRT 100, 101, 102, 150, 154           |     |          |

|         |  |   |
|---------|--|---|
| SCI/MTH | Science and Mathematics Electives<br>Complete 6 credit hours from the following:             | 6 |
|         | ACC 100, 101, 102  |   |
|         | AST 101, 102, 111, 112   |   |
|         | BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205   |   |
|         | BUS 151  |   |
|         | CHM 121, 130, 140, 141, 151, 152   |   |
|         | GEO 101, 102   |   |
|         | GLG 101, 102   |   |
|         | MTH 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219 |   |
|         | PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230                                    |   |
| ELEC    | Other Electives<br>Complete three of the following:  | 9 |
|         | ART 100, 115   |   |
|         | MAN 110, 124   |   |

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

|                     |                      |                     |
|---------------------|----------------------|---------------------|
| Reading requirement | FDC 126              | Communication       |
| OED 151 or 251      | Science and          | elective            |
| FDC 111             | Mathematics elective | FDC 212             |
| FDC 112             | Other elective       | FDC 132             |
| FDC 122             | FDC 211              | HEC 137             |
| Other elective      | FDC 121              | Science/Mathematics |
| FDC 131             | ART 130 or 131       | elective            |
| FDC 142             | ECE 107 or PSY 100   | Other elective      |

\*For additional prerequisite information, check Course Section.

### Fashion Design—Associate of Applied Science Degree For Direct Employment

#### 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 success- |              |               |

ful 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.

|         |                                     |   |          |
|---------|-------------------------------------|---|----------|
| FDC 111 | Clothing Construction (Beginning) I | 3 |          |
| FDC 121 | Applied Dress Design                | 3 |          |
| FDC 122 | History of Fashion                  | 3 |          |
| FDC 126 | Textiles                            | 3 |          |
| FDC 132 | Psychology of Dress                 | 3 |          |
| FDC 141 | Fashion Design I                    | 3 |          |
| FDC 211 | Clothing Construction (Advanced) II | 3 | FDC 111* |
| FDC 241 | Fashion Design II                   | 3 | FDC 111* |

#### General Education and Support Courses:

|            |  |     |          |
|------------|--|-----|----------|
| ART 100    | Basic Design   |     |          |
| or 115     | Color and Design   |     | ART 100  |
| or 131     | Art and Culture II   | 3   |          |
| FDC 112    | Alteration and Designing   | 3   |          |
| FDC 131    | Clothing Selection   | 3   |          |
| MAN 110    | Human Relations in Business and Industry   |     |          |
| or MKT 125 | Advertising  | 3   |          |
| MTH        | Determined by assessment test at the 100 level or higher   | 3   |          |
| WRT 101    | Writing I  | 3   | WRT 100* |
| WRT 150    | Practical Communications   |     |          |
| or COMM    |  |     |          |
| ELEC       | Communication Elective   | 3-4 |          |
| CLOTH/TEX  | Clothing and Textile Elective  | 3   |          |
|            | Complete one course with an FDC prefix (other than one of those listed elsewhere in this program). |     |          |
| COMM/ELEC  | Communication Elective   |     |          |
|            | Complete one of the following:   | 3-4 |          |
|            | OED 151, 251   |     |          |
|            | SPE 120  |     |          |
|            | WRT 100, 101, 102, 150, 154  |     |          |

|         |  |     |
|---------|--|-----|
| SCI/MTH | Science and Mathematics<br>Elective  |     |
|         | Complete one of the following:   | 3-5 |
|         | ACC 100, 101, 102  |     |
|         | AST 101, 102   |     |
|         | BIO 101, 102, 160, 184, 190, 195,<br>201, 202, 204, 205  |     |
|         | BUS 151  |     |
|         | CHM 121, 130, 140, 141, 151, 152   |     |
|         | GEO 101, 102   |     |
|         | GLG 101, 102   |     |
|         | MTH 110, 115, 120, 125, 130, 135,<br>140, 145, 150, 155, 160, 170, 175,<br>180, 185, 210, 215, 219 |     |
|         | PHY 101, 102, 105, 121, 122, 131,<br>132, 210, 216, 221, 230                                       |     |
| ELEC    | Other Electives  |     |
|         | Complete two of the following:   | 6-8 |
|         | ADA 106, ART 110, CHM 130  |     |
|         | DRA 111, ECE 107, FDC 212,   |     |
|         | FDC 142, PSY 100A  |     |

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

|                     |                          |                                 |
|---------------------|--------------------------|---------------------------------|
| Reading requirement | ART 100 or 115<br>or 131 | Science/Mathematics<br>elective |
| MTH 060             | FDC 122                  | FDC 121                         |
| WRT 101             | FDC 141                  | FDC 241                         |
| FDC 111             | WRT 150 or               | MAN 110 or MKT 125              |
| FDC 126             | Communication            | Clothing and Textile            |
| FDC 131             | elective                 | elective                        |
| Other elective      | FDC 132                  | Other elective                  |
| FDC 211             | FDC 112                  |                                 |

\*For additional prerequisite information, check Course Section.

## **General Studies**

A general studies program degree is for students who wish to pursue a uniquely designed associate degree for purposes other than transfer to a four-year institution or direct employment. 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 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.

## **Geology**

### **Geology—Associate of Science Degree For Transfer**

Verification of transfer courses should be established with the transfer university or college, or with a Pima Community College counselor or faculty advisor.

A foreign language may be required in lieu of, or in addition to, courses listed. For course electives in humanities and social sciences, consult the catalog of the college or university you plan to enter.

**Required Courses (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.

|         |                         |   |          |
|---------|-------------------------|---|----------|
| CHM 152 | General Chemistry II    | 5 | CHM 151  |
| ENG 120 | Engineering Graphics    | 3 | DFT 150  |
| ENG 130 | Elementary Surveying    | 3 | MTH 150* |
| GLG 101 | Introductory Geology I  | 4 |          |
| PHY 122 | Introductory Physics II | 5 | PHY 121  |

**Support Courses:**

|         |                         |   |          |
|---------|-------------------------|---|----------|
| CSC 140 | FORTTRAN Programming    | 3 | CSC 100* |
| CHM 151 | General Chemistry I     | 5 | MTH 130* |
| GLG 102 | Introductory Geology II | 4 |          |
| MTH 150 | College Algebra         | 3 | MTH 130* |
| MTH 155 | Trigonometry            | 3 | MTH 150* |
| PHY 121 | Introductory Physics I  | 5 | *        |

|          |   |   |  |
|----------|---|---|--|
| ELEC     | Other Electives<br>Select 4 credit hours from<br>GLG prefix courses.  | 4 |  |
| FSS ELEC | Fitness and Sport Sciences<br>Electives<br>Complete any two transferable<br>courses in fitness and sport<br>sciences. | 2 |  |

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

|  |      |
|--|------|
| English Composition  | 6    |
| Humanities and Fine Arts   | 6    |
| Biological and Physical Sciences:<br>(Core courses satisfy this requirement.)  | 8-10 |
| Mathematics (MTH 150 or above):<br>(Support courses satisfy this requirement.) | 6    |
| Social and Behavioral Sciences   | 6    |
| Other Requirement options<br>(Support courses satisfy this requirement.)       | 8-10 |

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

|                       |                     |                     |
|-----------------------|---------------------|---------------------|
| Reading requirement   | MTH 155             | Fitness and Sport   |
| WRT 101               | CHM 151             | Sciences elective   |
| GLG 101               | Social & Behavioral | ENG 130             |
| MTH 150               | Sciences elective   | PHY 122             |
| Social and Behavioral | ENG 120             | CSC 140             |
| Sciences elective     | CHM 152             | Humanities and Fine |
| Fitness and Sport     | PHY 121             | Arts elective       |
| Sciences elective     | Humanities and Fine | Other electives     |
| WRT 102               | Arts elective       |                     |
| GLG 102               |                     |                     |

\*For additional prerequisite information, check Course Section.

## Graphic Technology

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

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 and Finishing Process                 | 3            |               |
| GRA 104  | Offset Photography: Stripping and Platemaking | 3            | GRA 101*      |
| GRA 202  | Offset Presswork                              | 3            | GRA 102       |

**General Education and Support Courses**

|     |  |   |  |
|-----|--|---|--|
| MTH | Determined by assessment test at the 100 level or higher | 3 |  |
|-----|--|---|--|

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

|             |         |
|-------------|---------|
| Math course | GRA 104 |
| GRA 101     | GRA 103 |
| GRA 102     | GRA 202 |

\*For additional prerequisite information, check Course Section.

**Graphic Technology (Offset Printing)—Advanced Certificate For Direct Employment****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. |   |              |               |
| GRA 101  | Graphic Technology I                          | 3            |               |
| GRA 102  | Graphic Technology II                         | 3            | GRA 101       |
| GRA 103  | Binding and Finishing Process                 | 3            |               |
| GRA 104  | Offset Photography: Stripping and Platemaking | 3            | GRA 101*      |
| GRA 105  | Phototypesetting                              | 3            | GRA 101*      |
| GRA 202  | Offset Presswork                              | 3            | GRA 102       |
| GRA 222  | Advanced Offset Presswork                     | 3            | GRA 202       |

**General Education and Support Courses**

|                |  |   |                      |
|----------------|--|---|----------------------|
| ADA 215        | Desktop Publishing I for Advertising Art                 | 3 |                      |
| MTH            | Determined by assessment test at the 100 level or higher | 3 |                      |
| WRT 100 or 101 | Writing Fundamentals Writing I                           | 3 | WRT 070*<br>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     | ADA 215        |

\*For additional prerequisite information, check Course Section.

**Graphic Technology—Associate of Applied Science Degree For Direct Employment**

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 (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.

|         |   |   |          |
|---------|---|---|----------|
| 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 | Phototypesetting                              | 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 104* |
| GRA 222 | Advanced Offset Presswork                     | 3 | GRA 202  |
| GRA 225 | Offset Production                             | 3 | GRA 103* |
| GRA 232 | Offset Operations and Maintenance             | 3 | GRA 202* |

#### General Education and Support Courses

|                       |   |     |          |
|-----------------------|---|-----|----------|
| ADA 111               | Production Techniques and Processes I   | 3   | MTH 060* |
| ADA 211               | Production Techniques and Processes II  | 3   | ADA 111* |
| ADA 215               | Desktop Publishing I in Advertising Art   | 3   |          |
| 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* |
| MAN 110               | Human Relations in Business and Industry  | 3   |          |
| MTH                   | Determined by assessment test at the 100 level or higher  | 3   |          |
| MTH                   | Second in sequence at the 100 level or higher   | 3   |          |
| WRT 100 or 101        | Writing Fundamentals  | 3   | WRT 070* |
| WRT 101 or 102 or 154 | Writing I   | 3   | WRT 100* |
|                       | Writing II  |     | WRT 101  |
|                       | Technical Communications I  | 3   | WRT 100* |
| HUM/ART               | Humanities and Fine Arts Elective<br>(See Graduation section of this catalog for associate of applied science degree course lists.) | 3-4 |          |

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

|                                   |                       |         |
|-----------------------------------|-----------------------|---------|
| Reading requirement               | Math course           | ADA 215 |
| Math course                       | WRT 101 or 102 or 154 | GRA 199 |
| WRT 100 or 101                    | GRA 102               | GRA 222 |
| GRA 101                           | ADA 211               | GRA 221 |
| ADA 111                           | 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.

### Pre-Press Artist Option—Associate of Applied Science Degree For Direct Employment

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.

#### 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.

|         |  |   |          |
|---------|--|---|----------|
| ADA 100 | Applied Computer Graphics                | 3 |          |
| ADA 101 | Advertising Art I                        | 3 |          |
| ADA 102 | Advertising Design I                     | 3 |          |
| ADA 103 | Advertising Drawing I                    | 4 |          |
| ADA 106 | Advertising Drawing II                   | 4 | ADA 103  |
| ADA 111 | Production Techniques and Processes I    | 3 | MTH 060* |
| ADA 120 | Advertising Design II                    | 3 | ADA 102* |
| ADA 211 | Production Techniques and Processes II   | 3 | ADA 111* |
| ADA 215 | Desktop Publishing I for Advertising Art | 3 |          |
| 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 104* |

#### General Education and Support Courses

|         |  |   |
|---------|--|---|
| MAN 110 | Human Relations in Business and Industry             | 3 |
| MTH     | Determined by assessment test at 110 level or higher | 6 |
| SPE 120 | Business and Professional Communication              | 3 |
| WRT 150 | Practical Communications                             | 3 |

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

|                     |             |         |
|---------------------|-------------|---------|
| Reading requirement | Math course | GRA 104 |
| Math course         | SPE 120     | GRA 202 |
| WRT 150             | GRA 102     | GRA 221 |
| GRA 101             | ADA 111     | MAN 110 |
| ADA 100             | ADA 120     |         |
| ADA 101             | ADA 211     |         |
| ADA 102             | GRA 201     |         |
| ADA 103             | ADA 215     |         |
| ADA 106             |             |         |

\*For additional prerequisite information, check Course Section.

## Home Child Care

The home child care area offers an advanced certificate for direct employment. Employment opportunities are available nationwide as "Nannies" and "Mannies". Practical preparation is provided to qualify students as in-home child care workers with knowledge of child development, activities for young children, health and safety, nutrition and family life.

## Home Child Care—Advanced Certificate for Direct Employment

Verification of transfer courses should be established with the transfer university or college, or with a Pima Community College counselor or faculty advisor.

#### Required Courses (34-36 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.

|            |  |     |          |
|------------|--|-----|----------|
| ECE 108    | Literature/Social Studies for Children | 3   |          |
| ECE 117    | Child Growth and Development           | 3   |          |
| EDU 115    | Creative Activities                    | 3   |          |
| FSN 124    | Nutrition for the Young Child          | 3   |          |
| HCC 100    | Infant and Toddler Care                | 3   |          |
| HCC 101    | Nanny I                                | 2   |          |
| HCC 102    | Nanny II                               | 2   | HCC 101* |
| HCC 103    | Health and Safety for Young Children   | 3   |          |
| HCC 104    | Family Membership and Structure        |     |          |
| or PSY 140 | Introduction to Behavior Modification  |     | PSY 100* |
| or ECE 114 | Effective Parenthood                   | 2-3 |          |
| HCC 105    | Music and Art Appreciation             |     |          |
| or ECE 112 | Music/Art for Children                 | 2-3 |          |
| HCC 199    | Co-op Work in HCC                      | 1   | *        |
| HCC 199    | Co-op Related Class in HCC             | 1   |          |

#### General Education

|         |   |   |          |
|---------|---|---|----------|
| MTH     | Determined by assessment test at the 100 level or above | 3 |          |
| WRT 100 | Writing Fundamentals                                    |   | WRT 070* |
| or 101  | Writing I   | 3 | WRT 100* |

#### Suggested Course Sequence

See a program advisor.

\*For additional prerequisite information, check Course Section.

# Hospitality Education

This program area prepares students for service in the broad-based hospitality 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 work force and/or to update those already employed in the industry. Program options include six major specialties: hotel/motel management; restaurant, culinary and foodservice management; travel/tourism operations; executive housekeeping; hospitality sales and marketing; and meetings and convention management. Certificates are offered in hotel food and beverage management, hotel/motel operations, restaurant management, culinary and food management, travel industry, hospitality marketing application, housekeeping-executive 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.

## 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

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 the Hospitality Industry | 3            |               |
| HOS 101  | Front Office Procedures                  | 3            |               |
| HOS 102  | Hospitality Financial Accounting         | 3            | MTH 060*      |
| HOS 150  | Executive Housekeeping I                 | 3            |               |

### General Education and 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

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 the Hospitality Industry        | 3            |               |
| HOS 102  | Hospitality Financial Accounting                | 3            | MTH 060*      |
| HOS 104  | Hotel Food and Beverage Management              | 3            |               |
| HOS 112  | Hospitality-Alcohol Intervention Procedures     | 1            |               |
| RCF 102  | Foodservice Specialties I/ Culinary Preparation | 3            |               |

**General Education and 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.

## Hotel/Motel Management—Associate of Applied Science Degree For Direct Employment

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 (60-61 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.

|         |   |   |          |
|---------|---|---|----------|
| HOS 100 | Introduction to the Hospitality Industry        | 3 |          |
| HOS 101 | Front Office Procedures                         | 3 |          |
| HOS 102 | Hospitality Financial Accounting                | 3 | MTH 060* |
| HOS 104 | Hotel Food and Beverage Management              | 3 |          |
| HOS 111 | Hospitality Management Law                      | 3 | HOS 100  |
| HOS 112 | Hospitality - Alcohol Intervention Procedures   | 1 |          |
| HOS 202 | Hospitality Managerial Accounting               | 3 | HOS 102  |
| HOS 206 | Hospitality Human Resource Management           | 3 | HOS 100  |
| HOS 211 | Hospitality Sales and Marketing Application I   | 3 |          |
| HOS 150 | Executive Housekeeping I                        | 3 |          |
| RCF 102 | Foodservice Specialties I/ Culinary Preparation | 3 |          |

**General Education and Support Courses**

|                       |   |     |                   |
|-----------------------|---|-----|-------------------|
| BUS 151               | Mathematics of Business   | 3   | MTH 060*          |
| CSC 105               | Survey of Microcomputer Uses  | 3   |                   |
| HOS 199               | Co-op Related Class in HOS  | 1   | *                 |
| HOS 199               | Co-op Work in HOS (2 semesters)   | 3   | *                 |
| HOS 299               | Co-op Related Class in HOS  | 1   | HOS 199*          |
| HOS 299               | Co-op Work in HOS   | 3   | HOS 199*          |
| MAN 110               | Human Relations in Business and Industry  | 3   |                   |
| MAN 278               | Labor/Management Relations  | 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* |
| HUM/ART               | Humanities and Fine Arts Elective (See graduation section of this catalog for AAS degree requirements.) | 3-4 |                   |

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

|                       |         |                     |
|-----------------------|---------|---------------------|
| Reading requirement   | HOS 104 | Humanities and Fine |
| BUS 151               | MAN 110 | Arts elective       |
| WRT 100 or 101 or 150 | HOS 111 | HOS 299             |
| HOS 100               | HOS 202 | MAN 278             |
| HOS 101               | HOS 211 | HOS 299             |
| HOS 199               | HOS 206 | SPE 120             |
| HOS 102               | RCF 102 |                     |
| HOS 150               | HOS 112 |                     |
| CSC 105               |         |                     |

\*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**

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 |
|---------------|--------------|--------------|---------------|
|---------------|--------------|--------------|---------------|

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

|         |                           |   |
|---------|---------------------------|---|
| HOS 150 | Executive Housekeeping I  | 3 |
| HOS 151 | Executive Housekeeping II | 3 |

**General Education and 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

**Housekeeping, Executive—Advanced Certificate For Direct Employment**

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           |               |
| <b>General Education and Support Courses:</b> |  |              |               |
| HOS 299                                       | Co-op Related Class in HOS               | 1            | HOS 199       |
| HOS 299                                       | Co-op Work in HOS                        | 3            | HOS 199       |
| MAN 122                                       | Supervision                              | 3            |               |
| ECO 100                                       | Introduction to Microeconomics           | 3            | MTH 070*      |
| MAN 110                                       | Human Relations in Business and Industry | 3            |               |
| MTH   | 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  
MAN 122  
HOS 299  
Elective  
Math course  
ECO 100

\*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

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 (18 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            |               |
| <b>General Education and Support Courses</b>                             |   |              |               |
| BUS 151  | Mathematics of Business                       | 3            |               |
| FSN 114  | Nutrition                                     | 3            |               |
| HOS 199  | Co-op Related Class in HOS                    | 1            | *             |
| HOS 199  | Co-op Work in HOS                             | 1            | *             |
| 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 |
|         | FSN 114 |

\*For additional prerequisite information, check Course Section.

## Culinary Management—Basic Certificate For Direct Employment

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 (17 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            |               |

#### General Education and Support Courses

|         |                            |   |   |
|---------|----------------------------|---|---|
| FSN 114 | Nutrition                  | 3 |   |
| HOS 199 | Co-op Related Class in HOS | 1 | * |
| HOS 199 | Co-op Work in HOS          | 1 | * |
| MAN 122 | Supervision                | 3 |   |

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

|         |         |
|---------|---------|
| RCF 101 | HOS 199 |
| RCF 102 | MAN 122 |
| RCF 103 | FSN 114 |

\*For additional prerequisite information, check Course Section.

## Restaurant, Culinary and Foodservice Management—Associate of Applied Science Degree For Direct Employment

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 (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.**

|         |   |   |          |
|---------|---|---|----------|
| HOS 102 | Hospitality Financial Accounting                | 3 | MTH 060* |
| 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 103* |
| RCF 107 | Restaurant Sanitation                           | 3 |          |
| RCF 109 | Food and Beverage Control                       | 3 | BUS 151* |

**General Education and Support Courses**

|                       |   |   |                      |
|-----------------------|---|---|----------------------|
| BIO 102               | General Biology: Additional Topics                            | 4 |                      |
| BUS 151               | Mathematics of Business                                       | 3 |                      |
| CSC 105               | Survey of Microcomputer Uses                                  | 3 |                      |
| FSN 114               | Nutrition   | 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 199*             |
| HOS 299               | Co-op Work in HOS   | 3 | HOS 199*             |
| MAN 110               | Human Relations in Business and Industry                      | 3 |                      |
| MAN 122               | Supervision   | 3 |                      |
| SPE 120               | Business and Professional Communication                       | 3 |                      |
| WRT 100 or 101 or 150 | Writing Fundamentals<br>Writing I<br>Practical Communications | 3 | WRT 070*<br>WRT 100* |

|         |                                   |     |
|---------|-----------------------------------|-----|
| HUM/ART | Humanities and Fine Arts Elective |     |
|         | Complete one of the following:    | 3-4 |
|         | ART 130, 131, 132, 135            |     |
|         | DRA 140, 141                      |     |
|         | HUM 251, 252, 253                 |     |
|         | Foreign Language                  |     |
|         | LIT 260, 265                      |     |
|         | MUS 151, 201, 202                 |     |
|         | PHI 101, 120                      |     |

|      |                                |   |
|------|--------------------------------|---|
| ELEC | Other Elective                 |   |
|      | Complete one of the following: | 3 |
|      | MAN 278                        |   |
|      | RCF 105, 110, 201              |   |

**Suggested Course Sequence (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 elective |
| RCF 107               | FSN 114 | BIO 102                           |
| RCF 109               | HOS 112 | Other elective                    |
| RCF 101               | MAN 110 |                                   |
| RCF 102               | MAN 122 |                                   |

\*For additional prerequisite information, check Course Section.

**Travel Industry Operations Options:**

These program options are designed to prepare students to work as travel agents or agency manager trainees. Students are trained in travel agency methods of ticketing and booking procedures, computer applications and geography. Good communications, clerical skills and ability to relate well with people are essential components of the program.

## Airline Reservation Systems—Basic Certificate For Direct Employment

### 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. |                                |              |               |
| TVL 103  | Geography for Travel Agents    | 3            |               |
| TVL 105  | Airline Reservation System I   | 4            |               |
| TVL 110  | Airline Reservation System II  | 4            | TVL 105       |
| TVL 115  | Airline Reservation System III | 4            | TVL 110       |
| TVL 120  | Airline Reservation System IV  | 2            | TVL 115       |

### Suggested Course Sequence (Read down.)

TVL 103  
TVL 105  
TVL 110  
TVL 115  
TVL 120

## Travel Industry Management—Advanced Certificate For Direct Employment

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 (35 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  | Principles of the Travel/<br>Tourism Industry | 3            |               |
| TVL 102  | Travel Agent Methods and<br>Procedures        | 3            | TVL 101*      |
| TVL 103  | Geography for Travel Agents                   | 3            |               |
| TVL 201  | Travel Industry Applications                  | 3            | TVL 102       |
| TVL 202  | Travel Industry Computer<br>Applications      | 3            | TVL 201*      |
| TVL 211  | Tour Development, Sales and<br>Management     | 3            | TVL 101*      |

### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| BUS 151 | Mathematics of Business                    | 3 | *        |
| SPE 120 | Business and Professional<br>Communication | 3 |          |
| TVL 199 | Co-op Related Class in TVL                 | 1 | *        |
| TVL 199 | Co-op Work in TVL                          | 3 | *        |
| TVL 299 | Co-op Related Class in TVL                 | 1 | *        |
| TVL 299 | Co-op Work in TVL                          | 3 | *        |
| WRT 100 | Writing Fundamentals                       |   | WRT 070* |
| or 101  | Writing I                                  |   | WRT 100* |
| or 150  | Practical Communications                   | 3 |          |

### Suggested Course Sequence (Read down.)

|         |         |         |
|---------|---------|---------|
| TVL 101 | TVL 201 | WRT 101 |
| TVL 102 | TVL 202 | WRT 150 |
| TVL 103 | TVL 199 | SPE 120 |
| BUS 151 | WRT 100 | TVL 211 |
|         |         | 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

### Required Courses (16 Credit Hours)

| Course Number | Course Title | Credit Hours | Prerequisites |
|---------------|--------------|--------------|---------------|
|---------------|--------------|--------------|---------------|

**Core Courses** - 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* |

### General Education and Support Courses

|                       |   |   |                      |
|-----------------------|---|---|----------------------|
| 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<br>Writing I<br>Practical Communications |   | WRT 070*<br>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

### Required Courses (32 Credit Hours)

| Course Number | Course Title | Credit Hours | Prerequisites |
|---------------|--------------|--------------|---------------|
|---------------|--------------|--------------|---------------|

Basic Certificate requirements 16

**Core Courses** - 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 | MTH 060* |
| HOS 199 | Co-op Related Class in HOS | 1 |          |
| HOS 199 | Co-op Work in HOS          | 3 |          |

### Suggested Course Sequence (Read down.)

|         |
|---------|
| HOS 212 |
| BUS 151 |
| HOS 120 |
| HOS 199 |
| TVL 211 |

\*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

### Required Courses (16 Credit Hours)

| Course Number | Course Title | Credit Hours | Prerequisites |
|---------------|--------------|--------------|---------------|
|---------------|--------------|--------------|---------------|

**Core Courses** - 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 |

### General Education and Support Courses

|                       |   |   |                      |
|-----------------------|---|---|----------------------|
| HOS 199               | Co-op Related Class in HOS                                    | 1 |                      |
| HOS 199               | Co-op Work in HOS   | 3 |                      |
| WRT 100 or 101 or 150 | Writing Fundamentals<br>Writing I<br>Practical Communications |   | WRT 070*<br>WRT 100* |
| SPE 120               | Business and Professional Communication                       | 3 |                      |

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

HOS 120  
 HOS 130  
 HOS 199  
 SPE 120  
 WRT 100 or 101 or 150

\*For additional prerequisite information, check Course Section.

**Meetings and Convention Management—Advanced Certificate For Direct Employment****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 |  |

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

Basic Certificate requirements  
 HOS 131  
 RCF 201  
 BUS 151  
 TVL 211  
 HOS 199

\*For additional prerequisite information, check Course Section.

**Hospitality—Associate of Science Degree For Transfer**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or 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. |              |               |

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

|         |  |   |          |
|---------|--|---|----------|
| HOS 100 | Introduction to the Hospitality Industry | 3 |          |
| HOS 101 | Front Office Procedures                  | 3 |          |
| HOS 102 | Hospitality Financial Accounting         | 3 | MTH 060* |
| HOS 111 | Hospitality Management Law               | 3 | HOS 100  |
| HOS 202 | Hospitality Managerial Accounting        | 3 | HOS 102  |
| HOS 150 | Executive Housekeeping I                 | 3 |          |
| RCF 102 | Foodservice Specialties I                | 3 |          |
| RCF 103 | Foodservice Specialties II               | 3 |          |

**Support Courses**

|         |   |      |          |
|---------|---|------|----------|
| BUS 205 | Statistical Methods in Economics and Business   | 3    | MTH 170* |
| ECO 100 | Introduction to Microeconomics  | 3    | MTH 070  |
| ECO 101 | Introduction to Macroeconomics  | 3    | MTH 070  |
| 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 lists)

|  |      |
|--|------|
| 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 MTH 150 and 170)                               |      |
| 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.

## **Institutional Foodservice**

The Institutional Foodservice (IFS) certificate program is designed to provide the necessary knowledge and skills to be successful at jobs in this field. Career opportunities for IFS are found at a variety of settings: hospitals, long-term care facilities, rehabilitation centers, public schools, colleges, and business and industry facilities.

Basic and advanced certificates are available to develop skills for new entrants into the foodservice industry and to further the skills of those individuals currently employed in the field. Specific topics in the curriculum include the basic principles of nutrition, safety and sanitary conditions. Also included are the principles of menu preparation, techniques of quantity food production, special techniques as they relate

to nutrition and food-related areas, and an analysis of purchasing and production methods in the expanded areas of the foodservice industry. Additionally, several general education courses emphasizing communication, human relations, and basic skills round out the program.

Students completing the certificate program have opportunities to further their educational career at other institutions. Central Arizona College recognizes some of the IFS courses towards the Associate in Applied Science-Dietetic Technician and Dietary Managers Certificate Program. Students planning to continue their education at another institution need to contact that institution directly for current information.

## **Institutional Foodservice—Basic Certificate For Direct Employment**

### **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. |  |              |               |
| IFS 110  | Basic Nutrition for Food Service Personnel         | 3            |               |
| IFS 180  | Menu Planning and Food Purchasing for Institutions | 3            | IFS 110*      |
| <b>General Education and Support Courses:</b>                            |  |              |               |
| BUS 151  | Mathematics of Business                            | 3            |               |
| CSC 105  | Survey of Microcomputer Uses                       | 3            |               |
| WRT 101  | Writing I  |              |               |
| or 150   | Practical Communications                           | 3            |               |

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

IFS 110  
WRT 101 or 150  
BUS 151  
CSC 105  
IFS 180

\*For additional prerequisite information, check Course Section.



## Institutional Foodservice—Advanced Certificate For Direct Employment

### Required Courses (31 Credit Hours)

| Course Number  | Course Title                  | Credit Hours | Prerequisites |
|--|-------------------------------|--------------|---------------|
| Basic Certificate requirement  |                               | 15           |               |
| <b>Core Courses</b> - A grade of C or better is required for graduation. |                               |              |               |
| IFS 125  | Special Nutritional Needs     | 3            | IFS 110       |
| IFS 216  | Quantity Food Production      | 4            |               |
| IFS 221  | Foodservice System Management | 3            | IFS 180       |
| MAN 122  | Supervision                   | 3            |               |

### General Education and Support Courses:

|         |   |   |  |
|---------|---|---|--|
| SPE 102 | Introduction to Oral Communication      |   |  |
| or 120  | Business and Professional Communication | 3 |  |

### Suggested Course Sequence (Read down.)

Basic Certificate requirements  
 IFS 125  
 IFS 221  
 IFS 216  
 MAN 122  
 SPE 102 or 120

\*For additional prerequisite information, check Course Section.

## International Business Communication Studies

This program area is designed to meet the needs of business and industry by providing business 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.

Two program options are offered: a basic certificate for direct employment and an associate of applied science degree (AAS). These programs cover 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 AAS degree includes 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 IBC course will show the actual foreign country or region studied.

## International Business Communication Studies—Basic Certificate For Direct Employment

### Required Courses (15-16 Credit Hours)

| Course Number  | Course Title  | Credit Hours | Prerequisites |
|--|---|--------------|---------------|
| <b>Core Courses</b> - A grade of C or better is required for graduation. |   |              |               |
| IBC 100  | Foreign Language I: (Language to be specified)  | 4            |               |
| IBC 110  | Foreign Language II: (Language to be specified)   | 4            | IBC 100       |
| IBC 120  | Cultural Similarities and Differences Between the United States and the Foreign Country | 3            |               |
| IBC 130 or 140   | Living in the Foreign Country Basic Techniques of International Trade                   | 3            |               |
| IBC 150 or 160   | Cultural Shock Management Hosting Foreign Business Personnel                            | 1-2          |               |

### Suggested Course Sequence (Read down.)

IBC 100  
 IBC 110  
 IBC 120  
 IBC 130 or 140  
 IBC 150 or 160

## International Business Communication Studies— Associate of Applied Science Degree

Students in this program, upon completing IBC 100, 110, 120, 130 or 140 and 150, or 160, may apply for the international business communication studies basic certificate.

### 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. |              |               |

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

|                                 |   |   |               |
|---------------------------------|---|---|---------------|
| ACC 101                         | Financial Accounting  | 3 |               |
| BUS 210                         | International Business  | 3 |               |
| IBC 100                         | Foreign Language I:<br>(To be specified or see foreign language electives)              | 4 |               |
| IBC 110                         | Foreign Language II:<br>(To be specified or see foreign language electives)             | 4 | IBC 100       |
| IBC 120                         | Cultural Similarities and Differences Between the United States and the Foreign Country | 3 |               |
| IBC 140                         | Basic Techniques of International Trade   | 3 |               |
| IBC 160                         | Hosting Foreign Business Personnel  | 1 |               |
| MAN 280                         | Business Organization and Management  | 3 | BUS 100*      |
| MKT 111                         | Marketing   | 3 |               |
| SPE 120                         | Business and Professional Communication   | 3 |               |
| WRT 101<br>or 150<br>or OED 151 | Writing I<br>Practical Communications<br>Business English                               | 3 | WRT 100*<br>* |

### General Education and Support Courses

|                                 |  |       |                                 |
|---------------------------------|--|-------|---------------------------------|
| BUS 100                         | Introduction to Business   | 3     |                                 |
| BUS 105                         | Survey of Microcomputer Uses   | 3     |                                 |
| BUS 200                         | Business Law I   | 3     |                                 |
| ACC 102                         | Managerial Accounting  | 3     | ACC 101*                        |
| BUS 151<br>or MTH 130           | Mathematics of Business<br>Algebra II or higher  | 3     | MTH 070*                        |
| MAN 110                         | Human Relations in Business and Industry   | 3     |                                 |
| WRT 102<br>or 154<br>or OED 251 | Writing II<br>Technical Communications I<br>Business Communications  | 3     | WRT 101*<br>WRT 100*<br>OED 151 |
| FOR/LANG                        | Foreign Language Electives<br>Complete one of the following pairs in lieu of IBC 100 and 110:<br>FRE 110 and 111<br>GER 110 and 111<br>ITA 110 and 111<br>SPA 110 and 111          |       |                                 |
| HUM/ART                         | Humanities and Fine Arts Elective<br>Complete one of the following:<br>ART 130, 131, 132, 135<br>DRA 140, 141<br>HUM 110, 111<br>LIT 260, 265<br>MUS 151, 201, 202<br>PHI 101, 120 | 3-4   |                                 |
| ELEC                            | Other Electives<br>Complete four of the following:<br>ANT 102<br>ECO 100, 101, 230<br>IBC 130, 150<br>MAN 122<br>MKT 113, 125, 150, 199<br>POS 120                                 | 11-13 |                                 |

### Suggested Course Sequence (Read down.)

|                     |                      |                     |
|---------------------|----------------------|---------------------|
| Reading requirement | IBC 160              | MAN 280             |
| WRT 101 or 150      | BUS 210              | MKT 111             |
| or OED 151          | ACC 101              | SPE 120             |
| IBC 100 or Foreign  | ACC 102              | WRT 102 or 154      |
| language elective   | BUS 151              | or OED 251          |
| IBC 110 or Foreign  | or MTH 130 or higher | BUS 200             |
| language elective   | BUS 105              | Humanities and Fine |
| IBC 120             | BUS 100              | Arts elective       |
| IBC 140             | MAN 110              | Other electives     |

\*For additional prerequisite information, check Course Section.

## Interpreter Training Program

### Sign Language—Basic Certificate

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 100 | Community and the Exceptional Person            | 3 |         |
| SLG 105 | Expressive/Receptive Fingerspelling and Numbers | 2 | *       |
| SLG 120 | History of Deafness                             | 3 |         |
| SLG 201 | American Sign Language III                      | 4 | SLG 102 |
| SLG 202 | American Sign Language IV                       | 4 | SLG 201 |

### Support Course

|         |                        |   |
|---------|------------------------|---|
| ANT 215 | The Nature of Language | 3 |
|---------|------------------------|---|

### Suggested Course Sequence (Read down.)

|         |                     |
|---------|---------------------|
| SLG 100 | SLG 120             |
| SLG 105 | SLG 202             |
| SLG 201 | Reading requirement |
| ANT 215 |                     |

\*For additional prerequisite information, check Course Section.

## Interpreter Training Program—Associate of Applied Arts Degree For Direct Employment

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 61 credit hours to complete the associate of applied arts degree in interpreting. The program includes a minimum of 54 credit hours of campus lecture, 4 credit hours of laboratory study and 2-3 credit hours of cooperative education 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 102 - American Sign Language II
  - REA 071 - Spelling
- Receive approval by the Interpreter Training Program selection committee.

**General Requirements:**

- Minimum of 61 credit hours.
- Work in residence: 32 hours in major course work.

**Restrictions:**

Students will be allowed to transfer in 8 hours of sign language credit towards completion of the program.

**Required Courses (61-67 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.**

|         |   |     |          |
|---------|---|-----|----------|
| ITP 100 | Community and the Exceptional Person            | 3   |          |
| ITP 105 | Expressive/Receptive Fingerspelling and Numbers | 2   | *        |
| ITP 120 | History of Deafness                             | 3   |          |
| ITP 150 | Principles of Etiology and Audiology            | 3   |          |
| 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                                  | 3   | ITP 201  |
| ITP 250 | Interpreting II                                 | 3   | ITP 220* |
| ITP 270 | Sign to Voice                                   | 4   | ITP 202* |
| ITP 299 | Co-op Related Class in ITP                      | 1-2 | ITP 202* |
| ITP 299 | Co-op Work in ITP                               | 1-3 | ITP 202* |

**General Education and Support Courses**

|          |                                    |   |          |
|----------|------------------------------------|---|----------|
| ANT 215  | The Nature of Language             | 3 |          |
| PSY 100A | Psychology I                       | 3 |          |
| SPE 102  | Introduction to Oral Communication | 3 |          |
| WRT 101  | Writing I                          | 3 | WRT 100* |
| WRT 102  | Writing II                         | 3 | WRT 101  |

HUM/ART Humanities and Fine Arts Electives (See Graduation section of this catalog for associate of applied arts degree course lists.) 6-8

SCI/MTH Science and Mathematics Electives (See Graduation section of this catalog for associate of applied arts degree course lists.) 3-4

ITP ELEC Electives (not required for graduation)

|         |                            |     |          |
|---------|----------------------------|-----|----------|
| SLG 106 | Fingerspelling II          | 2   | ITP 105* |
| SLG 199 | Co-op Related Class in SLG | 1-2 | *        |
| SLG 199 | Co-op Work in SLG          | 1-8 | *        |

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

|                     |                                   |                              |
|---------------------|-----------------------------------|------------------------------|
| Reading requirement | ITP 202                           |                              |
| ITP 105             | Humanities and Fine Arts elective | ITP 270                      |
| SPE 102             | ITP 150                           | ITP 299                      |
| ITP 100             | ITP 203                           | ITP 299                      |
| WRT 101             | ITP 220                           | Science/Mathematics elective |
| ITP 120             | PSY 100A                          | ITP elective                 |
| ITP 201             | ITP 180                           |                              |
| ANT 215             | ITP 250                           |                              |
| WRT 102             |                                   |                              |

\*For additional prerequisite information, check Course Section.

## 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

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 | BIO 100* |
| LTP 100 | Landscape Today and Tomorrow        | 3 |          |
| LTP 120 | Plant Pathology, Pests and Controls | 4 | BIO 184  |
| LTP 130 | Soils: Plant Fertility              | 4 |          |
| LTP 160 | Plant Usage and Identification      | 3 |          |

### General Education and Support Courses:

|         |                           |   |          |
|---------|---------------------------|---|----------|
| CHM 130 | Fundamentals of Chemistry | 5 |          |
| MTH 110 | Technical Mathematics I   | 3 | MTH 060* |
| MTH 120 | Technical Mathematics II  | 3 | MTH 110  |
| WRT 150 | Practical Communications  | 3 |          |

### Suggested Course Sequence (Read down.)

|                     |         |
|---------------------|---------|
| Reading requirement | LTP 100 |
| WRT 150             | LTP 130 |
| MTH 110             | MTH 120 |
| 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

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 (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.

|         |   |   |          |
|---------|---|---|----------|
| BIO 184 | Plant Biology                           | 4 | BIO 100* |
| LTP 100 | Landscape Today and Tomorrow            | 3 |          |
| LTP 120 | Plant Pathology, Pests and Controls     | 4 | BIO 184  |
| LTP 130 | Soils: Plant Fertility                  | 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 |          |

### General Education and Support Courses:

|              |   |     |          |
|--------------|---|-----|----------|
| CHM 130      | Fundamentals of Chemistry                     | 5   |          |
| MTH 110      | Technical Mathematics I                       | 3   | MTH 060* |
| MTH 120      | Technical Mathematics II                      | 3   | MTH 110  |
| GENERAL ELEC | Any course numbered 100 or higher.            | 1-3 |          |
| LTP ELEC     | Any LTP courses not required for this degree. | 6   |          |

|         |   |     |
|---------|---|-----|
| HUM/ART | Humanities and Fine Arts<br>Electives (See Graduation<br>section of this catalog for<br>associate of applied arts<br>degree course lists.)      | 3-4 |
| SOC/BEH | Social and Behavioral Sciences<br>Elective (See Graduation<br>section of this catalog for<br>associate of applied arts<br>degree course lists.) | 3-4 |
| WRT 150 | Practical Communications  | 3   |

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

|                        |                       |                     |
|------------------------|-----------------------|---------------------|
| Reading<br>requirement | MTH 120               | Humanities and Fine |
|                        | LTP 120               | Arts elective       |
| WRT 150                | LTP 160               | LTP 200             |
| MTH 110                | LTP 230               | SPE 120             |
| CHM 130                | LTP 260               | LTP elective        |
| BIO 184                | Social and Behavioral | General elective    |
| LTP 100                | Sciences elective     |                     |
| LTP 130                | LTP 205               |                     |

\*For additional prerequisite information, check Course Section.

## **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. Legal assistants work under the supervision of a lawyer, applying legal knowledge and procedures in assisting lawyers, clients and courts. Their work includes developing and modifying procedures used in the legal field; preparing and interpreting legal documents; researching, selecting, assessing, compiling and using information from the law library and other references; and analyzing and handling procedural problems that involve independent decisions.

The program also assists students with course work in preparation for writing the voluntary Certified Legal Assistant Certification Examination offered by the National Association of Legal Assistants (NALA). A Certified Legal Assistant (CLA) must maintain a certain number of continuing education credits as required by NALA to keep CLA status. The LAS courses listed below (except LAS 101 and 250) currently meet those continuing education requirements.

Legal assistants may be employed by law firms, businesses, financial institutions, title and escrow companies, government agencies or as independent contractors. Additional positions for which they qualify include title examiner, trust officer, contract clerk, legal investigator and law firm administrator. The program has four specialty areas from which the student may choose: criminal, litigation, wills, trusts and estates, or business. This choice allows the student to pursue in-depth study in a particular area of law. 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.

The Legal Assistant Advisory Committee recommends that students who have not had prior work experience or knowledge of the legal field and plan to enter the legal assistant program take Computer keyboarding (OED 011), Beginning Word Perfect (OED 123) and Intermediate Word Perfect (OED 124). These courses do not count toward the 66-71 credit hour associate degree but greatly enhance the student's probability of success in the program.

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.

## Legal Assistant—Associate of Applied Science Degree For Direct Employment

### Required Courses (66-71 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.

|               |  |   |          |
|---------------|--|---|----------|
| LAS 101       | Introduction to Legal Assistant Careers  | 3 |          |
| LAS 102       | Legal Systems and Procedures   | 3 |          |
| LAS 103       | Legal Research   | 3 | WRT 101* |
| LAS 104       | Judgment, Analysis and Ethics  | 3 | LAS 101* |
| LAS 106       | Civil and Criminal Evidence  | 3 | LAS 103* |
| LAS 202       | Discovery and Trial Preparation  | 3 | LAS 102  |
| LAS 211       | Legal Writing  | 3 | WRT 101* |
| LAS SPEC ELEC | LAS Specialty Area Electives<br>Complete one of the following specialty areas:<br>(Specialty courses are not offered every semester. Consult with an LAS faculty advisor to determine class offerings.)<br><br><b>Criminal:</b> AJS 109, LAS 206, 207<br><br><b>Litigation:</b> LAS 201, 203 and complete one LAS course from another specialty area or an LAS elective.<br><br><b>Wills Trusts and Estates:</b> LAS 204, 205, 217<br><br><b>Business:</b> LAS 209, 215, 217 | 9 |          |

### General Education and Support Courses

|          |   |      |          |
|----------|---|------|----------|
| ACC 101  | Financial Accounting  | 3    |          |
| BUS 200  | Business Law I  | 3    |          |
| BUS 201  | Business Law II   | 3    | BUS 200  |
| MAN 110  | Human Relations in Business and Industry  | 3    |          |
| POS 110  | American National Government and Politics   | 3    |          |
| or 112   | National and State Constitutions  | 3    |          |
| SPE 120  | Business and Professional Communication   |      |          |
| or 110   | Public Speaking   | 3    |          |
| or 124   | Argumentation and Debate  | 3    |          |
| WRT 101  | Writing I   | 3    | WRT 100* |
| HUM/ART  | Humanities and Fine Arts Elective<br>(See graduation section of this catalog for AAS degree requirements. PHI 120 recommended.)   | 3-4  |          |
| SCI/MTH  | Science and Mathematics Electives<br>(See graduation section of this catalog for AAS degree requirements.)  | 6-10 |          |
| LAS ELEC | Also complete one additional course from any other specialty area or from the LAS electives. LAS Electives: LAS 208, 210, 212, 213, 250 (The internship is designed to give the students work experience at an approved site. For students in their final semester of course work.) | 3    |          |
| ELEC     | Other Elective<br>Complete any course at the 100 level or above with program advisor's approval.<br>Recommended:<br>CSC 100, 105<br>LAS 197<br>OED 142, 143, 151, 219<br>242, 243, 251<br>RIM 131, 132  | 3    |          |

### Suggested Course Sequence (Read down)

|                     |                        |                     |
|---------------------|------------------------|---------------------|
| Reading requirement | ACC 101**              | LAS 202             |
| WRT 101             | BUS 201                | LAS Specialty       |
| POS 110             | LAS 106                | elective            |
| LAS 101             | Science/Mathematics    | Other elective**    |
| LAS 102             | elective**             | Science/Mathematics |
| BUS 200             | BUS 201                | elective**          |
| SPE 120**           | LAS 106                | LAS 211             |
| LAS 103             | Science/Mathematics    | LAS Specialty       |
| MAN 110**           | elective**             | elective            |
| LAS 104             | LAS Specialty elective | LAS elective **     |
|                     | Humanities and Fine    |                     |
|                     | Arts elective**        |                     |

\*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 is a transfer degree program for students who are **undecided about their major** or who are seeking a **general studies transfer degree** program. **Included among the areas of study are social and behavioral sciences, humanities, languages, literature, writing, mathematics and natural sciences. Students should see a PCC advisor for appropriate selection of courses required by the institution to which they plan to transfer.**

Students who plan to transfer into a math or science major at a university should complete 6 credits of mathematics.

There are two options to this degree: the University of Arizona (UA) option and the Arizona State University/Northern Arizona University (ASU/NAU) option. Students planning to transfer to the University of Arizona should follow the UA option. Students planning to transfer to Arizona State University or Northern Arizona University should follow the ASU/NAU option. See an advisor for requirements unique to each school. 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.

## Liberal Arts or Sciences—Associate of Arts Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

### UNIVERSITY OF ARIZONA (UA) OPTION

#### Required Courses (60-68 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.

Note: All courses in this degree program are considered core courses and must be transferable.

#### Support Courses

|            |  |      |
|------------|--|------|
| CRIT/THINK | <b>Critical Thinking</b><br>Choose one course from the following:<br>PHI 101 Introduction to Philosophy I<br>PHI 120 Introduction to Logic<br>PHI 130 Introductory Studies in Ethics and Social Philosophy   | 3    |
| FOR/LANG   | <b>Foreign Language</b><br>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.)<br><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> | 4-16 |

|              |  |     |
|--------------|--|-----|
| ART          | <b>Art</b><br>Select one course from the following:<br>ART 100, 110, 115, 120, 130, 131<br>MUS 102, 104, 105, 108, 109, 116,<br>117, 120, 121, 125 & 127, 130,<br>131, 151   | 3   |
| SPEECH/LIT   | <b>Speech and Literature</b><br>Select one of the two options:<br>(Students planning to transfer to ASU or NAU should complete the Speech option.)<br>Option 1: Speech<br>Select SPE 136 and one additional speech course:<br>SPE 136 <b>AND</b><br>SPE 102 or SPE 110 or SPE 130<br>Option 2: Literature<br>Select one course from:<br>LIT 231, 260, 261, 262, 265, 266,<br>267, 268 or 286 | 3-6 |
| NON-WEST CIV | <b>Non-Western Civilization</b><br>Select one course from the following list:<br>ANT 121, 141; ARC 141<br>HIS 113, 114, 122, 124, 148, 170<br>HUM 260; REL 125   | 3   |
| OPTIONS      | <b>Core Options</b><br>Please select 3 credits from:   | 3   |
| CSC 105      | Survey of Microcomputer Uses<br><b>OR</b>  |     |
| GEN ED       | Any course from the General Education Course List for AA and AS degrees in the Graduation Section of this catalog.   |     |

**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 two courses from the following list:

|  |     |
|--|-----|
| ART 130, 131; HIS 101 or 102<br>HUM 251, 252, 253; HUM 110, 111  |     |
| Biological and Physical Sciences<br>(See an advisor.)  | 8   |
| Mathematics<br>(Complete MTH 150 or above. Students who plan transfer into a science major should complete 6 credits in mathematics.)  | 3   |
| Social and Behavioral Sciences<br>(Support courses satisfy 3 credits of this requirement. Select two courses from social and behavioral science section under the Graduation section of this catalog. If the student plans to transfer to the University of Arizona, one course must include unique content in matters of gender, class, race, or ethnicity. Currently HIS 105, HIS 127, HIS 150, SOC 201 and SOC 204 fulfill this requirement.) | 9   |
| Other Requirement options<br>(Support courses satisfy this requirement.)   | 5-6 |

#### **Suggested Course Sequence**

See an advisor.

#### **ARIZONA STATE UNIVERSITY/NORTHERN ARIZONA UNIVERSITY (ASU/NAU) OPTION**

##### **Required Courses (60-68 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.  
Note: All courses in this degree program are considered core courses and must be transferable.

## Support Courses

|            |  |      |          |
|------------|--|------|----------|
| FOR/LANG   | <b>Foreign Language</b><br>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.)<br><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> | 4-16 |          |
| CRIT/THINK | <b>Critical Thinking</b><br>Choose one course from the following:  | 3    |          |
| PHI 101    | Introduction to Philosophy I   |      |          |
| PHI 120    | Introduction to Logic  |      |          |
| PHI 130    | Introductory Studies in Ethics and Social Philosophy   |      |          |
| WRT        | <b>Sophomore Composition</b>   |      |          |
| WRT 207    | Sophomore Composition  | 3    | WRT 101* |
| ART        | <b>Art</b><br>Select one course from the following:<br>ART 100, 110, 115, 120, 130, 131<br>MUS 102, 104, 105, 108, 109, 116, 117, 120, 121, 125 & 127, 130, 131, 151   | 3    |          |
| SPEECH     | <b>Speech</b><br>Select SPE 136 and one additional speech course:<br>SPE 136 <b>AND</b><br>SPE 102 or SPE 110 or SPE 130   | 6    |          |
| OPTIONS    | <b>Core Options</b><br>Please select 3 credits from:   | 3    |          |
| CSC 105    | Survey of Microcomputer Uses<br><b>OR</b>  |      |          |

GEN ED Any course from the General Education Course List for AA and AS degrees in the Graduation Section of this catalog.

**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 two courses from the following list:<br>ART 130, 131; HUM 110, 111, 251, 252, 253   |     |
| Biological and Physical Sciences<br>(See an advisor.)  | 8   |
| Mathematics<br>(Complete MTH 150 or above. Students who plan transfer into a science major should complete 6 credits in mathematics.)  | 3   |
| Social and Behavioral Sciences<br>Support courses satisfy 3 credits of this requirement. You must select the remaining two courses from two lists.<br>1) Select one course from:<br>HIS 105, HIS 127, HIS 150; SOC 201 or SOC 204<br>2) Select one course from:<br>ANT 102; HIS 113, 114; POS 120, 140 | 9   |
| Other Requirement options<br>(Support courses satisfy this requirement.)   | 5-6 |

## Suggested Course Sequence

See an advisor.

\*For additional prerequisite information, check Course Section.

# 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. There are also ceramic manufacturing technology certificate and degree options for people working in the ceramic manufacturing field. 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

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            | MTH 060*      |
| 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  | Basic Metallurgy                | 3            |               |

### General Education and Support Courses

|         |                      |   |  |
|---------|----------------------|---|--|
| DFT 150 | Technical Drafting I | 4 |  |
|---------|----------------------|---|--|

### Suggested Course Sequence (Read down.)

MAC 103  
DFT 150  
MAC 110  
MAC 104  
MAC 120  
MAC 130

\*For additional prerequisite information, check Course Section.

## Machinist's Standard Certificate—Technical Certificate For Direct Employment

### 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            | MTH 060*      |
| 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  | Basic Metallurgy                | 3            |               |

### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| DFT 150 | Technical Drafting I                     | 4 |          |
| MAN 110 | Human Relations in Business and Industry | 3 |          |
| PHY 101 | Technical Physics I                      | 3 |          |
| WRT 100 | Writing Fundamentals                     |   | WRT 070* |
| or 101  | Writing I                                | 3 | WRT 100* |

|      |   |   |
|------|---|---|
| ELEC | Other Elective:   | 4 |
|      | Complete 4 credit hours from the following list with the approval of the program advisor. |   |
|      | MAC 210, 225, 250, 255, 270, 280  |   |
|      | CSC 100, 105  |   |
|      | DFT 150, 180  |   |
|      | WLD 110, 150, 160, 262  |   |
|      | SML 101   |   |

#### 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

### Required Courses (62-63 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.

|         |                                   |   |          |
|---------|-----------------------------------|---|----------|
| MAC 103 | Machine Shop Mathematics I        | 3 | MTH 060* |
| 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 | Basic Metallurgy                  | 3 |          |
| MAC 210 | Jig and Fixture Designing I       | 4 | MAC 120* |
| MAC 250 | Introduction to Numerical Control | 4 | MAC 104* |
| MAC 280 | Machine Shop for Technicians III  | 4 |          |
| MAC 285 | Physical Metallurgy               | 3 | MAC 130  |

### General Education and Support Courses

|         |  |     |          |
|---------|--|-----|----------|
| DFT 150 | Technical Drafting I   | 4   |          |
| MAN 110 | Human Relations in Business and Industry   | 3   |          |
| PHY 101 | Technical Physics I  | 3   |          |
| PHY 102 | Technical Physics II   | 3   | PHY 101* |
| 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* |
| ELEC    | Other Electives:   | 8   |          |
|         | Complete 8 credit hours from the following list with the approval of the program advisor.      |     |          |
|         | MAC 225, 255, 257, 258, 260, 265, 270, 280   |     |          |
|         | CSC 100, 105   |     |          |
|         | DFT 151, 180   |     |          |
|         | WLD 110, 150, 160, 262   |     |          |
|         | SML 101  |     |          |
| HUM/ART | Humanities and Fine Arts Elective  | 3-4 |          |
|         | (See Graduation section of this catalog for associate of applied science degree course lists.) |     |          |

### 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        | DFT 101                           |
| 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

### 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            | MTH 060*      |
| 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  | Basic 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       |

### General Education and Support Courses

|           |   |   |  |
|-----------|---|---|--|
| DFT 150   | Technical Drafting I  | 4 |  |
| COMM/ELEC | Communications Elective<br>(See Graduation section of<br>this catalog for technical<br>certificate course lists.) | 3 |  |

### Suggested Course Sequence (Read down.)

|         |                         |
|---------|-------------------------|
| MAC 103 | DFT 150                 |
| MAC 104 | MAC 210                 |
| MAC 110 | MAC 250                 |
| MAC 120 | MAC 265                 |
| 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

### Required Courses (65 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            | MTH 060*      |
| 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 | Basic 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 IV:<br>Lathe | 4 | MAC 255  |
| MAC 280 | Machine Shop for Technicians III        | 4 | MAC 120  |

### General Education and Support Courses

|           |  |   |          |
|-----------|--|---|----------|
| DFT 150   | Technical Drafting I   | 4 |          |
| DFT 180   | Computer Aided Drafting I  | 4 | DFT 150* |
| COMM/ELEC | Communications Elective<br>(See Graduation section of<br>this catalog for technical<br>certificate course lists.)                                      | 3 |          |
| HUM/ART   | Humanities and Fine Arts<br>Elective   | 3 |          |
| SOC/BEH   | Social and Behavioral Sciences<br>Electives<br>(See Graduation section of<br>this catalog for associate<br>of applied science degree<br>course lists.) | 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<br>elective |
| MAC 255 |                                       |

\*For additional prerequisite information, check Course Section.

## Manufacturing Technology—Associate of Science Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

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 (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.

|         |                                  |   |         |
|---------|----------------------------------|---|---------|
| DFT 240 | Manufacturing Processes          | 3 |         |
| MAC 130 | Basic Metallurgy                 | 3 |         |
| MAC 280 | Machine Shop for Technicians III | 4 | MAC 120 |
| MAC 285 | Physical Metallurgy              | 3 | MAC 130 |

### Support Courses

|         |  |   |          |
|---------|--|---|----------|
| ECO 101 | Introduction to Macroeconomics         | 3 | MTH 070* |
| ENG 101 | Problem-Solving Using Computers        | 3 | MTH 180* |
| ENG 102 | Problem-Solving and Engineering Design | 3 | ENG 101  |
| MTH 180 | Analytical Geometry and Calculus I     | 4 | MTH 150* |
| MTH 185 | Analytical Geometry and Calculus II    | 3 | MTH 180  |
| MTH 215 | Analytic Geometry and Calculus III     | 4 | MTH 185  |
| PHY 121 | Introductory Physics I                 | 5 | *        |
| PHY 122 | Introductory Physics II                | 5 | PHY 121  |

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

|   |      |
|---|------|
| English Composition   | 6    |
| Humanities and Fine Arts<br>(Select 6 credits from ART 130, 131; DRA 140, 141; HUM 110, 111, 251, 252, 253; PHI 130)  | 6    |
| Biological and Physical Sciences<br>(Support courses satisfy this requirement.)   | 8-10 |
| Mathematics (MTH 150 or above)<br>(Support courses satisfy this requirement.)   | 6    |
| Social and Behavioral Sciences<br>(Support courses satisfy 3 credits of this requirement. Select 3 additional credits from: ANT 102; HIS 113, 114; POS 120, 140.) | 6    |
| Other Requirement options<br>(Support course satisfies 4 credits of this requirement. Select 4-6 additional credits.)   | 8-10 |

### Elective Options

Select one of the following options for 8 credit hours:

### Manufacturing

|         |                               |   |
|---------|-------------------------------|---|
| MAC 250 | Computer Numerical Control I  | 4 |
| MAC 255 | Computer Numerical Control II | 4 |

or

### Mechanical (Drafting)

|         |                      |   |
|---------|----------------------|---|
| DFT 256 | Mechanical Design I  | 4 |
| DFT 257 | Mechanical Design II | 4 |

### Suggested Course Sequence

See an advisor.

\*For additional prerequisite information, check Course Section.

## Ceramic Manufacturing Technology Option—Basic Certificate for Direct Employment

### 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. |                                   |              |               |
| CMT 101  | Safety and Ceramic Parts Handling | 2            |               |

|         |                               |   |         |
|---------|-------------------------------|---|---------|
| CMT 102 | Hand Tool Operations          | 1 |         |
| CMT 103 | Precision Measuring Equipment | 3 | CMT 102 |
| CMT 104 | Ceramic Lathe Operations      | 3 | CMT 103 |
| CMT 105 | Ceramic Press Operations      | 3 |         |

#### Support Course

|         |                             |   |  |
|---------|-----------------------------|---|--|
| DFT 101 | Blueprint Reading/Sketching | 4 |  |
|---------|-----------------------------|---|--|

#### Suggested course sequence (read down.)

|         |         |
|---------|---------|
| CMT 101 | CMT 104 |
| CMT 102 | CMT 105 |
| CMT 103 | DFT 101 |

### Ceramic Manufacturing Technology Option— Technical Certificate for Direct Employment

#### 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. |  |              |               |
| CMT 101  | Safety and Ceramic Parts Handling                      | 2            |               |
| CMT 102  | Hand Tool Operations                                   | 1            |               |
| CMT 103  | Precision Measuring Equipment                          | 3            | CMT 102       |
| CMT 104  | Ceramic Lathe Operations                               | 3            | CMT 103       |
| CMT 105  | Ceramic Press Operations                               | 3            |               |
| CMT 106  | Ceramic Saw Operations                                 | 1            |               |
| CMT 107  | Basic Electricity for Ceramic Manufacturing Operations | 3            |               |
| CMT 201  | Finishing Processes for Ceramic Materials              | 3            | CMT 101       |
| CMT 202  | Operational Maintenance Ceramic Furnaces               | 1            | CMT 107       |
| CMT 203  | Automated Manufacturing Systems                        | 2            | CMT 107       |

#### General Education and Support Courses

|         |                                       |   |          |
|---------|---------------------------------------|---|----------|
| DFT 101 | Blueprint Reading/Sketching           | 4 |          |
| DFT 102 | Techniques of Dimensional Tolerancing | 1 | DFT 101* |
| MAC 103 | Machine Shop Mathematics I            | 3 | MTH 060* |
| WRT 100 | Writing Fundamentals                  | 3 | WRT 070* |

#### Suggested course sequence (read down.)

|         |         |         |
|---------|---------|---------|
| CMT 101 | DFT 101 | WRT 100 |
| CMT 102 | DFT 102 | CMT 201 |
| CMT 103 | MAC 103 | CMT 202 |
| CMT 104 | CMT 106 | CMT 203 |
| CMT 105 | CMT 107 |         |

\*For additional prerequisite information, check Course Section.

### Ceramic Manufacturing Technology Option— Associate of Applied Science Degree For Direct Employment

#### Required Courses (63-65 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.

|         |  |   |         |
|---------|--|---|---------|
| CMT 101 | Safety and Ceramic Parts Handling                      | 2 |         |
| CMT 102 | Hand Tool Operations                                   | 1 |         |
| CMT 103 | Precision Measuring Equipment                          | 3 | CMT 102 |
| CMT 104 | Ceramic Lathe Operations                               | 3 | CMT 103 |
| CMT 105 | Ceramic Press Operations                               | 3 |         |
| CMT 106 | Ceramic Saw Operations                                 | 1 |         |
| CMT 107 | Basic Electricity for Ceramic Manufacturing Operations | 3 |         |
| CMT 201 | Finishing Processes for Ceramic Materials              | 3 | CMT 101 |
| CMT 202 | Operational Maintenance Ceramic Furnaces               | 1 | CMT 107 |
| CMT 203 | Automated Manufacturing Systems                        | 2 | CMT 107 |

#### Support Courses

|         |                                       |   |          |
|---------|---------------------------------------|---|----------|
| DFT 101 | Blueprint Reading/Sketching           | 4 |          |
| DFT 102 | Techniques of Dimensional Tolerancing | 1 | DFT 101* |
| MAC 103 | Machine Shop Mathematics I            | 3 | MTH 060* |

|         |   |     |          |
|---------|---|-----|----------|
| 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 110* |
| MAC 130 | Basic Metallurgy                        | 3   |          |
| MAC 250 | Introduction to Numerical Control       | 4   | MAC 120* |
| MAC 285 | Physical Metallurgy                     | 3   | MAC 130  |
| WRT 100 | Writing Fundamentals                    | 3   | WRT 070* |
| WRT 154 | Technical Communications I              | 3   | WRT 100* |
| HUM/ART | Humanities and Fine Arts Elective       |     |          |
|         | Complete one of the following:          | 3-4 |          |
|         | ART 130, 131, 132, 135                  |     |          |
|         | DRA 140, 141                            |     |          |
|         | HUM 251, 252, 253                       |     |          |
|         | Foreign Language                        |     |          |
|         | LIT 260, 265                            |     |          |
|         | MUS 151, 201, 202                       |     |          |
|         | PHI 101, 120                            |     |          |
| SOC/BEH | Social and Behavioral Sciences Elective |     |          |
|         | Complete one of the following:          | 3-4 |          |
|         | ANT 101, 102, 200, 210, 215, 225        |     |          |
|         | ECE 107, 108, 117                       |     |          |
|         | ECO 100, 101                            |     |          |
|         | GEO 103                                 |     |          |
|         | HIS 101, 102, 141, 142, 147             |     |          |
|         | MAN 110                                 |     |          |
|         | POS 100, 110, 112, 120, 130             |     |          |
|         | PSY 100A, 100B, 265                     |     |          |
|         | SOC 101, 120                            |     |          |

**Suggested course sequence** (read down.)

|         |         |   |
|---------|---------|---|
| CMT 101 | CMT 106 | CMT 203                                 |
| CMT 102 | CMT 107 | MAC 130                                 |
| CMT 103 | MAC 104 | MAC 250                                 |
| CMT 104 | WRT 100 | MAC 285                                 |
| CMT 105 | CMT 201 | WRT 154                                 |
| DFT 101 | MAC 110 | Humanities and Fine Arts elective       |
| DFT 102 | CMT 202 | Social and Behavioral Sciences elective |
| MAC 103 | MAC 120 |   |

\*For additional prerequisite information, check Course Section.

## Mathematics

The associate of arts degree in mathematics is designed to provide students with basic mathematical skills through linear algebra and thus prepare them to transfer to a four-year college or university to continue work on a bachelor's degree in mathematics. Such students should follow the first two years' requirements of the institution to which they plan to transfer.

The mathematics program area offers a wide variety of courses ranging from arithmetic and basic algebra, through calculus and linear algebra. The mathematics faculty is dedicated to the goal of providing as much individual attention to students as possible. An intensive tutoring program is provided in the college's learning centers and the faculty is constantly reviewing and updating the mathematics curriculum and teaching methods.

New students are required to take the mathematics assessment test and should begin their program with the recommended mathematics course. Students who plan to transfer to an upper division school should check with an advisor. Program advisors are available on all campuses.

### Mathematics—Associate of Arts Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

#### Required Courses (63-75 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. |              |               |
| <b>Core Courses</b> - A grade of C or better is required for graduation. |   |              |               |
| CSC 140  | FORTAN Programming  | 3            | CSC 100*      |
| FOREIGN LANGUAGE   | Four transferable semesters in one foreign language or demonstrated proficiency at the fourth-semester level  | 4-16         |               |

|         |  |   |          |
|---------|--|---|----------|
| MTH 180 | Analytic Geometry and Calculus I       | 4 | MTH 160* |
| MTH 185 | Analytic Geometry and Calculus II      | 3 | MTH 180  |
| MTH 215 | Analytic Geometry and Calculus III     | 4 | MTH 185  |
| MTH 219 | Differential Equations                 | 3 | MTH 215  |
| MTH 225 | Introduction to Linear Algebra         | 3 | MTH 215  |
| PHY 210 | Introductory Mechanics                 | 5 | MTH 180* |
| PHY 216 | Introductory Electricity and Magnetism | 5 | PHY 210* |
| PHY 221 | Introduction to Waves and Heat         | 5 | PHY 210* |

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

|  |     |
|--|-----|
| English Composition  | 6   |
| Humanities and Fine Arts   | 9   |
| Biological and Physical Sciences<br>(Physics core courses satisfy this requirement.) | 8   |
| Mathematics (MTH 150 or above)<br>(Math core courses satisfy this requirement.)      | 3   |
| Social and Behavioral Sciences   | 9   |
| Other Requirement options<br>(Foreign language satisfies this requirement.)          | 5-6 |

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

|   |   |   |
|---|---|---|
| Reading requirement                     | Humanities and Fine Arts elective       | Humanities and Fine Arts elective       |
| English composition                     | Arts elective                           | Arts elective                           |
| MTH 180                                 | CSC 140                                 | Humanities and Fine Arts elective       |
| Foreign language                        | Foreign language                        | Arts elective                           |
| Social and Behavioral Sciences elective | Social and Behavioral Sciences elective | MTH 219                                 |
| English composition                     | MTH 215                                 | MTH 225                                 |
| MTH 185                                 | PHY 216                                 | PHY 221                                 |
| PHY 210                                 | Foreign language                        | Foreign language                        |
|   |   | Social and Behavioral Sciences elective |

\*For additional prerequisite information, check Course Section.

## 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 majors emphasize hands-on experience with equipment and extensive work in newspaper or television facilities on campus. Students in either university transfer program should follow the first two years of requirements of the school they plan to attend.

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 Collage, the student-produced video magazine, aired locally on cable television.

Program advisors are located on the West Campus.

### Print Media Sequence—Associate of Applied Science Degree For Direct Employment

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 (60-63 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.

|         |   |   |          |
|---------|---|---|----------|
| CSC 100 | Introduction to Computers and Information Systems | 3 | MTH 070* |
| 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       | 3 | *        |
| MEC 199 | Co-op Related Class in MEC                        | 1 | *        |
| MEC 199 | Co-op Work in MEC                                 | 2 | *        |
| MEC 240 | Copy Editing 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* |

**General Education and Support Courses** (See Graduation section of this catalog for associate of science degree course lists.)

|  |            |     |          |
|--|------------|-----|----------|
| WRT 101  | Writing I  | 3   | WRT 100* |
| WRT 102  | Writing II | 3   | WRT 101  |
| Humanities and Fine Arts   |            | 3   |          |
| Science and/or Mathematics   |            | 6-8 |          |
| Social and Behavioral Sciences   |            | 3-4 |          |
| Other Requirement options:<br>Complete 15 credit hours from the following: |            | 15  |          |
| GRA 101, 102, 202  |            |     |          |
| ADA 101, 102, 111, 120   |            |     |          |
| ART 140, 141   |            |     |          |
| BUS 100, 105   |            |     |          |
| MEC 190, 196, 270, 290, 296  |            |     |          |
| MKT 125  |            |     |          |

**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                      | MEC 299                                 |
| MEC 188                      | Other electives                         |
| MEC 240                      |   |
| Science/Mathematics elective |   |

\*For additional prerequisite information, check Course Section.

**Print Media Sequence—Associate of Arts Degree For Transfer**

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

This program is designed to prepare students to transfer to four-year college or university journalism programs. Successful graduates of the associate of arts degree program are also qualified as copy editors, reporters, newspaper design specialists or photojournalists. Such positions are available on weekly newspapers and small publications, including newsletters. Cooperative education opportunities include work on major daily newspapers, weekly newspapers, specialty publications or freelance writing assignments. Students must complete at least six credit hours of media communications courses to be eligible for co-op work. Students are also able to improve their skills by working on The Aztec Press, the weekly student newspaper. 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 computer use, art and design.



**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.**

|         |   |   |         |
|---------|---|---|---------|
| MEC 101 | Introduction to Reporting and Media Writing | 3 | *       |
| MEC 102 | Survey of Media Communications              | 3 |         |
| MEC 230 | Advanced Reporting                          | 3 | MEC 101 |
| MEC 240 | Copy Editing and Design                     | 3 | MEC 101 |
| MEC 280 | Photojournalism                             | 3 | MEC 101 |

**Support Courses:**

|         |   |   |          |
|---------|---|---|----------|
| CSC 100 | Introduction to Computers and Information Systems | 3 | MTH 070* |
| MEC 270 | Media Advertising and Public Relations            | 3 | MEC 101  |
| ELEC    | Select three elective courses from the following: | 9 |          |
| ART 140 | Photography I                                     |   | ART 100  |
| MEC 170 | Journalism Workshop                               |   | MEC 101  |
| MEC 188 | Desktop Publishing for Journalism and Media       |   | *        |
| MEC 235 | Broadcast Journalism                              |   | MEC 101  |
| OED 111 | Typing I  |   |          |

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

|  |   |
|--|---|
| English Composition  | 6 |
| Humanities and Fine Arts   | 9 |
| Biological and Physical Sciences   | 8 |
| Mathematics (MTH 150 or above)   | 3 |
| Social and Behavioral Sciences (MEC 102 satisfies 3 credit hours of this requirement.) | 9 |

Other Requirement options  
(CSC 100 satisfies 3 credit hours of this requirement.)

5-6

**Suggested Course Sequence**

See a media communications faculty advisor.

\*For additional prerequisite information, check Course Section.

**Telecommunications Sequence—Advanced Certificate For Direct Employment**

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 (44 Credit Hours)**

| Course Number  | Course Title                                | Credit Hours | Prerequisites |
|--|---|--------------|---------------|
| <b>Core Courses - A grade of C or better is required for graduation.</b> |   |              |               |
| MEC 101  | Introduction to Reporting and Media Writing | 3            | *             |
| MEC 102  | Survey of Media Communications              | 3            |               |
| MEC 124  | Writing for Film and Television             | 3            | MEC 102*      |
| MEC 125  | Beginning Video Production                  | 3            |               |
| MEC 175  | Cinematography                              | 3            |               |
| MEC 215  | Advanced Cinematography                     | 4            | MEC 175       |
| MEC 225  | Advanced Video Production                   | 4            | MEC 125       |
| MEC 275  | Basic Audio Production                      | 4            | MEC 101       |
| MEC 276  | Advanced Audio Production                   | 4            | MEC 275       |
| MEC 299  | Co-op Related Class in MEC                  | 1            | MEC 199*      |
| MEC 299  | Co-op Work in MEC                           | 3            | MEC 199*      |

**General Education and Support Courses:**

|         |   |   |          |
|---------|---|---|----------|
| MEC 271 | Film/Video Production Financing                           | 3 |          |
| MEC 285 | Documentary Television and Film Production                | 3 | MEC 225* |
| MTH     | Determined by assessment test at the 100 level or higher. | 3 |          |

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

|         |         |             |
|---------|---------|-------------|
| MEC 101 | MEC 225 | MEC 276     |
| MEC 102 | MEC 299 | MEC 280     |
| MEC 124 | MEC 215 | Math course |
| MEC 125 | MEC 275 | MEC 285     |
| MEC 175 | MEC 271 |             |

\*For additional prerequisite information, check Course Section.

## Telecommunications Sequence—Associate of Applied Science Degree For Direct Employment

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 (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 100  | Introduction to Computers and Information Systems | 3 | MTH 070* |
| 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 215  | Advanced Cinematography                           | 4 | MEC 175  |
| MEC 225  | Advanced Video Production                         | 4 | MEC 125  |
| MEC 275  | Basic Audio Production                            | 3 | MEC 101  |
| MEC 276  | Advanced Audio Production                         | 4 | MEC 275  |
| MEC 285  | Documentary Television and Film Production        | 3 | MEC 215* |
| ART ELEC | Any ART course 100 or higher                      | 3 | *        |

**General Education and Support Courses:** (See Graduation section of this catalog for associate of applied science course lists.)

|          |  |      |          |
|----------|--|------|----------|
| WRT 101  | Writing I  | 3    | WRT 100* |
| WRT 102  | Writing II   | 3    | WRT 101  |
| HUM      | Humanities Elective                                  | 3    |          |
| SCI/MTH  | Science and Mathematics Electives                    | 6-10 |          |
| SOC/BEH  | Elective   | 3-4  |          |
| MEC ELEC | MEC Electives  |      |          |
|          | Complete two of the following:                       | 6    |          |
|          | MEC 101, 145, 155, 185, 255, 265, 270, 271, 280, 299 |      |          |

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

|                     |                     |                       |
|---------------------|---------------------|-----------------------|
| CSC 100             | MEC 275             | WRT 102               |
| MEC 124             | Science/Mathematics | MEC 215               |
| MEC 175             | elective            | MEC 285               |
| Science/Mathematics | MEC elective        | MEC elective          |
| elective            | MEC 199             | ART elective          |
| WRT 101             | MEC 225             | Social and Behavioral |
| MEC 102             | MEC 276             | Sciences elective     |
| MEC 125             | Humanities elective |                       |

\*For additional prerequisite information, check Course Section.

## Telecommunications Sequence—Associate of Arts Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

This program prepares students to transfer to four-year college or university programs in radio-television. It provides students with a general background in radio-television production, reporting and writing. Cooperative education opportunities exist in television production facilities, television stations, industrial production centers and media-related activities. Students must have completed at least six credit hours of media communications courses before taking co-op classes. Additional hands-on experience is available on the College video magazine program, aired on local cable TV. Good writing skills and creative background in art, design, computers and photography are helpful in this degree option.

### 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.

|         |   |   |   |
|---------|---|---|---|
| MEC 101 | Introduction to Reporting and Media Writing | 3 | * |
| MEC 102 | Survey of Media Communications              | 3 |   |
| MEC 125 | Television Production I                     | 3 |   |
| MEC 175 | Cinematography                              | 3 |   |
| MEC 265 | Implications of Media Technology            | 3 |   |

### Support Courses:

|         |                                |   |         |
|---------|--------------------------------|---|---------|
| MAP 106 | Introduction to Microcomputers | 3 |         |
| MEC 235 | Broadcast Journalism           | 3 | MEC 101 |
| MEC 275 | Basic Audio Production         | 3 | MEC 101 |

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

|   |     |
|---|-----|
| English Composition   | 6   |
| Humanities and Fine Arts  | 9   |
| Biological and Physical Sciences  | 8   |
| Mathematics (MTH 150 or above)  | 3   |
| Social and Behavioral Sciences<br>(MEC 102 satisfies three credit hours of this requirement.) | 9   |
| Other Requirement options   | 5-6 |

### Suggested Course Sequence

See a media communications faculty advisor.

\*For additional prerequisite information, check Course Section.

## Mental Health Technician

The mental health technician advanced certificate prepares the student to assist doctors, nurses and psychologists in the treatment of the psychiatric client who has difficulties of an acute or rehabilitative nature. The student obtains knowledge of psychiatric conditions, the Diagnostic and Statistical Manual (DSM) of the American Psychiatric Association and various treatment modalities. In addition the student is prepared to administer basic nursing care. The program provides the student with experience in direct patient care for both physical and psychological needs.

### Acceptance Into Program:

- Completion of Pima Community College acceptance requirements and special application for the mental health technician program.
- Minimum college-defined competency in reading of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment.
- Approval by Selection Committee.

**General Requirements:**

- Physical examination, including documentation of current immunizations, to be completed upon acceptance into program.
- CPR (cardiopulmonary resuscitation) certification at level C for healthcare providers, by the third week of clinical laboratory. (Requirements can be met successfully by completing HED 140B.)
- Successful completion of all program requirements in theory, skills and clinicals.

**Mental Health Technician—Advanced Certificate for Direct Employment****Required Courses (30-31 Credit Hours)**

| Course Number  | Course Title                | Credit Hours | Prerequisites |
|--|-----------------------------|--------------|---------------|
| <b>Core Courses</b> - A grade of C or better is required for graduation. |                             |              |               |
| MHT 101  | Mental Health Technician I  | 7            | *             |
| MHT 201  | Mental Health Technician II | 6            | MHT 101       |
| HCA 156  | Psychotropic Medications    | 1            |               |
| PSY 214  | Abnormal Psychology         | 3            | PSY 100A*     |
| SSE 135  | Group Work                  | 3            |               |

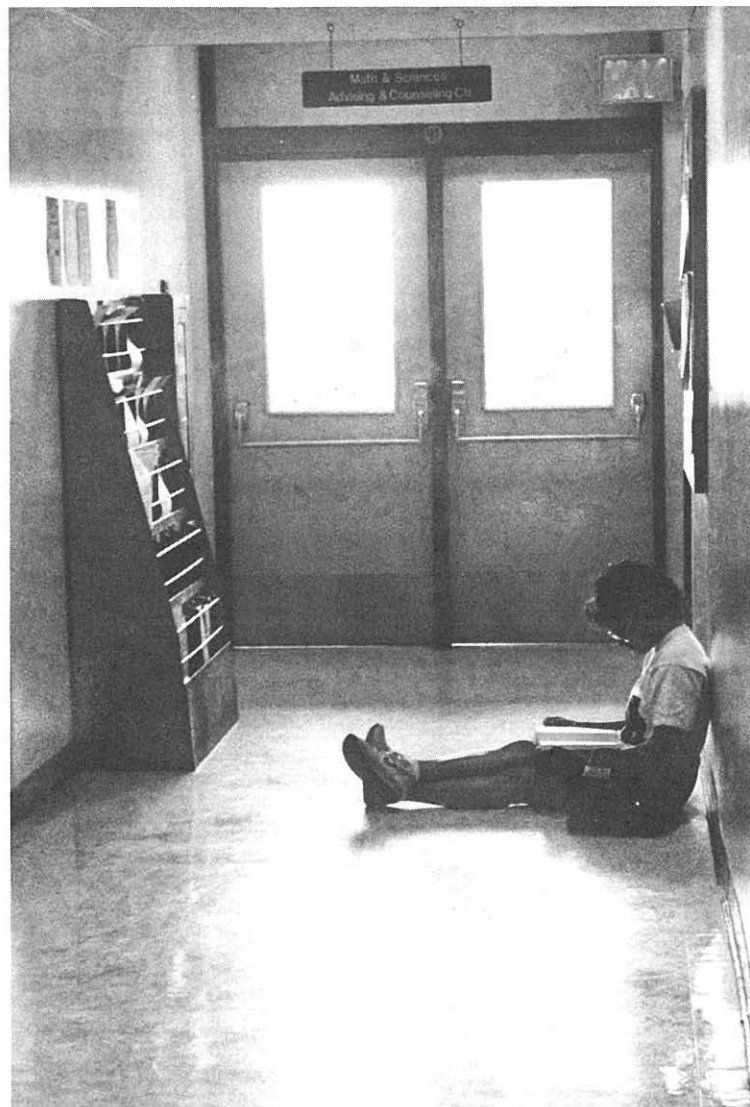
**General Education and Support Courses**

|            |  |     |          |
|------------|--|-----|----------|
| BIO 160    | Introduction to Human Anatomy and Physiology | 4   |          |
| PSY 100A   | Psychology I                                 |     |          |
| or PSY 101 | Introduction to Psychology                   | 3-4 |          |
| WRT 101    | Writing I                                    | 3   | WRT 100* |

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

|                 |         |
|-----------------|---------|
| PSY 100A or 101 | HCA 156 |
| BIO 160         | WRT 101 |
| PSY 214         | MHT 201 |
| MHT 101         | SSE 135 |

\*For additional prerequisite information, check Course Section.



# Military Science

The first goal of the Army, Navy and Air Force ROTC programs is to furnish leaders suitable for commissioning as reserve officers. The secondary goals are to develop self-discipline, integrity, a sense of duty and leadership ability.

ROTC is offered to students at Pima Community College by the Military Science Department at the University of Arizona. Although students enroll in their ROTC classes at Pima, classes are held on the University of Arizona campus.

First-year students should take MLA 101 or MLS 100, or NSP 100 and NSP 101 in the first semester; and MLA 102 or MLS 101, or NSP 100 and NSP 102 in the second semester. Second-year students should take MLA 201 or MLS 200, or NSP 200 and NSP 201 in the first semester; and MLA 202 or MLS 201, or NSP 200 and NSP 202 in the second semester. Second-year students who have not taken these classes in their first year may combine the first and third semesters of ROTC in the fall and the second and fourth semesters in the spring, thus gaining in one year the units required to enter the advanced ROTC program upon transfer to the University of Arizona.

Students are under no military obligation during their first two years in the program.

A uniform deposit fee is required and will be collected by the University of Arizona. The fee receipt must be taken to the ROTC supply clerk, Bear Down Gym, University of Arizona campus, so that a uniform can be issued (not applicable to Navy ROTC).

Upon return of the uniform to the supply clerk at the end of the semester, the student fee receipt will be signed and the student's deposit will be refunded.

Students who complete the first two years of the program and continue their ROTC training receive tax-free subsistence pay of \$100 per month during their junior and senior years at four-year colleges.

## Air Force ROTC—Basic Certificate

### 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 101  | History of Airpower I  | 2            |               |
| MLA 102  | History of Airpower II | 2            |               |

|         |                    |   |
|---------|--------------------|---|
| MLA 201 | Air Force Today I  | 2 |
| MLA 202 | Air Force Today II | 2 |

### Suggested Course Sequence (Read down.)

MLA 101  
MLA 102  
MLA 201  
MLA 202

## Army ROTC—Basic Certificate

### 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

### 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 |

## 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

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor.

**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.

|         |                                    |   |         |
|---------|------------------------------------|---|---------|
| MUS 120 | Band                               | * |         |
| and 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 lists.)

|   |     |
|---|-----|
| English Composition                                     | 6   |
| Humanities and Fine Arts                                | 9   |
| (Core courses may be used to satisfy this requirement.) |     |
| Biological and Physical Sciences                        | 8   |
| Mathematics (MTH 150 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.



# 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 **registered nurse program** can be completed only at the West Campus.
- The **practical nurse program** can be completed at the Downtown Campus or the Skill Center.
- The **certified nursing assistant program** can be completed at the Downtown Campus or the Skill Center.
- A nursing assistant certificate can be granted to the student who successfully completes the first semester nursing course in the Downtown Campus practical nurse program or the West Campus registered nurse program.

## Associate Degree Nursing—Associate of Applied Science Degree For Direct Employment

The Associate Degree Nursing (ADN) Program offered only at the West Campus prepares registered nurses.

This program is accredited by the Arizona State Board of Nursing and 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 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.

## Associate Degree Nursing—Articulating Track

The Practical Nurse graduate from the Downtown Campus or Pima College Skill Center and Licensed Practical Nurse from the Tucson community is eligible to complete the articulating track and apply for acceptance into the second year of the Associate Degree Nursing (ADN) Program. 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 Associate Degree Nursing Office for specific information.

### General Program Requirements

Students must receive a "C" grade or better in all prerequisite, core and general education courses each semester in order to progress to the next semester or to graduate.

Physical examination, including documentation of current immunizations, must be completed upon acceptance into the nursing course sequence. Annual updating is necessary.

Documented CPR certification at the professional level is required upon admission and must be updated annually.

Students are expected to provide individual transportation to assigned clinical sites.

Most nursing courses include lecture, campus laboratory and hospital laboratory components, and must be taken in sequence as each course builds upon the previous one.

Specified co-requisite general education courses are also required with each nursing course. For prerequisite and co-requisite course information check Course Section of this catalog.

### Acceptance Into Program:

- Completion of college (PCC) and appropriate associate degree nursing applications by stipulated deadline.
- One year of high school chemistry or its equivalent (CHM 130, PCC) evaluated on an individual basis and completed within the last ten years with a grade of "C" or better.
- A minimum reading 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.
- Documented mathematics at level for entrance to MTH 130 by college assessments examination, or completion of MTH 070 with a grade of "C" or better.
- Eligibility for entrance into Human Anatomy & Physiology I, (BIO 201). Biology courses must be completed within last six years.

- Prior approval of transfer credit according to college policy (see PCC catalog).
- Consultation with a nursing advisor for additional acceptance requirements if seeking admission into the ADN program from the Practical Nurse Articulating Track or if a Licensed Practical Nurse.
- Approval by selection committee.
- Admission is on a space availability basis.

#### General Requirements:

- Total credits: 69-71 credit hours.
- Nursing major: 41 credit hours.
- General Education Courses: 28-30 credit hours.

#### Required Courses (69-71 Credit Hours)

| Course Number  | Course Title         | Credit Hours | Prerequisites |
|--|----------------------|--------------|---------------|
| <b>Core Courses</b> - A grade of C or better is required for graduation. |                      |              |               |
| NRS 103  | Trends and Issues I  | 1            | NRS 104*      |
| NRS 104  | Nursing Process I    | 8            | *             |
| NRS 105  | Nursing Process II   | 9            | NRS 104       |
| NRS 201  | Nursing Process III  | 11           | NRS 105       |
| NRS 202  | Nursing Process IV   | 11           | NRS 201       |
| NRS 203  | Trends and Issues II | 1            | NRS 201*      |

#### General Education and Support Courses

|         |                                   |     |          |
|---------|-----------------------------------|-----|----------|
| BIO 201 | Human Anatomy and Physiology I    | 4   | BIO 100* |
| 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  |
| HUM/ART | Humanities and Fine Arts Elective |     |          |
|         | Complete one of the following:    | 3-4 |          |
|         | ART 130, 131, 132, 135            |     |          |
|         | DRA 140, 141                      |     |          |
|         | HUM 110, 111, 251, 252, 253       |     |          |
|         | Foreign Language                  |     |          |
|         | LIT 260, 265                      |     |          |
|         | MUS 151, 201, 202                 |     |          |
|         | PHI 101, 120                      |     |          |

#### SOC/BEH

Social and Behavioral Sciences Elective  
 Complete one of the following: 3-4  
 ANT 101, 102, 200, 210, 215, 225  
 ECE 107, 108, 117  
 ECO 100, 101  
 GEO 103  
 HIS 101, 102, 141, 142, 147  
 MAN 110  
 POS 100, 110, 112, 120, 130  
 PSY 265  
 SOC 101, 120

#### Required Four Semester Course Sequence

|                      |   |
|----------------------|---|
| <b>Semester One:</b> | <b>Semester Three:</b>                  |
| WRT 101              | BIO 205                                 |
| BIO 201              | PSY 101                                 |
| NRS 104              | NRS 201                                 |
| <b>Semester Two:</b> | <b>Semester Four:</b>                   |
| BIO 202              | Humanities and Fine Arts elective       |
| WRT 102              | Social and Behavioral Sciences elective |
| NRS 105              | NRS 202                                 |
| NRS 103              | NRS 203                                 |

#### Suggested Course Sequence for Part-Time Study (Read down.)

|         |   |
|---------|---|
| WRT 101 | Humanities and Fine Arts elective       |
| WRT 102 | Social and Behavioral Sciences elective |
| BIO 201 | NRS 104                                 |
| BIO 202 | NRS 105 and 103                         |
| PSY 101 | NRS 201                                 |
| BIO 205 | NRS 202 and 203                         |

\*For additional prerequisite information, check Course Section.

#### Pre-Baccalaureate Nursing Degree

Students should check with a Pima Community College counselor or faculty advisor or with the transfer university or college.

## Practical Nursing—Advanced Certificate For Direct Employment

This curriculum provides the theoretical and practical preparation to qualify graduates for immediate employment as practical nurses (PN).

This program is accredited 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).

The student may choose between two tracks for completion of the program: the non-articulating PN program and the articulating PN program.

Successful completion of the PN articulation track will allow the student to apply for acceptance into the second year of the associate degree nursing (ADN) program. Acceptance into the second year of the ADN program is competitive and based on a selection process established by the ADN department. The continuing PN graduates must meet the requirements and take a transition course for admission into the ADN program.

### Acceptance Into Program

- Completion of Pima Community College acceptance requirements and special application for the practical nurse program.
- Minimum college-defined competency in reading of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment.
- Eligibility for MTH 070 as determined by PCC assessment examination or MTH 070 with a grade of "C" or better.
- Approval by Selection Committee.

### General Requirements:

- Total credits:  
Non-articulating track: 35-36 credit hours  
Articulating track: 40 credit hours
- Work in residence: minimum 18 credit hours of major (NRS) courses to be completed in residence.
- Physical examination, including documentation of current immunizations, to be completed upon acceptance into program.
- Successful completion of all program requirements in theory, skills and clinicals.

## Practical Nursing—Advanced Certificate For Direct Employment—Non-Articulating Track

### Required Courses (35-36 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            |               |
| BIO 160  | Introduction to Human Anatomy and Physiology | 4            |               |
| BIO 204  | Survey of Human Diseases                     | 4            | *             |
| NRS 101  | Nursing Process I                            | 8            | *             |
| NRS 102  | Nursing Process II                           | 9            | NRS 101       |
| NRS 103  | Trends and Issues I                          | 1            | NRS 101*      |

### General Education and Support Courses

|            |                            |     |          |
|------------|----------------------------|-----|----------|
| PSY 100A   | Psychology I               |     |          |
| or 101     | Introduction to Psychology |     |          |
| or SOC 101 | Introduction to Sociology  | 3-4 |          |
| WRT 101    | Writing I                  | 3   | WRT 100* |

### Suggested Course Sequence (Read down.)

|         |            |
|---------|------------|
| BIO 160 | PSY 100A   |
| HCA 155 | or 101     |
| NRS 101 | or SOC 101 |
| BIO 204 | NRS 101    |
|         | NRS 102    |
|         | NRS 103    |

\*For additional prerequisite information, check Course Section.

## Practical Nursing—Advanced Certificate for Direct Employment—Articulating Track

### Required Courses (40 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            |               |
| BIO 201  | Human Anatomy and Physiology I  | 4            | BIO 100*      |
| BIO 202  | Human Anatomy and Physiology II | 4            | BIO 201       |
| BIO 205  | Microbiology                    | 4            | *             |

|         |                     |   |          |
|---------|---------------------|---|----------|
| NRS 101 | Nursing Process I   | 8 | *        |
| NRS 102 | Nursing Process II  | 9 | NRS 101  |
| NRS 103 | Trends and Issues I | 1 | NRS 101* |

#### General Education and Support Courses

|         |                            |   |          |
|---------|----------------------------|---|----------|
| PSY 101 | Introduction to Psychology | 4 |          |
| WRT 101 | Writing I                  | 3 | WRT 100* |

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

|         |         |
|---------|---------|
| BIO 201 | WRT 101 |
| BIO 202 | PSY 101 |
| HCA 155 | NRS 102 |
| NRS 101 | NRS 103 |
| BIO 205 |         |

\*For additional prerequisite information, check Course Section.

## Nursing Assistant—Basic Certificate For Direct Employment

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 a licensed health personnel. Students who satisfactorily complete this curriculum will receive a Nursing Assistant Basic Certificate. The program has approval from the Consortium for Nursing Assistant Programs in the State of Arizona.

#### Acceptance Into Program:

- Completion of Pima Community College acceptance requirements.
- Completion of a special application for the Nursing Assistant program.
- Completion of placement examinations in mathematics and reading comprehension (Note: Applicants must place at the eighth-grade level or better in reading comprehension.)
- Science class (BIO) must have been taken within the last six (6) years.

#### General Requirements:

- Total credits: 12 credit hours.
- Successful completion of all academic and clinical program requirements.
- A physical examination to include documentation of current immunizations (required upon acceptance into the program).

Nursing assistant graduates interested in preparing for the practical nurse or associate degree nursing programs should consult with their nursing advisor.

#### Required Courses (12 Credit Hours)

| Course Number | Course Title | Credit Hours | Prerequisites |
|---------------|--------------|--------------|---------------|
|---------------|--------------|--------------|---------------|

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

|         |  |   |  |
|---------|--|---|--|
| BIO 160 | Introduction to Human Anatomy and Physiology | 4 |  |
| NRA 101 | Nursing Assistant                            | 5 |  |
| HCA 154 | Introduction to Health Care                  | 3 |  |

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

|         |
|---------|
| BIO 160 |
| HCA 154 |
| NRA 101 |

## Office Education

Office Education in the secretarial and clerical fields offers a variety of courses and programs. Two-year programs which lead to an associate of applied science degree are given in these areas: records management, administrative assistant, executive secretary, general secretary, legal secretary and medical secretary. One year advanced certificate programs for clerk-typist, receptionist, and records management are available. Bilingual secretary certificate and degree programs are offered.

The office occupations curriculum offers education in communications, business and management subjects, including varied office equipment. General education is also included.

## Clerk-Typist—Advanced Certificate For Direct Employment

#### Required Courses (34 Credit Hours)

| Course Number | Course Title | Credit Hours | Prerequisites |
|---------------|--------------|--------------|---------------|
|---------------|--------------|--------------|---------------|

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

|         |                      |   |         |
|---------|----------------------|---|---------|
| OED 121 | Calculating Machines | 2 | BUS 151 |
| OED 151 | Business English     | 3 | *       |

|         |  |   |          |
|---------|--|---|----------|
| OED 211 | Typing III                                   | 3 | *        |
| OED 219 | Word Processing Software                     | 2 | OED 112* |
| OED 222 | Desktop Publishing for Business and Industry | 2 | OED 219* |
| OED 251 | Business Communications                      | 3 | OED 151  |
| OED 271 | Office Procedures                            | 4 | OED 112  |
| RIM 132 | Records Management: Filing Systems           | 3 |          |

#### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| ACC 100 | Practical Accounting Procedures          | 3 |          |
| BUS 151 | Mathematics of Business                  | 3 | MTH 060* |
| MAN 110 | Human Relations in Business and Industry | 3 |          |
| OED 112 | Typing II                                | 3 | OED 111  |

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

| First Semester | Second Semester |
|----------------|-----------------|
| OED 112        | OED 121         |
| BUS 151        | OED 219         |
| ACC 100        | OED 222         |
| OED 151        | OED 271         |
| MAN 110        | OED 251         |
|                | OED 211         |
|                | RIM 132         |

\*For additional prerequisite information, check Course Section.

### Receptionist (Medical, Legal, General)—Advanced Certificate For Direct Employment

#### 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. |  |              |               |
| OED 112  | Typing II                                    | 3            | OED 111       |
| OED 121  | Calculating Machines                         | 2            | BUS 151       |
| OED 151  | Business English                             | 3            | *             |
| OED 219  | Word Processing Software                     | 2            | OED 112*      |
| OED 222  | Desktop Publishing for Business and Industry | 2            | OED 219*      |
| OED 251  | Business Communications                      | 3            | OED 151       |
| RIM 132  | Records Management: Filing Systems           | 3            |               |

|            |   |              |
|------------|---|--------------|
| ELECTIVE   | Select one:   |              |
| OED 141    | Legal Terms (For Legal Receptionist Majors)                 | 3            |
| or OED 161 | Medical Office Procedures (For Medical Receptionist Majors) | 3-4 OED 112* |

#### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| ACC 100 | Practical Accounting Procedures          | 3 |          |
| BUS 151 | Mathematics of Business                  | 3 | MTH 060* |
| MAN 110 | Human Relations in Business and Industry | 3 |          |
| OED 271 | Office Procedures                        | 4 | OED 112  |

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

|                |         |
|----------------|---------|
| OED 151        | ACC 100 |
| OED 112        | OED 251 |
| BUS 151        | OED 219 |
| RIM 132        | OED 222 |
| OED 141 or 161 | OED 121 |
|                | MAN 110 |
|                | OED 271 |

\*For additional prerequisite information, check Course Section.

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

#### 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.

|         |                                      |   |          |
|---------|--------------------------------------|---|----------|
| MAN 280 | Business Organization and Management | 3 | BUS 100* |
| OED 121 | Calculating Machines                 | 2 | BUS 151  |
| OED 151 | Business English                     | 3 | *        |
| OED 211 | Typing III                           | 3 | *        |
| OED 219 | Word Processing Software             | 2 | OED 112* |

|         |  |   |          |
|---------|--|---|----------|
| OED 222 | Desktop Publishing for Business and Industry | 2 | OED 219* |
| OED 251 | Business Communications                      | 3 | OED 151  |
| OED 271 | Office Procedures                            | 4 | OED 112  |

#### General Education and Support Courses

|            |  |   |          |
|------------|--|---|----------|
| ACC 101    | Financial Accounting   | 3 |          |
| ACC 200    | Accounting Practice on the Microcomputer   |   | ACC 100* |
| or 102     | Managerial Accounting  | 3 | ACC 101* |
| BUS 105    | Survey of Microcomputer Uses   |   |          |
| or CSC 105 | Survey of Microcomputer Uses   | 3 |          |
| BUS 220    | Legal Environment of Business  | 3 |          |
| ECO 200    | Principles of Economics  | 3 | MTH 070  |
| MAN 110    | Human Relations in Business and Industry   | 3 |          |
| MAN 122    | Supervision  | 3 |          |
| OED 112    | Typing II  | 3 | OED 111  |
| OED 199    | Co-op Related Work   | 2 | *        |
| OED 199    | Co-op Related Class  | 1 | *        |
| OED 224    | Beginning Machine Transcription  |   | OED 112* |
| or RIM 231 | Records Management: Forms Management; Micrographics; and Automated Retrieval   | 3 | RIM 131  |
| RIM 131    | Records Management: Development of a Program   | 3 |          |
| RIM 132    | Records Management: Filing Systems   | 3 |          |
| HUM/ART    | Humanities and Fine Arts Elective<br>(See Graduation section of this catalog for associate of applied science degree course list.) | 3 |          |

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

|                     |                                   |
|---------------------|-----------------------------------|
| Reading requirement | BUS 220                           |
| OED 112             | ACC 101                           |
| OED 151             | MAN 122                           |
| MAN 110             | OED 219                           |
| RIM 131             | OED 222                           |
| OED 211             | OED 224 or RIM 231                |
| OED 121             | ECO 200                           |
| OED 251             | ACC 200 or 102                    |
| BUS 105 or CSC 105  | Humanities and Fine Arts elective |
| MAN 280             | OED 271                           |
| RIM 132             |                                   |
| OED 199             |                                   |

\*For additional prerequisite information, check Course Section.

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

#### 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. |  |              |               |
| OED 151  | Business English                             | 3            | *             |
| 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 |          |
| BUS 100 | Introduction to Business                  | 3 |          |
| BUS 200 | Business Law I                            | 3 |          |
| ECO 100 | Introduction to Microeconomics            | 3 | MTH 070  |
| MAN 110 | Human Relations in Business and Industry  | 3 |          |
| MTH 130 | Algebra II                                | 3 | MTH 070* |
| OED 111 | Typing I                                  | 3 |          |
| POS 110 | American National Government and Politics | 3 |          |



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

|         |         |
|---------|---------|
| POS 110 | BUS 200 |
| ACC 101 | ECO 100 |
| BUS 100 | OED 151 |
| OED 111 | RIM 132 |
| RIM 131 | MAN 110 |
|         | MTH 130 |

\*For additional prerequisite information, check Course Section.

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

**Required Courses (60-63 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.

|          |  |   |         |
|----------|--|---|---------|
| OED 151  | Business English                             |   | *       |
| OED 251  | Business Communications                      | 3 | OED 151 |
| RIM 131  | Records Management: Development of a Program | 3 |         |
| RIM 132  | Records Management: Filing System            | 3 |         |
| RIM 231A | Records Management: Forms Management         | 1 | RIM 131 |
| RIM 231B | Records Management: Micrographics            | 1 | RIM 131 |
| RIM 231C | Records Management: Automated Retrieval      | 1 | RIM 131 |
| RIM 232  | Records Management: Supervision              | 3 | RIM 131 |

**General Education and Support Courses**

|         |                              |   |
|---------|------------------------------|---|
| ACC 101 | Financial Accounting         | 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  |
| ECO 100  | Introduction to Microeconomics   | 3   | MTH 070  |
| MAN 110  | Human Relations in Business and Industry   | 3   |          |
| MAN 276  | Personnel Management   | 3   | BUS 100  |
| MTH 130  | Algebra II   | 3   | MTH 070* |
| OED 110A | Typing Refresher: Skill Building   | 1   | OED 111* |
| OED 111  | Typing I   | 3   |          |
| OED 199  | Coop Related Class in OED  | 1   | *        |
| OED 199  | Coop Work in OED   | 1-3 | *        |
| POS 110  | American National Government and Politics  | 3   |          |
| HUM/ART  | Humanities and Fine Arts Elective<br>(See Graduation section of this catalog for associate of applied science degree course list.) | 3-4 |          |
| ELECTIVE | Complete one of the following courses: WRT 101, 102, ECO 101 or SPE 120.   | 3   |          |

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

|                     |                                   |
|---------------------|-----------------------------------|
| Reading requirement | OED 110A                          |
| POS 110             | OED 251                           |
| ACC 101             | MAN 276                           |
| BUS 100             | BUS 105                           |
| OED 111             | BUS 201                           |
| RIM 131             | RIM 231A, B, C                    |
| BUS 200             | Elective                          |
| ECO 100             | OED 199                           |
| OED 151             | OED 199                           |
| RIM 132             | RIM 232                           |
| MAN 110             | Humanities and Fine Arts elective |
| MTH 130             |                                   |

\*For additional prerequisite information, check Course Section.

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

### 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. |  |              |               |
| OED 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            |               |
| <b>General Education and Support Courses</b>                             |  |              |               |
| ACC 101  | Financial Accounting                                       | 3            |               |
| BIO 201  | Human Anatomy and Physiology I                             | 4            | BIO 100*      |
| HCA 154  | Introduction to Health Care                                | 3            |               |
| MAN 110  | Human Relations in Business and Industry                   | 3            |               |
| MTH 130  | Algebra II   | 3            | MTH 070*      |
| OED 111  | Typing I   | 3            |               |
| SCI ELEC   | Complete one of the following:<br>BIO 100, 205, or CHM 130 | 4-5          | *             |

### Suggested Course Sequence (Read down.)

|                  |         |
|------------------|---------|
| Science elective | HCA 154 |
| ACC 101          | RIM 121 |
| BIO 201          | OED 151 |
| OED 111          | RIM 132 |
| RIM 131          | MAN 110 |
|                  | MTH 130 |

\*For additional prerequisite information, check Course Section.

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

### 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.

|          |  |   |          |
|----------|--|---|----------|
| OED 151  | Business English                             | 3 | *        |
| OED 251  | Business Communications                      | 3 | OED 151  |
| RIM 131  | Records Management: Development of a Program | 3 |          |
| RIM 121  | Introduction to Medical Record Science       | 1 |          |
| RIM 132  | Records Management: Filing Systems           | 3 |          |
| RIM 221  | Medical Record Coding and Statistics         | 3 | RIM 121* |
| RIM 231A | Records Management: Forms Management         | 1 | RIM 131  |
| RIM 231B | Records Management: Micrographics            | 1 | RIM 131  |
| RIM 231C | Records Management: Automated Retrieval      | 1 | RIM 131  |
| RIM 232  | Records Management: Supervision              | 3 | RIM 131  |

### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| ACC 101 | Financial Accounting                     | 3 |          |
| BIO 201 | Human Anatomy and Physiology I           | 4 | BIO 100* |
| 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 |          |
| MTH 130 | Algebra II                               | 3 | MTH 070* |

|          |  |     |          |
|----------|--|-----|----------|
| OED 110A | Typing Refresher: Skill Building   | 1   | OED 111* |
| OED 111  | Typing I   | 3   |          |
| OED 162  | Medical Terms I  | 3   |          |
| OED 199  | Coop Related Class in OED  | 1   | *        |
| OED 199  | Coop Work in OED   | 1-3 | *        |
| HUM/ART  | Humanities and Fine Arts<br>Elective<br>(See Graduation section of<br>this catalog for associate<br>of applied science degree<br>course list.) | 3-4 |          |
| SCI ELEC | Complete one of the following:<br>BIO 100, 205, or CHM 130   | 4-5 | *        |

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

|                     |                                      |
|---------------------|--------------------------------------|
| Reading requirement | OED 110A                             |
| Science elective    | OED 251                              |
| ACC 101             | OED 162                              |
| BIO 201             | BUS 105                              |
| OED 111             | BIO 202                              |
| RIM 131             | RIM 231A, B, C                       |
| HCA 154             | BIO 204                              |
| RIM 121             | OED 199                              |
| OED 151             | OED 199                              |
| RIM 132             | RIM 232                              |
| MAN 110             | Humanities and Fine<br>Arts elective |
| MTH 130             | RIM 221                              |

\*For additional prerequisite information, check Course Section.

## General Secretary—Associate of Applied Science Degree For Direct Employment

### Required Courses (63-65 Credit Hours)

| Course<br>Number | Course Title  | Credit<br>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.

|         |   |          |
|---------|---|----------|
| OED 102 | Shorthand II                                    | OED 101* |
| or 109  | Stenoscrypt II                                  | OED 108* |
| or 224  | Beginning Machine Transcription                 | OED 112* |
| or 226  | Advanced Machine Transcription                  | OED 224* |
| OED 121 | Calculating Machines                            | BUS 151  |
| OED 151 | Business English                                | *        |
| OED 211 | Typing III                                      | *        |
| OED 219 | Word Processing Software                        | OED 112* |
| OED 222 | Desktop Publishing for Business<br>and Industry | OED 219* |
| OED 251 | Business Communications                         | OED 151  |
| OED 271 | Office Procedures                               | OED 112  |
| RIM 132 | Records Management: Filing<br>Systems           | 3        |

### General Education and Support Courses

|          |  |     |          |
|----------|--|-----|----------|
| ACC 100  | Practical Accounting Procedures  | 3   |          |
| or 101   | Financial Accounting   | 3   | MTH 060* |
| BUS 151  | Mathematics of Business  | 3   |          |
| BUS 200  | Business Law I   | 3   |          |
| MAN 110  | Human Relations in Business  | 3   |          |
| OED 101  | Shorthand I  |     | OED 111* |
| or 107   | Notehand   |     | *        |
| or 108   | Stenoscrypt I  |     |          |
| or 224   | Beginning Machine Transcription  | 2-3 | OED 112* |
| OED 111  | Typing I   | 3   |          |
| OED 112  | Typing II  | 3   | OED 111  |
| HUM/ART  | Humanities and Fine Arts<br>Elective (See Graduation<br>section of this catalog for<br>associate of applied science<br>degree course list.)          | 3   |          |
| SOC/BEH  | Social and Behavioral Sciences<br>Elective<br>(See Graduation section of<br>this catalog for associate<br>of applied science degree<br>course list.) | 3   |          |
| ELECTIVE | Select one of the following:<br>BUS 100, 105, or CSC 105   | 3   |          |

**ELECTIVES** Electives should be selected with the advice of an OED advisor from the following list: 9-10  
ACC 200, OED 199, 201, 202, 299, RIM 131

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

|                              |   |
|------------------------------|---|
| Reading requirement          | OED 211                                 |
| OED 151                      | OED 271                                 |
| OED 101 or 107 or 108 or 224 | ACC 100 or 101                          |
| OED 111                      | BUS 100 or 105, or CSC 105              |
| BUS 151                      | BUS 200                                 |
| Elective                     | OED 251                                 |
| OED 102 or 109 or 224 or 226 | MAN 110                                 |
| OED 112                      | Electives                               |
| OED 121                      | Humanities and Fine Arts elective       |
| RIM 132                      | Social and Behavioral Sciences elective |
| OED 219                      |   |
| OED 222                      |   |

\*For additional prerequisite information, check Course Section.

## Executive Secretary—Associate of Applied Science Degree For Direct Employment

**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.

|         |                                 |   |          |
|---------|---------------------------------|---|----------|
| OED 102 | Shorthand II                    |   | OED 101* |
| or 109  | Stenograph II                   |   | OED 108* |
| or 224  | Beginning Machine Transcription |   | OED 112* |
| or 226  | Advanced Machine Transcription  | 3 | OED 224* |
| OED 121 | Calculating Machines            | 2 | BUS 151  |
| OED 151 | Business English                | 3 | *        |
| OED 211 | Typing III                      | 3 | *        |

|         |  |   |          |
|---------|--|---|----------|
| OED 219 | Word Processing Software                     | 2 | OED 112* |
| OED 222 | Desktop Publishing for Business and Industry | 2 | OED 219* |
| OED 251 | Business Communications                      | 3 | OED 151  |
| OED 271 | Office Procedures                            | 4 | OED 112  |
| RIM 132 | Records Management: Filing Systems           | 3 |          |

**General Education and Support Courses**

|         |  |   |          |
|---------|--|---|----------|
| OED 112 | Typing II                                | 3 | OED 111  |
| ACC 100 | Practical Accounting Procedures          |   |          |
| or 101  | Financial Accounting                     | 3 |          |
| BUS 151 | Mathematics of Business                  | 3 | MTH 060* |
| BUS 200 | Business Law I                           | 3 |          |
| MAN 110 | Human Relations in Business and Industry | 3 |          |
| HUM/ART | Humanities and Fine Arts Elective        | 3 |          |

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

**ELECTIVES** Selection of electives should be made with advice of an OED advisor from the following list: ACC 102, 200, OED 199, 201, 202, 299, RIM 131 11-13

**ELECTIVE** Complete one of the following: 3  
BUS 100, 105, CSC 105, or MAP 106

**ELECTIVE** General elective at 100 level or higher 3

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

|                              |                |                                   |
|------------------------------|----------------|-----------------------------------|
| Reading requirement          | OED 251        | RIM 132                           |
| OED 151                      | ACC 100 or 101 | Humanities and Fine Arts elective |
| OED 102 or 109 or 224 or 226 | MAN 110        | Electives                         |
| OED 112                      | OED 121        |                                   |
| BUS 151                      | OED 219        |                                   |
| Elective                     | OED 222        |                                   |
| OED 201                      | OED 271        |                                   |
| OED 211                      | Elective       |                                   |
|                              | BUS 200        |                                   |

\*For additional prerequisite information, check Course Section.

## Medical Secretary—Associate of Applied Science Degree For Direct Employment

### 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. |              |               |
| <b>Core Courses</b> - A grade of C or better is required for graduation. |   |              |               |
| OED 102  | Shorthand II  |              | OED 101*      |
| or 109   | Stenoscrypt II  |              | OED 108*      |
| or 224   | Beginning Machine Transcription   |              | OED 112*      |
| or 226   | Advanced Machine Transcription  | 3            | OED 224*      |
| OED 151  | Business English  | 3            | *             |
| OED 161  | Medical Office Procedures   | 4            | OED 112*      |
| OED 162  | Medical Terms I   | 3            |               |
| OED 211  | Typing III  | 3            | OED 111       |
| OED 219  | Word Processing Software  | 2            | OED 112*      |
| OED 222  | Desktop Publishing for Business and Industry  | 2            | OED 219*      |
| OED 251  | Business Communications   | 3            | OED 151       |
| OED 262  | Medical Terms II  | 3            | OED 162       |
| OED 263  | Medical Transcription   | 3            | OED 162*      |
| RIM 132  | Records Management: Filing Systems  | 3            |               |

### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| ACC 100 | Practical Accounting Procedures          | 3 |          |
| BUS 151 | Mathematics of Business                  | 3 | MTH 060* |
| BUS 200 | Business Law I                           | 3 |          |
| MAN 110 | Human Relations in Business and Industry | 3 |          |
| OED 101 | Shorthand I                              |   | OED 111* |
| or 107  | Notehand                                 |   | *        |
| or 108  | Stenoscrypt I                            |   |          |
| or 224  | Beginning Machine Transcription          | 3 | OED 112* |
| OED 112 | Typing II                                | 3 | OED 111  |

|           |   |     |
|-----------|---|-----|
| HUM/ART   | Humanities and Fine Arts Elective<br>(See Graduation section of this catalog for associate of applied science degree course list.)                  | 3   |
| ELECTIVES | Selection of electives should be made with the advice of an OED advisor from the following list: ACC 101, 200, OED 121, 199, 201, 202, 299, RIM 131 | 8-9 |

### Suggested Course Sequence (Read down.)

|                              |                                   |
|------------------------------|-----------------------------------|
| Reading requirement          | OED 161                           |
| OED 101 or 107 or 108 or 224 | OED 219                           |
| OED 112                      | OED 222                           |
| OED 151                      | OED 262                           |
| BUS 151                      | BUS 200                           |
| OED 102 or 109 or 224 or 226 | RIM 132                           |
| OED 162                      | OED 263                           |
| OED 211                      | MAN 110                           |
| OED 251                      | Electives                         |
| ACC 100                      | Humanities and Fine Arts elective |

\*For additional prerequisite information, check Course Section.

## Legal Secretary—Associate of Applied Science Degree For Direct Employment

### Required Courses (60-61 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.

|         |                                 |          |
|---------|---------------------------------|----------|
| OED 102 | Shorthand II                    | OED 101* |
| or 109  | Stenoscrypt II                  | OED 108* |
| or 224  | Beginning Machine Transcription | OED 112* |

|         |  |   |          |
|---------|--|---|----------|
| or 226  | Advanced Machine Transcription               | 3 | OED 224* |
| OED 151 | Business English                             | 3 | *        |
| OED 211 | Typing III                                   | 3 | *        |
| OED 219 | Word Processing Software                     | 2 | OED 112* |
| OED 222 | Desktop Publishing for Business and Industry | 2 | OED 219* |
| OED 251 | Business Communications                      | 3 | OED 151  |
| RIM 132 | Records Management: Filing Systems           | 3 |          |

### General Education and Support Courses

|            |  |     |          |
|------------|--|-----|----------|
| ACC 100    | Practical Accounting Procedures  |     |          |
| or 101     | Financial Accounting   | 3   |          |
| BUS 151    | Mathematics of Business  | 3   | MTH 060* |
| BUS 200    | Business Law I   | 3   |          |
| BUS 201    | Business Law II  |     | BUS 200  |
| or AJS 109 | Criminal Law   | 3   |          |
| MAN 110    | Human Relations in Business and Industry   | 3   |          |
| OED 112    | Typing II  | 3   | OED 111  |
| OED 141    | Legal Terms  | 3   |          |
| OED 142    | Legal Secretarial Procedures I   | 3   | OED 211* |
| OED 143    | Legal Secretarial Procedures II  | 3   | OED 142* |
| OED 242    | Legal Secretarial Procedures III   | 3   | OED 143* |
| OED 243    | Legal Secretarial Procedures IV  | 3   | OED 242* |
| HUM/ART    | Humanities and Fine Arts Elective<br>(See Graduation section of this catalog for associate of applied science degree course list.) | 3   |          |
| ELECTIVE   | Complete 5 credit hours from the following list:   | 5   |          |
| ACC 200    | Accounting Practice on the Microcomputer   | 3   | ACC 100* |
| BUS 105    | Survey of Microcomputer Uses   | 3   |          |
| CSC 105    | Survey of Microcomputer Uses   | 3   |          |
| OED 199    | Co-op Related Class in OED   |     | *        |
| and        | Co-op Work in OED  | 2-3 |          |
| OED 201    | Shorthand III  | 3   | OED 102* |
| OED 202    | Shorthand IV   | 3   | OED 201* |
| OED 299    | Co-op Related Class in OED   |     |          |
| and        | Co-op Work in OED  | 2-3 | *        |
| RIM 131    | Records Management: Development of a Program   | 3   |          |

### Suggested Course Sequence (Read down.)

|                              |                                   |
|------------------------------|-----------------------------------|
| Reading requirement          | OED 219                           |
| OED 151                      | OED 222                           |
| OED 102 or 109 or 224 or 226 | BUS 151                           |
| OED 112                      | BUS 200                           |
| OED 141                      | ACC 100 or 101                    |
| OED 142                      | OED 242                           |
| OED 251                      | RIM 132                           |
| OED 211                      | Humanities and Fine Arts elective |
| MAN 110                      | OED 243                           |
| OED 143                      | BUS 201 or AJS 109                |
|                              | Elective                          |

\*For additional prerequisite information, check Course Section.

## Bilingual Secretary—Basic Certificate For Direct Employment

### 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. |   |              |               |
| OED 112  | Typing II   | 3            | OED 111       |
| OED 151  | Business English  | 3            | *             |
| OED 252  | Bilingual Commercial Correspondence                               | 2            | *             |
| OED 271  | Office Procedures (English) or Practicas de Oficina (Bilingual)** | 4            | OED 112       |

### General Education and Support Courses

|         |                               |   |          |
|---------|-------------------------------|---|----------|
| SPA 201 | Spanish for Native Speakers I |   | *        |
| or 210  | Intermediate Spanish I        | 4 | SPA 111* |

### Suggested Course Sequence (Read down.)

|                |
|----------------|
| OED 112        |
| OED 151        |
| SPA 201 or 210 |
| OED 252        |
| OED 271        |

\*For additional prerequisite information, check Course Section.

\*\*Consult with program advisor for placement.



## Bilingual Secretary—Advanced Certificate For Direct Employment

### Required Courses (35 Credit Hours)

| Course Number  | Course Title  | Credit Hours | Prerequisites |
|--|---|--------------|---------------|
| <b>Core Courses</b> - A grade of C or better is required for graduation. |   |              |               |
| OED 102  | Shorthand II  |              | OED 101*      |
| or 109   | Stenoscrypt II  |              | OED 108*      |
| or 224   | Beginning Machine Transcription                                   |              | OED 112*      |
| or 226   | Advanced Machine Transcription                                    | 3            | OED 224*      |
| OED 151  | Business English  | 3            | *             |
| OED 211  | Typing III  | 3            | *             |
| OED 251  | Business Communications   | 3            | OED 151       |
| OED 252  | Bilingual Commercial Correspondence                               | 2            | *             |
| OED 271  | Office Procedures (English) or Practicas de Oficina (Bilingual)** | 4            | OED 112       |
| <b>General Education and Support Courses</b>                             |   |              |               |
| OED 112  | Typing II   | 3            | OED 111       |
| BUS 151  | Mathematics of Business   | 3            | MTH 060*      |
| SPA 205  | Imaginative Writing I   | 3            | *             |
| SPA 201  | Spanish for Native Speakers I                                     |              |               |
| or 210   | Intermediate Spanish I  | 4            | SPA 111*      |
| SPA 202  | Spanish for Native Speakers II                                    |              |               |
| or 211   | Intermediate Spanish II   | 4            | SPA 210       |

### Suggested Course Sequence (Read down.)

|                |                |
|----------------|----------------|
| OED 112        | OED 251        |
| OED 151        | OED 211        |
| SPA 201 or 210 | SPA 201 or 211 |
| OED 102 or 109 | OED 252        |
| or 224, or 226 | OED 271        |
| BUS 151        | SPA 205        |

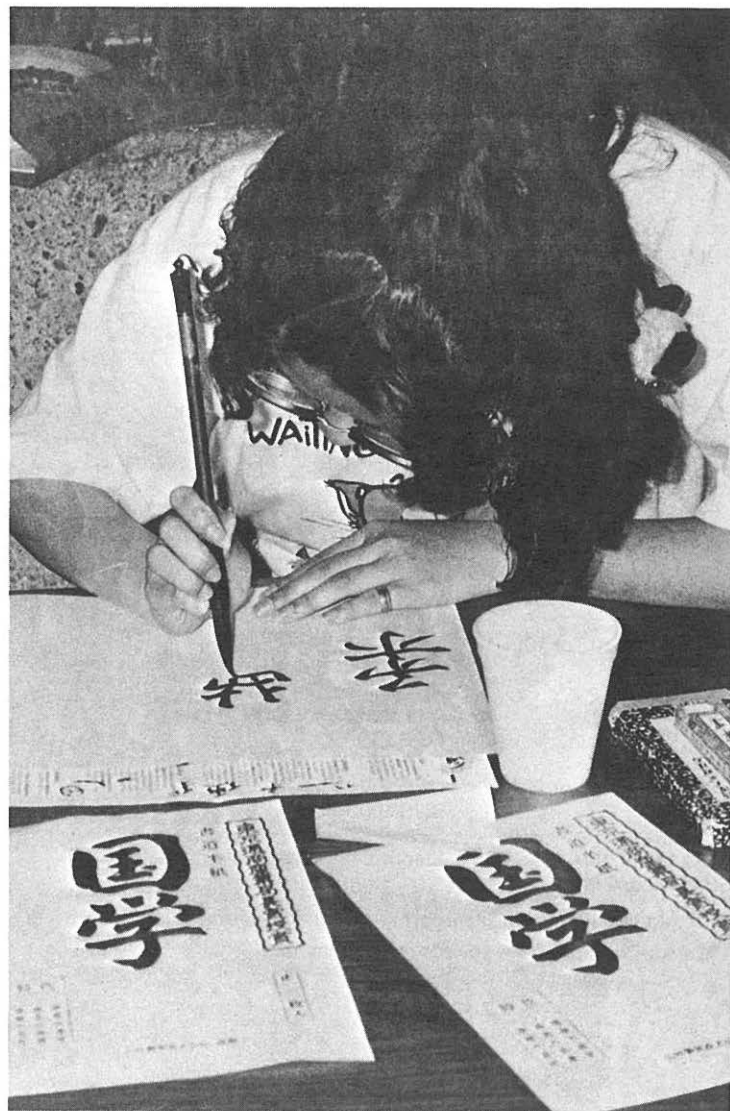
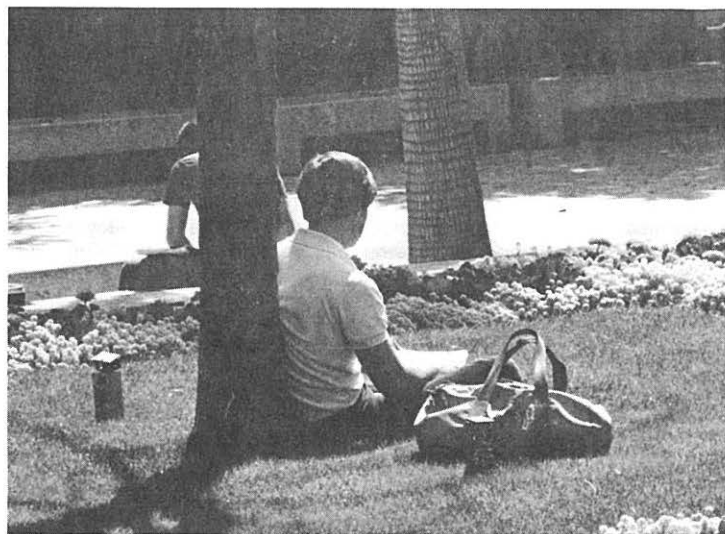
\*For additional prerequisite information, check Course Section.

\*\*Consult with program advisor for placement.

## Bilingual Secretary—Associate of Applied Science Degree For Direct Employment

### 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. |              |               |
| <b>Core Courses</b> - A grade of C or better is required for graduation. |   |              |               |
| OED 102  | Shorthand II  |              | OED 101*      |
| or 109   | Stenoscrypt II  |              | OED 108*      |
| or 224   | Beginning Machine Transcription   |              | OED 112*      |
| or 226   | Advanced Machine Transcription  | 3            | OED 224*      |
| OED 112  | Typing II   | 3            | OED 111       |
| OED 121  | Calculating Machines  | 2            | BUS 151       |
| OED 151  | Business English  | 3            | *             |
| OED 251  | Business Communications   | 3            | OED 151       |
| OED 252  | Bilingual Commercial Correspondence   | 2            | *             |
| OED 271  | Office Procedures (English) or Practicas de Oficina (Bilingual)**   | 4            | OED 112       |
| SPA 202  | Spanish for Natives II  |              | SPA 201       |
| or 211   | Intermediate Spanish II   | 4            | SPA 210       |
| RIM 132  | Records Management: Filing Systems  | 3            |               |
| <b>General Education and Support Courses</b>                             |   |              |               |
| ACC 101  | Financial Accounting  |              |               |
| or 100   | Practical Accounting Procedures   | 3            |               |
| BUS 100  | Introduction to Business or Introduccion a Negocios**   | 3            |               |
| BUS 151  | Mathematics of Business   | 3            | MTH 060*      |
| MAN 110  | Human Relations in Business and Industry  | 3            |               |
| OED 101  | Shorthand I   |              | OED 111*      |
| or 107   | Notehand  |              |               |
| or 108   | Stenoscrypt I   |              | *             |
| or 224   | Beginning Machine Transcription   | 2-3          | OED 112*      |
| OED 219  | Word Processing Software  | 2            | OED 112*      |



|          |  |   |          |
|----------|--|---|----------|
| OED 222  | Desktop Publishing for Business and Industry   | 2 | OED 219* |
| SPA 201  | Spanish for Native Speakers I  | 4 | SPA 201* |
| or 210   | Intermediate Spanish I   | 4 | SPA 111* |
| SPA 205  | Imaginative Writing I  | 3 |          |
| SPA ELEC | Spanish Elective<br>(Select one course from the following: SPA 225, 226, 240, or any SPA 200 level course.)  | 3 |          |
| HUM/ART  | Humanities and Fine Arts Elective<br>(See Graduation section of this catalog for associate of applied science degree course list.)                                 | 3 |          |
| ELECTIVE | Electives should be selected with the assistance of an OED advisor from the following courses: OED 199 (Co-op Related Class and Work), 211, 201, 202, RIM 131, 232 | 3 |          |

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

|                              |                                   |
|------------------------------|-----------------------------------|
| Reading requirement          | MAN 110                           |
| OED 112                      | RIM 132                           |
| OED 101 or 107 or 108 or 224 | OED 252<br>SPA 205                |
| OED 151                      | Humanities and Fine Arts elective |
| SPA 201 or 210               | OED 219                           |
| BUS 151                      | OED 222                           |
| OED 121                      | OED 271                           |
| OED 102 or 109 or 224 or 226 | BUS 100                           |
| OED 251                      | SPA elective                      |
| ACC 101 or 100               | Elective                          |
| SPA 202 or 211               |                                   |

\*For additional prerequisite information, check Course Section.

\*\*Consult with program advisor for placement.

## **Pharmacy Technology**

This program provides the basic health care skills students can utilize as pharmacy technicians in hospitals (private and government), nursing care facilities, private and chain drug stores, drug manufacturers, wholesale drughouses and health maintenance organizations. Graduates are prepared to assist the pharmacist in the packaging and distribution of medication. The certified student will have knowledge of the professional, technical skills necessary for direct employment as a pharmacy technician. The 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.

#### **Requirements for acceptance into the Program.**

- Graduation from high school or a GED certificate.
- Completion of Pima Community College and Pharmacy Technology Program applications.
- Receipt of placement examination results in math and reading comprehension.
- Submission of all transcripts and application materials to the admissions secretary for Health Related Professions.
- Personal pre-admission conference with the program faculty.
- Approval by the selection committee.

#### **Basic Certificate for Direct Employment:**

- MTH 070 with a grade of "C" or better, or mathematics placement assessment at MTH 130 or above.

#### **Associate of Applied Science Degree:**

- MTH 130 with a grade of "C" or better, or mathematics placement assessment at MTH 150 or above.
- 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.

## Pharmacy Technology—Basic Certificate for Direct Employment

### Required Courses (29 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            | *             |

### Suggested Course Sequence

See a pharmacy technology faculty advisor.

\*For additional prerequisite information, check Course Section.

## Pharmacy Technology—Associate of Applied Science Degree

### Required Courses (71-73 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 | * |
|---------|------------------------------------|---|---|

### General Education and Support Courses

|         |   |     |          |
|---------|---|-----|----------|
| MTH 150 | College Algebra                                 | 3   | MTH 130* |
| WRT 101 | Writing I                                       | 3   | WRT 100* |
| WRT 102 | Writing II                                      | 3   | WRT 101* |
| CHM 130 | Fundamentals of Chemistry                       |     |          |
| or 151  | General Chemistry I                             | 5   | MTH 130* |
| CHM 140 | Fundamentals of Organic and Biochemistry        |     |          |
| or 152  | General Chemistry II                            | 5   | CHM 130* |
| BIO 101 | General Biology (Non Majors): Selected Topics   |     |          |
| or 184  | Plant Biology                                   | 4   | BIO 100* |
| BIO 102 | General Biology (Non-Majors): Additional Topics |     |          |
| or 190  | Animal Biology                                  | 4   | *        |
| SPE 120 | Business and Professional Communication         | 3   |          |
| HUM/ART | Humanities and Fine Arts Elective               |     |          |
|         | Complete one of the following:                  | 3-4 |          |
|         | ART 130, 131, 132, 135                          |     |          |
|         | DRA 140, 141                                    |     |          |
|         | HUM 110, 111                                    |     |          |
|         | Foreign Language                                |     |          |
|         | LIT 260, 265                                    |     |          |
|         | MUS 151, 201, 202                               |     |          |
|         | PHI 101, 120                                    |     |          |
| SOC/BEH | Social and Behavioral Sciences Electives        |     |          |
|         | Complete two of the following:                  | 6-7 |          |
|         | ANT 101, 102, 200, 210, 215, 225                |     |          |
|         | ECE 107, 108, 117                               |     |          |
|         | ECO 100, 101                                    |     |          |
|         | GEO 103   |     |          |
|         | HIS 101, 102, 141, 142, 147                     |     |          |
|         | MAN 110   |     |          |
|         | POS 100, 110, 112, 120, 130                     |     |          |
|         | PSY 100A, 100B, 265                             |     |          |
|         | SOC 101, 120                                    |     |          |

### 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.

## Physics

### Physics—Associate of Science Degree For Transfer

Verification of transfer courses should be established with the transfer university or college, or with a Pima Community College counselor or faculty advisor.

Students may take PHY 216 before PHY 221 if they have completed MTH 185.

#### Required Courses (60-67 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.

|         |  |   |          |
|---------|--|---|----------|
| MTH 180 | Analytic Geometry and Calculus I       | 4 | MTH 150* |
| MTH 185 | Analytic Geometry and Calculus II      | 3 | MTH 180  |
| MTH 215 | Analytic Geometry and Calculus III     | 4 | MTH 185  |
| MTH 219 | Differential Equations                 | 3 | MTH 215  |
| PHY 210 | Introductory Mechanics                 | 5 | MTH 180* |
| PHY 216 | Introductory Electricity and Magnetism | 5 | MTH 185* |
| PHY 221 | Introduction to Waves and Heat         | 5 | MTH 185* |
| PHY 230 | Introduction to Modern Physics         | 4 | PHY 210* |

#### Recommended Courses:

|         |                                |   |          |
|---------|--------------------------------|---|----------|
| CHM 151 | General Chemistry I            | 5 | MTH 130* |
| CHM 152 | General Chemistry II           | 5 | CHM 151  |
| CSC 140 | FORTTRAN Programming           | 3 | CSC 100* |
| MTH 225 | Introduction to Linear Algebra | 3 | MTH 215  |

#### Support Courses:

|          |  |    |
|----------|--|----|
| FOR/LANG | Foreign Language:<br>Four semesters (two years) of any one foreign language (courses numbered 110 and above). Bilingual or international students should consult an advisor concerning exceptions to this requirement. If a student satisfies the language requirement in fewer than 12 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. | 16 |
|----------|--|----|

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

|   |      |
|---|------|
| English Composition   | 6    |
| Humanities and Fine Arts  | 6    |
| Biological and Physical Sciences<br>(Core courses satisfy this requirement.)      | 8-10 |
| Mathematics (MTH 150 or above)<br>(Core courses satisfy this requirement.)        | 6    |
| Social and Behavioral Sciences**  | 6    |
| Other Requirement options<br>(Core and support courses satisfy this requirement.) | 8-10 |

### **Suggested Course Sequence**

See a physics faculty advisor.

\*For additional prerequisite information, check Course Section.

\*\*Students must also take one non-western course while completing this requirement. Choose from: ANT 205, 206, HIS 113, 114, 127.

## **Postal Service Management**

The postal service management certificate and degree program has been designed in cooperation with the Tucson Management Sectional Center (MSC) United States Postal Service. A curriculum has been established to develop and enhance skills of persons presently employed by the Postal Service. The program certificate and degree options utilize the career-ladder concept. This means that a student may smoothly progress from the basic certificate requiring 16 credit hours to the advanced certificate requiring an additional 18 credit hours and then to the associate of applied science degree which requires an additional 36 credit hours for a program total of 70 credit hours. Program courses include a study of the Postal Service history and organization, labor management relations, employee services, mail processing, finance, delivery and collection, customer service and postal problem analysis.

## **Postal Service Management—Basic Certificate For Direct Employment**

### **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. |                          |              |               |
| BUS 151  | Mathematics of Business  | 3            | MTH 060*      |
| WRT 101  | Writing I                |              | WRT 100*      |
| or 150   | Practical Communications | 3            |               |

### **General Education and Support Courses**

|         |                                 |   |   |
|---------|---------------------------------|---|---|
| ACC 101 | Financial Accounting            | 3 |   |
| PSM 100 | Postal History and Organization | 3 |   |
| REA 100 | Reading Series                  | 4 | * |

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

WRT 101 or 150  
ACC 101  
PSM 100  
REA 100  
BUS 151

\*For additional prerequisite information, check Course Section.

## **Postal Service Management—Advanced Certificate For Direct Employment**

### **Required Courses (34 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. |  |              |               |
| MAN 110  | Human Relations in Business and Industry | 3            |               |
| PSM 120  | Postal Service Labor Management          | 3            |               |
| PSM 140  | Mail Processing I                        | 3            |               |
| WRT 102  | Writing II                               |              | WRT 101       |
| or 154   | Technical Communications                 | 3            | WRT 100*      |

### **General Education and Support Courses**

|         |                          |   |          |
|---------|--------------------------|---|----------|
| ACC 102 | Managerial Accounting    | 3 | ACC 101* |
| PSM 130 | Postal Employee Services | 3 |          |



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

|                                |                    |
|--------------------------------|--------------------|
| Basic Certificate requirements | MAN 110<br>PSM 120 |
| WRT 102 or 154                 | PSM 130            |
| ACC 102                        | PSM 140            |

\*For additional prerequisite information, check Course Section.

## Postal Service Management—Associate of Applied Science Degree

**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. |              |               |

Advanced Certificate requirements 34

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

|         |   |   |          |
|---------|---|---|----------|
| MAN 280 | Business Organization and Management    | 3 | BUS 100* |
| PSM 200 | Postal Service Finance                  | 3 |          |
| PSM 240 | Mail Processing II                      | 3 | PSM 140  |
| PSM 250 | Postal Service Delivery and Collection  | 3 |          |
| PSM 260 | Postal Problems Analysis                | 3 |          |
| PSM 270 | Postal Customer Services                | 3 |          |
| PSM 280 | Management of Small Post Offices        | 3 |          |
| SPE 120 | Business and Professional Communication | 3 |          |

**General Education and Support Courses**

|         |   |   |          |
|---------|---|---|----------|
| CSC 100 | Introduction to Computers and Information Systems | 3 | MTH 070* |
| ECO 101 | Macroeconomics                                    | 3 | MTH 070* |
| PSM 210 | Mailroom Procedures and Mailing Techniques        | 3 |          |

**HUM/ART****Humanities and Fine Arts**

Elective  
Complete one of the following: 3-4  
ART 130, 131, 132, 135  
DRA 140, 141  
HUM 110, 111  
Foreign Language  
LIT 260, 265  
MUS 151, 201, 202  
PHI 101, 120

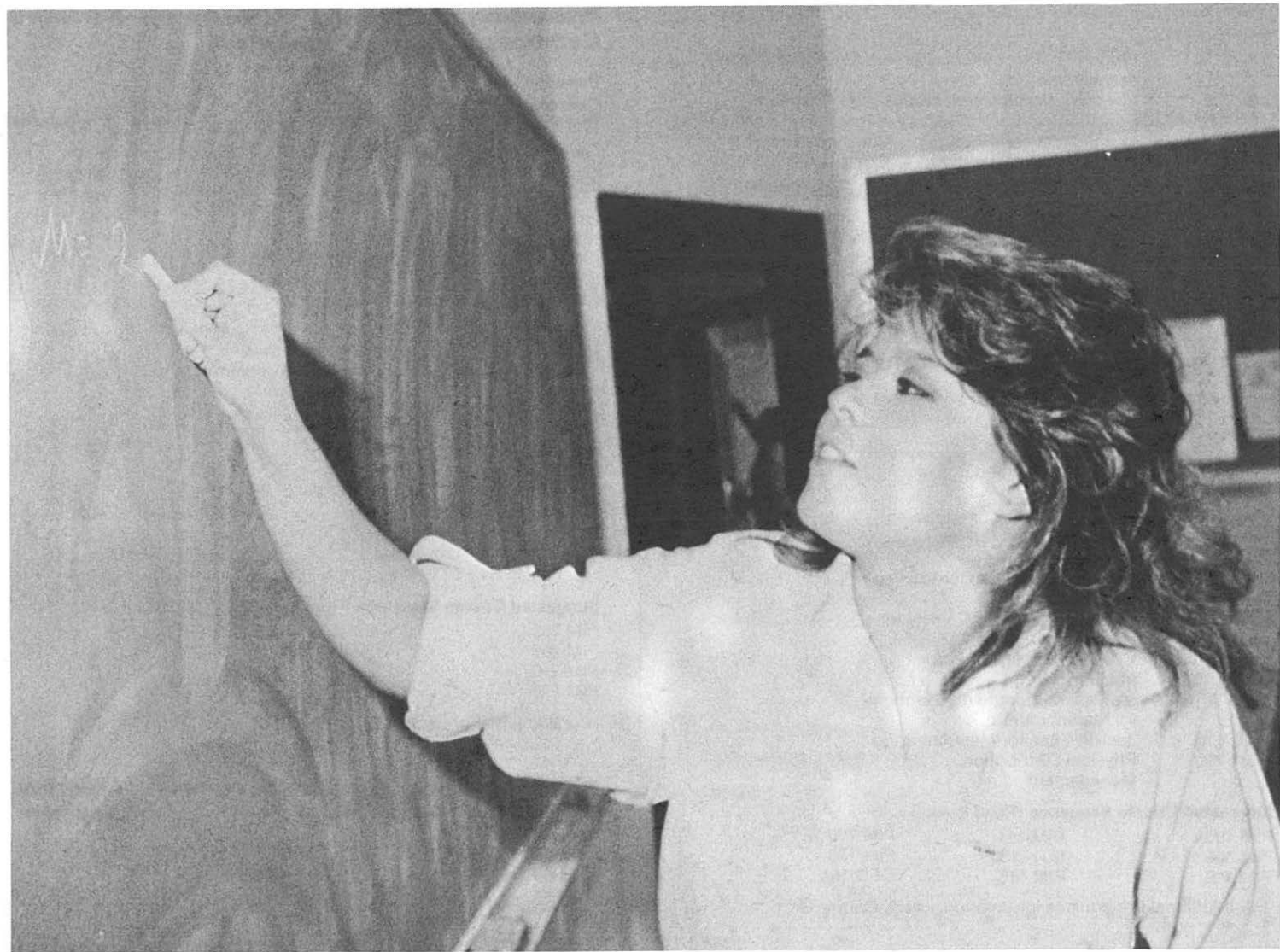
**Suggested Course Sequence** (Read down.)

|                                   |                                   |         |
|-----------------------------------|-----------------------------------|---------|
| Advanced Certificate requirements | PSM 240                           | PSM 280 |
| Reading requirement               | Humanities and Fine Arts elective | PSM 260 |
| ECO 101                           | CSC 100                           | PSM 270 |
| SPE 120                           | MAN 280                           | PSM 210 |
| PSM 200                           | PSM 250                           |         |

\*For additional prerequisite information, check Course Section.

## Production and Inventory Management

The Production and Inventory Management program (PIM) is designed to meet the educational needs of students desiring to enter or advance in the field of production management and inventory. This program encompasses the production and inventory management areas of shop-floor control, capacity planning, material requirements planning, inventory management, master scheduling and forecasting. Courses within the PIM program are designed to complement the local American Production and Inventory Control Society (APICS) seminars and workshops to prepare individuals for the APICS certification examinations.



The following courses are designed as preparation for APICS certification examinations:

|         |  |
|---------|--|
| PIM 200 | Production Planning Master Planning certification examination  |
| PIM 205 | Inventory Management certification examination   |
| PIM 210 | Production Control Capacity Management certification examination and Production Activity Control certification examination |
| PIM 215 | Material Requirements Planning (MRP) certification examination   |

Completion of a PIM certificate or degree program will prepare an individual for employment in a manufacturing environment with emphasis on production and inventory management.

## Production and Inventory Management—Basic Certificate For Direct Employment

### 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. |  |              |               |
| MTH 130  | Algebra II                                       | 3            | MTH 070*      |
| OED 151  | Business English or equivalent                   | 3            | WRT 100*      |
| PIM 100  | Master Planning for Manufacturing                | 1            |               |
| PIM 105  | Inventory Planning Control for Manufacturing     | 1            |               |
| PIM 110  | Production Activity Control for Manufacturing    | 1            |               |
| PIM 111  | Capacity Management for Manufacturing            | 1            |               |
| PIM 115  | Material Requirements Planning for Manufacturing | 1            |               |
| PIM 120  | Just-In-Time for Manufacturing                   | 1            |               |
| PIM 150  | Physical Distribution Management                 | 3            |               |

### Suggested Course Sequence (Read down.)

|         |         |         |
|---------|---------|---------|
| PIM 100 | PIM 111 | PIM 120 |
| PIM 105 | MTH 130 | PIM 150 |
| PIM 110 | PIM 115 | OED 151 |

\*For additional prerequisite information, check Course Section.

## Production and Inventory Management—Advanced Certificate For Direct Employment

### 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. |  |              |               |
| MTH 150  | College Algebra (or higher)  | 3            | MTH 130*      |
| OED 151  | Business English   | 3            | WRT 100*      |
| or WRT 101   | Writing I  | 3            | WRT 100*      |
| PIM 200  | Production Planning  | 3            |               |
| PIM 205  | Inventory Management   | 3            |               |
| PIM 210  | Production Control   | 3            |               |
| PIM 215  | Material Requirements Planning (MRP)   | 3            |               |
| ELEC   | Select 12 credit hours with the concurrence of a program advisor from the following electives: | 12           |               |
|  | ACC 203  |              |               |
|  | BUS 105  |              |               |
|  | CSC 100, 105   |              |               |
|  | ECO 100, 101   |              |               |
|  | MAN 122, 124   |              |               |
|  | PIM 101, 105, 110, 111, 115, 120, 203  |              |               |
|  | TTM 101  |              |               |

### Suggested Course Sequence (Read down.)

|         |                    |
|---------|--------------------|
| PIM 200 | OED 151 or WRT 101 |
| PIM 205 | MTH 150            |
| PIM 210 | Electives          |
| PIM 215 |                    |

\*For additional prerequisite information, check Course Section.

## Production and Inventory Management—Associate of Applied Science Degree For Direct Employment

### Required Courses (63-64 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.

|  |  |                                   |          |
|--|--|-----------------------------------|----------|
| Advanced Certificate Requirements  |  | 30                                |          |
| <b>Core Courses</b> - A grade of C or better is required for graduation. |  |                                   |          |
| MAN 280  | Business Organization and Management   | 3                                 | BUS 100* |
| OED 251  | Business Communications  | 3                                 | OED 151  |
| or WRT 102   | Writing II   | 3                                 | WRT 101  |
| PIM 150  | Physical Distribution Management   | 3                                 |          |
| <b>General Education and Support Courses</b>                             |  |                                   |          |
| ACC 101  | Financial Accounting   | 3                                 |          |
| ACC 102  | Managerial Accounting  | 3                                 | ACC 101  |
| BUS 100  | Introduction to Business   | 3                                 |          |
| BUS 205  | Statistical Methods in Economics and Business  | 3                                 | MTH 170* |
| MAN 110  | Human Relations in Business and Industry   | 3                                 |          |
| MKT 111  | Marketing  | 3                                 |          |
| SPE 120  | Business and Professional Communication  | 3                                 |          |
| HUM/ART  | Humanities and Fine Arts Elective<br>(See Graduation section of this catalog for associate of applied science degree course list.) | 3-4                               |          |
| <b>Suggested Course Sequence</b> (Read down.)                            |  |                                   |          |
| Reading requirement  | BUS 205  | Humanities and Fine Arts elective |          |
| ACC 101  | ACC 102  | MAN 280                           |          |
| PIM 150  | MAN 110  |                                   |          |
| BUS 100  | MKT 111  |                                   |          |
| OED 251 or WRT 102   | SPE 120  |                                   |          |

\*For additional prerequisite information, check Course Section.

## Public Administration

### Public Administration—Associate of Science Degree For Transfer

The public administration degree program for transfer prepares students for a university bachelor's degree program in public administration. Public administration includes the following major fields of interest: public management, health services administration, criminal justice administration and human services administration. Students interested in the latter two fields should consult administration of justice and social services faculty 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. 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 MTH 170 and 175 is MTH 150 or satisfactory score on mathematics assessment.

#### 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 | MTH 170* |
| CSC 100 | Introduction to Computers and Information Systems        | 3 | MTH 070* |
| ECO 200 | Principles of Economics                                  | 3 | MTH 070  |
| MTH 150 | College Algebra  | 3 | MTH 130* |
| MTH 170 | Finite Mathematics                                       | 3 | MTH 150  |
| MTH 175 | Topics in Calculus                                       | 3 | MTH 150  |
| 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                           |   |
| 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 lists.)

|   |      |
|---|------|
| English Composition   | 6    |
| Humanities and Fine Arts  | 6    |
| (Select 6 credits from: HIS 101, 102<br>HUM 110, 111, 251, 252, 253, 260<br>PHI 140<br>REL 140)         |      |
| Biological and Physical Sciences  | 8-10 |
| Mathematics   | 6    |
| (Core courses satisfy this requirement.)  |      |
| Social and Behavioral Sciences  | 6    |
| (Support courses satisfy 3 credits.<br>Select 3 additional credits from: HIS 113, 114,<br>170; REL 125) |      |
| Other Requirement options   | 8-10 |
| (Select 8-10 credits from Option (C) Foreign Languages list in the Graduation section of this catalog.) |      |

## Suggested Course Sequence

See an advisor.

\*For additional prerequisite information, check Course Section.

# Quality Systems Technology

Quality Systems Technology is an occupational program for persons seeking or pursuing a career in the quality field and for persons wishing to use Total Quality Management (TQM) concepts in other career fields. The program consists of a Basic Certificate (one semester), an Advanced Certificate (two semesters), and an Associate of Applied Science Degree (two years). The Basic Certificate gives an introduction to TQM and Statistical Process Control. The Advanced Certificate provides the student with knowledge of Quality Management including auditing, the economics of quality, and applications of TQM methods. The Associate Degree provides a quality systems orientation toward a selected commodity or services such as manufacturing (electronics, microelectronics, fabrication, etc.), hospitality, health care and management. Also, the program will aid the student in preparing for the examination to obtain certification from the ASQC (American Society of Quality Control).

## Quality Systems Technology—Basic Certificate For Direct Employment

### 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. |                                |              |               |
| ECO 100  | Introduction to Microeconomics | 3            | MTH 070       |
| TQM 101  | Basic Statistics               | 3            | MTH 070*      |
| WRT 101  | Writing I                      |              | WRT 100*      |
| or 150   | Technical Writing              | 3            |               |

**Manufacturing Core Track**

|         |                           |   |
|---------|---------------------------|---|
| DFT 101 | Blueprint Reading         | 3 |
| DFT 240 | Manufacturing Processes I | 3 |

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

|                |                    |
|----------------|--------------------|
| TQM 101        | ECO 100            |
| WRT 101 or 150 | Core Track courses |

\*For additional prerequisite information, check Course Section.

**Quality Systems Technology—Advanced Certificate For Direct Employment****Required Courses (36 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. |  |              |               |
| MTH 130  | Algebra II   | 3            | MTH 070*      |
| QCT 101  | Quality Control I                                    | 3            | MTH 070*      |
| QCT 102  | Quality Control II                                   | 3            | QCT 101       |
| TQM 102  | Experimental Design: Classical                       | 3            | TQM 101*      |
| TQM 106  | Reliability, Maintainability, and Safety of Products | 3            | TQM 101*      |
| WRT 154  | Technical Communications I                           |              | WRT 101*      |
| or 102   | Writing II   | 3            | WRT 101       |

**Manufacturing Core Track**

|         |                            |   |
|---------|----------------------------|---|
| DFT 245 | Manufacturing Processes II | 3 |
|---------|----------------------------|---|

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

|                                |                   |
|--------------------------------|-------------------|
| Basic Certificate requirements | TQM 106           |
| QCT 101                        | MTH 130           |
| QCT 102                        | Core Track course |
| TQM 102                        |                   |
| WRT 154 or 102                 |                   |

\*For additional prerequisite information, check Course Section.

**Quality Systems Technology—Associate of Applied Science Degree For Direct Employment****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. |              |               |

Advanced Certificate Requirements 36

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

|         |  |   |          |
|---------|--|---|----------|
| MAN 110 | Human Relations in Business and Industry | 3 |          |
| TQM 200 | Experimental Design Trends               | 3 | TQM 102* |
| TQM 210 | Tools and Methodology                    | 3 | TQM 102* |
| TQM 220 | Total Quality Management Implementation  | 3 | TQM 210* |

**Manufacturing Core Track**

|         |   |   |         |
|---------|---|---|---------|
| QCT 250 | Introduction to Statistical Quality Control | 3 | MTH 210 |
|---------|---|---|---------|

**Manufacturing Track Electives**

|  |   |   |  |
|--|---|---|--|
| 9 credit hours of the following QST program electives selected with a QST counselor. |   | 9 |  |
| BUS 205  | Statistical Methods in Economics and Business I   |   |  |
| BUS 206  | Statistical Methods in Economics and Business II  |   |  |
| BUS 220  | Legal Environment of Business                     |   |  |
| CSC 100  | Introduction to Computers and Information Systems |   |  |
| MAC 130  | Basic Metallurgy                                  |   |  |
| MAC 285  | Physical Metallurgy                               |   |  |
| MAN 122  | Supervision                                       |   |  |
| MAN 180  | Business of Management                            |   |  |
| QCT 160  | Geometric Dimensioning and Tolerancing            |   |  |
| QCT 230  | Machine Shop Inspector Skills                     |   |  |
| TQM 100  | Introduction to Total Quality Management          |   |  |



TQM 298 Special Topics: Quality Systems  
Healthcare

**General Education and Support Courses** (See Graduation section of the catalog for associate of applied science degree course lists.)

|         |  |   |
|---------|--|---|
| HUM/ART | Humanities and Fine Arts<br>Elective                       | 3 |
| SCI/MTH | Science and Mathematics<br>Elective<br>(MTH 150 or higher) | 3 |

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

|                                   |                                   |
|-----------------------------------|-----------------------------------|
| Advanced Certificate requirements | MAN 110                           |
| Reading requirement               | Core Track course                 |
| TQM 200                           | Core Track electives              |
| TQM 210                           | Humanities and Fine Arts elective |
| TQM 220                           | Math/Science elective             |

\*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 or, with additional training, specialization in radiation therapy, nuclear medicine, special procedures, ultrasound, CT scanning or magnetic resonance imaging. In addition, graduates may transfer to a university which offers a bachelor of science degree program in the field.

### REQUIREMENTS FOR ADMISSION INTO THE PROGRAM

REQUIREMENTS (1 through 6) MUST BE COMPLETED BY MARCH 15 PRIOR TO THE FALL SEMESTER BEING CONSIDERED FOR ENTRY INTO THE PROGRAM.

1. Graduation from high school or possession of a G.E.D. certificate.
2. Completion of MTH 130 with a grade of "C" or better within the last five years or submit evidence of scoring higher than MTH 130 as measured by college assessment.
3. 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.
4. Completion of all steps listed in the Procedures For Admission document enclosed in the most current program application packet.
5. Submission of all transcripts and application materials to the Health Related Professions admissions secretary.
6. Completion of a pre-admissions conference with program faculty.
7. Completion of BIO 201 with a grade of "C" or better within the last five years or by the end of the Spring semester prior to Program admission. Note: BIO 100 is a prerequisite for BIO 201.

The selection of students is approved by the West Campus Health Related Professions Selections Committee. Applicants will be notified of their status by mail.

### GENERAL REQUIREMENTS

- Total required credits: 82-83 credit hours

### MINIMAL GRADE ACHIEVEMENT

- Students must receive a "C" grade or better in all core courses in order to progress to the next semester.

## Radiologic Technology—Associate of Applied Science Degree For Direct Employment

Required Courses (82-83 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 171* |   |
| RAD 172 | Medical Imaging Technology I    | 4 | RAD 171* |   |
| RAD 173 | Radiographic Positioning I      | 4 | RAD 171* |   |
| RAD 174 | Clinical Education I            | 4 | RAD 172* |   |
| RAD 175 | Clinical Education II           | 6 | RAD 175  |   |
| RAD 181 | Medical Imaging Technology II   | 4 | RAD 175  |   |
| RAD 182 | Radiographic Positioning II     | 4 | RAD 181* |   |
| RAD 183 | Clinical Education III          | 6 | RAD 181* |   |
| RAD 184 | Medical Imaging Technology III  | 4 | RAD 181* |   |
| RAD 185 | Radiographic Positioning III    | 4 | RAD 184* |   |
| RAD 186 | Clinical Education IV           | 6 | RAD 188* |   |
| RAD 188 | Clinical Education V            | 6 | RAD 188* |   |
| RAD 191 | Clinical Education VI           | 6 | RAD 188* |   |
| RAD 192 | Clinical Seminar II             | 1 |          |   |

#### General Education and 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* |  |
| HUM/ART  | Humanities and Fine Arts Elective   | 3-4 |          |  |
|          | (See Graduation section of this catalog for associate of arts degree course lists.) |     |          |  |

#### 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 basically two program options: one in sales/brokerage which includes a two-year associate of applied science degree and basic and advanced certificates, the other in real estate escrow which offers a basic and an advanced certificate.

## 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, real property management, advertising, appraising, site developing, urban renewal, public housing and rehabilitation of property. 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. 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

#### 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 | 3            |               |
| <b>General Education and Support Courses</b>                             |  |              |               |
| ACC 101  | Financial Accounting                   | 3            |               |
| BUS 200  | Business Law I                         | 3            |               |
| MTH  | Determined by assessment test          | 3            | *             |
| WRT 101  | Writing I                              |              | WRT 100*      |
| or 150   | Practical Communications               | 3            |               |

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

|                |         |
|----------------|---------|
| WRT 101 or 150 | BUS 200 |
| Math course    | RLS 101 |
| ACC 101        |         |

\*For additional prerequisite information, check Course Section.

## Real Estate Sales/Brokerage—Advanced Certificate For Direct Employment

### 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. |  |              |               |
| FIN 205  | Real Estate Finance                      |              |               |
| or RLS 205   | Real Estate Finance                      | 3            |               |
| RLS 201  | Real Estate Law                          | 3            | RLS 101       |
| <b>General Education and Support Courses</b>                             |  |              |               |
| MKT 113  | Salesmanship                             | 3            |               |
| RLS 102  | Real Estate Practices                    | 3            | RLS 101*      |
| SPE 120  | Business and Professional Communications | 3            |               |

### Suggested Course Sequence (Read down.)

|                                |         |
|--------------------------------|---------|
| Basic Certificate requirements | RLS 102 |
| FIN 205 or RLS 205             | RLS 201 |
| MKT 113                        | SPE 120 |

\*For additional prerequisite information, check Course Section.

## Real Estate Sales/Brokerage—Associate of Applied Science Degree For Direct Employment

### Required Courses (63-65 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.

|         |                      |   |
|---------|----------------------|---|
| ACC 101 | Financial Accounting | 3 |
| FIN 205 | Real Estate Finance  | 3 |
| MKT 113 | Salesmanship         | 3 |

|         |  |   |         |
|---------|--|---|---------|
| RLS 101 | Introduction to Real Estate Principles | 3 |         |
| RLS 201 | Real Estate Law                        | 3 | RLS 101 |
| RLS 202 | Real Estate Appraisals                 | 3 | RLS 101 |

### General Education and Support Courses

|         |   |     |          |
|---------|---|-----|----------|
| ACC 102 | Managerial Accounting   | 3   | ACC 101* |
| BUS 200 | Business Law I  | 3   |          |
| ECO 100 | Introduction to Microeconomics  | 3   | MTH 070* |
| ECO 101 | Introduction to Macroeconomics  | 3   | MTH 070* |
| MAN 110 | Human Relations in Business and Industry  | 3   |          |
| MAN 124 | Small Business Management   | 3   |          |
| MTH     | Determined by assessment test at the 100 level or higher  | 3   |          |
| RLS 102 | Real Estate Practices   | 3   | *        |
| SPE 120 | Business and Professional Communications  | 3   |          |
| WRT 101 | Writing I   |     | WRT 100* |
| or 150  | Practical Communications  | 3   |          |
| HUM/ART | Humanities and Fine Arts Elective   |     |          |
|         | Complete one of the following:  | 3-4 |          |
|         | ART 130, 131, 132, 135  |     |          |
|         | DRA 140, 141  |     |          |
|         | HUM 110, 111  |     |          |
|         | Foreign Language  |     |          |
|         | LIT 260, 265  |     |          |
|         | MUS 151, 201, 202   |     |          |
|         | PHI 101, 120  |     |          |
| ELEC    | Real Estate Electives:  |     |          |
|         | Complete three courses at the 100 level or above which are related to the real estate industry. | 9   |          |
| SOC/BEH | Social and Behavioral Sciences Elective   |     |          |
|         | Complete one of the following:  | 3-4 |          |
|         | ANT 101, 102, 200, 210, 215, 225  |     |          |
|         | ECE 107, 108, 117   |     |          |
|         | ECO 100, 101  |     |          |
|         | GEO 103   |     |          |
|         | HIS 101, 102, 141, 142, 147   |     |          |
|         | MAN 110   |     |          |

POS 100, 110, 112, 120, 130  
 PSY 100A, 100B, 265  
 SOC 101, 120

### Suggested Course Sequence (Read down.)

|                      |                     |                       |
|----------------------|---------------------|-----------------------|
| Reading requirement  | SPE 120             | Real Estate elective  |
| WRT 101 or 150       | RLS 102             | MAN 124               |
| Math course          | MKT 113             | ACC 102               |
| ACC 101              | ECO 101             | RLS 201               |
| RLS 101              | FIN 205             | RLS 202               |
| Real Estate elective | MAN 110             | Social and Behavioral |
| BUS 200              | Humanities and Fine | Sciences elective     |
| ECO 100              | Arts elective       | Real Estate elective  |

\*For additional prerequisite information, check Course Section.

## Real Estate Escrow

This program option is designed for persons preparing for employment as escrow agents, officers or supervisors. It also provides professional education for those currently employed.

## Real Estate Escrow—Basic Certificate For Direct Employment

### 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 | 3            |               |
| RLS 120  | Real Estate Escrow Principles          | 3            |               |
| RLS 121  | Real Estate Escrow Practices           | 3            | RLS 120       |

### General Education and Support Courses

|                       |   |   |          |
|-----------------------|---|---|----------|
| ACC 101<br>or BUS 151 | Financial Accounting<br>Mathematics of Business   | 3 | MTH 060* |
| ELEC                  | Elective<br>(Complete one additional course as recommended by a real estate advisor to satisfy individual student requirements) | 3 | *        |

### Suggested Course Sequence (Read down.)

|         |                    |
|---------|--------------------|
| RLS 120 | ACC 101 or BUS 151 |
| RLS 121 | Elective           |
| RLS 101 |                    |

\*For additional prerequisite information, check Course Section.

## Real Estate Escrow—Advanced Certificate For Direct Employment

### 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 210  | Real Estate Escrow Problems  | 3            | RLS 121       |
| <b>General Education and Support Courses</b>                             |  |              |               |
| FIN 205  | Real Estate Finance  | 3            |               |
| RLS 201  | Real Estate Law  | 3            | RLS 101       |
| WRT  | Determined by assessment score   | 3            |               |
| ELEC   | Elective<br>(Complete one additional course as recommended by a real estate advisor to satisfy individual student requirements.) | 3            |               |

### Suggested Course Sequence (Read down.)

|                                |          |
|--------------------------------|----------|
| Basic Certificate requirements | RLS 201  |
| Writing course                 | FIN 205  |
| RLS 210                        | Elective |

\*For additional prerequisite information, check Course Section.

# Respiratory Therapist Program

This 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. This 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 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 who are accepted into the program and complete all required courses will be scheduled to enter the hospital portion of their program beginning with the third semester. Graduates will receive either an associate of applied science degree or an advanced certificate as a respiratory therapist. Graduates receiving an advanced certificate may complete the program in less than five semesters or with reduced course work depending on their previous background in respiratory care and college courses completed.

The advanced certificate program is designed for and limited to those individuals with previous work experience in respiratory care and/or graduates of American Medical Association (AMA) approved respiratory technician training programs. Individuals who have completed medical training in other disciplines may qualify for advanced placement into the respiratory therapist program.

Following completion of this AMA-approved program, the graduate is qualified for immediate employment and for application to the National Board for Respiratory Care (NBRC) for the entry-level certification examination (CRTT). 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.

## Requirements for Acceptance Into the Associate of Applied Science Degree and Advanced Certificate Curriculum:

- Receipt of high school and college-level transcripts (if applicable)
- Completion of Pima College and Respiratory Therapist Program applications
- Receipt of placement examination results in math and reading comprehension (See Graduation section of this catalog for the reading requirement.)
- Personal pre-admission conference with the program faculty
- Approval by the selections committee

## Requirements for an Advanced Certificate:

This program has a variable number of credit hours based on individual background and previous academic coursework. See respiratory therapy full-time faculty.

## Requirements for an Associate of Applied Science Degree:

This program requires 76 to 77 credit hours to be completed as follows:

- Work in residence: consult with program full-time faculty
- Correspondence and extension study: as arranged by the program chairman

## Minimum Grade Achievement:

- "C" level

## Respiratory Care—Advanced Certificate For Direct Employment

### Required Courses (17-23 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.

See program chairman.

### General Education and Support Courses

|         |  |   |
|---------|--|---|
| BIO 160 | Introduction to Human Anatomy and Physiology | 4 |
|---------|--|---|

|                   |   |     |            |
|-------------------|---|-----|------------|
| CHM 130<br>or 196 | Fundamental Chemistry<br>Independent Studies in<br>Chemistry  | 1-5 |            |
| MTH 070           | Algebra I   | 3   | MTH 060*   |
| RTH 180           | Microbiology for Respiratory<br>Therapists  |     | BIO 160*   |
| or BIO 205        | Microbiology I  | 3-4 | * WRT 100* |
| WRT 101<br>or 150 | Writing I<br>Practical Communications   | 3   |            |
| HUM/ART           | Humanities and Fine Arts<br>Electives<br>(See Graduation section of this<br>catalog for Humanities and Fine<br>Arts course list.) | 3-4 |            |

### Suggested Course Sequence

See a respiratory therapist faculty advisor.

\*For additional prerequisite information, check Course Section

## Respiratory Care—Associate of Applied Science Degree For Direct Employment

### Required Courses (76-77 Credit Hours)

| Course<br>Number | Course Title  | Credit<br>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<br>Therapists | 3 | RTH 171* |
| RTH 182 | Respiratory Physiology                     | 4 | BIO 160* |
| RTH 183 | Basic Therapeutics in<br>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<br>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 184* |
| RTH 193 | Clinical Procedures III        | 6 | RTH 192* |

### General Education and Support Courses

|                   |  |     |            |
|-------------------|--|-----|------------|
| BIO 160           | Introduction to Human Anatomy<br>and Physiology                        | 4   |            |
| CHM 130           | Fundamental Chemistry  | 5   |            |
| MTH               | Determined by assessment<br>test at the 100 level or higher            | 3   |            |
| PSY 100A          | Psychology I   | 3   |            |
| RTH 180           | Microbiology for Respiratory<br>Therapists                             |     | BIO 160*   |
| or BIO 205        | Microbiology I   | 3-4 | * WRT 100* |
| WRT 101           | Writing I  | 3   | WRT 101    |
| WRT 102<br>or 150 | Writing II<br>Practical Communications                                 | 3   |            |
| HUM/ART           | Humanities and Fine Arts<br>Elective<br>Complete one of the following: | 3-4 |            |
|                   | ART 130, 131, 132, 135   |     |            |
|                   | DRA 140, 141   |     |            |
|                   | HUM 110, 111   |     |            |
|                   | Foreign Language   |     |            |
|                   | LIT 260, 265   |     |            |
|                   | MUS 151, 201, 202  |     |            |
|                   | PHI 101, 120   |     |            |

### 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 |
| RTH 171             | RTH 184  | Arts elective       |
| WRT 102 or 150      | RTH 185  |                     |
| BIO 210             | RTH 186  |                     |

\*For additional prerequisite information, check Course Section.



## 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, 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. In addition to the social services major, the student may choose to expand his or her skill and knowledge base with a subspecialty in either substance abuse or gerontology.

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 subspecialty degree programs include various units on 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 subspecialty degree programs emphasize 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, three basic certificates are offered. These certificates 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 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 an 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.

Those seeking an associate degree must fulfill minimum general education requirements set by Pima Community College to graduate. Students applying for graduation in an associate degree program must demonstrate competency in reading. This is defined as a minimum score of at least the twelfth grade level in each of the vocabulary and comprehension sections as measured by college assessment.

Core courses in the social services program are SSE 133, 134, 135, 216, 234 and 237. In addition to these, SSE 115, 116, 127 and 218 are core courses for the substance abuse subspecialty degree. SSE 140, 141, SOC 166, SSE 199 and 299 are core courses for the gerontology subspecialty. 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. The Co-op Related Class in SSE (SSE 199) and Co-op Work in SSE (SSE 199) are required for those seeking the associate of applied science degree. In these courses, the student performs 225 credit 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. Students are strongly urged to talk with a social services advisor about the best way to schedule classes.

### Social Services—Associate of Applied Science Degree For Direct Employment

#### 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 133 | Introduction to Social Welfare         | 3 |          |
| SSE 134 | Casework Methods I                     | 3 |          |
| SSE 135 | Group Work                             | 3 |          |
| SSE 199 | Co-op Related Class in SSE             | 1 | SSE 133* |
| SSE 199 | Co-op Work in SSE                      | 3 | SSE 133* |
| SSE 216 | Community Organization and Development | 3 | SSE 133  |
| SSE 234 | Casework Methods II                    | 3 | SSE 134  |
| SSE 237 | Group Technique Applications           | 3 | SSE 135  |

**General Education and Support Courses**

|           |   |    |          |
|-----------|---|----|----------|
| SSE ELEC  | May be fulfilled by taking an SSE course which is not listed as a core course.  | 3  |          |
| WRT 101   | Writing I   | 3  | WRT 100* |
| WRT 102   | Writing II  | 3  | WRT 101  |
| HUM/ART   | Humanities and Fine Arts Elective<br>(See Graduation section of this catalog for associate of applied science degree listing.)        | 3  |          |
| SCI/MTH   | Science and Mathematics Electives<br>(See Graduation section of this catalog for associate of applied science degree listing.)        | 6  |          |
| SOC/BEH   | Social and Behavioral Sciences Electives<br>(See Graduation section of this catalog for associate of applied science degree listing.) | 3  |          |
| ELECTIVES |   | 18 |          |

**Suggested Course Sequence**

See a social services faculty advisor.

\*For additional prerequisite information, check Course Section.

## Social Services—Associate of Arts Degree For Transfer

Verification of transfer courses should be established with the transfer university or college, or with a Pima Community College counselor or faculty advisor.

**Required Courses (61-66 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.

|         |  |   |         |
|---------|--|---|---------|
| SSE 133 | Introduction to Social Welfare         | 3 |         |
| SSE 134 | Casework Methods I                     | 3 |         |
| SSE 135 | Group Work                             | 3 |         |
| SSE 216 | Community Organization and Development | 3 | SSE 133 |
| SSE 234 | Casework Methods II                    | 3 | SSE 134 |
| SSE 237 | Group Technique Applications           | 3 | SSE 135 |

**Support Courses**

|           |  |   |          |
|-----------|--|---|----------|
| SSE 199** | Co-op Related Class in SSE   | 1 | SSE 133* |
| SSE 199** | Co-op Work in SSE  | 3 | SSE 133* |
| 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 lists.)

|                                  |     |
|----------------------------------|-----|
| English Composition:             | 6   |
| WRT 101 Writing I                |     |
| WRT 102 Writing II               |     |
| Humanities and Fine Arts         | 9   |
| Biological and Physical Sciences | 8   |
| Mathematics (MTH 150 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 Subspecialty— Associate of Applied Science Degree For Direct Employment

### Required Courses (61-61 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                   | 3 |          |
| SSE 133 | Introduction to Social Welfare         | 3 |          |
| SSE 134 | Casework Methods I                     | 3 |          |
| SSE 135 | Group Work                             | 3 |          |
| SSE 140 | Gerontology: Casework Practice         | 3 |          |
| SSE 141 | Aging-Health and Physiology            | 3 |          |
| SSE 199 | Co-op Related Class in SSE             | 1 | SSE 133* |
| SSE 199 | Co-op Work in Gerontology              | 3 | SSE 140* |
| SSE 216 | Community Organization and Development | 3 | SSE 133  |
| SSE 234 | Casework Methods II                    | 3 | SSE 134  |
| SSE 237 | Group Technique Applications           | 3 | SSE 135  |
| SSE 299 | Co-op Work in Gerontology              | 3 | SSE 199* |

### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| WRT 101 | Writing I  | 3 | WRT 100* |
| WRT 102 | Writing II   | 3 | WRT 101  |
| HUM/ART | Humanities and Fine Arts Elective<br>(See Graduation section of this catalog for the associate of applied science degree listing.) | 3 |          |

|           |  |   |
|-----------|--|---|
| SCI/MTH   | Science and Mathematics Electives<br>(See Graduation section of this catalog for the associate of applied science degree listing.)       | 6 |
| SOC/BEH   | Social and Behavioral Sciences Elective<br>(See Graduation section of this catalog for the associate of applied science degree listing.) | 3 |
| ELECTIVES |  | 9 |

### Suggested Course Sequence

See a social services faculty advisor.

\*For additional prerequisite information, check Course Section.

## Social Services Gerontology Subspecialty— Associate of Arts Degree For Transfer

### 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                   | 3 |          |
| SSE 133 | Introduction to Social Welfare         | 3 |          |
| SSE 134 | Casework Methods I                     | 3 |          |
| SSE 135 | Group Work                             | 3 |          |
| SSE 140 | Gerontology: Casework Practice         | 3 |          |
| SSE 141 | Aging-Health and Physiology            | 3 |          |
| SSE 199 | Co-op Related Class in SSE             | 1 | SSE 133* |
| SSE 199 | Co-op Work in Gerontology              | 3 | SSE 140* |
| SSE 216 | Community Organization and Development | 3 | SSE 133  |
| SSE 234 | Casework Methods II                    | 3 | SSE 134  |
| SSE 237 | Group Technique Applications           | 3 | SSE 135  |

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

|                                  |     |
|----------------------------------|-----|
| English Composition              | 6   |
| Humanities and Fine Arts         | 9   |
| Biological and Physical Sciences | 8   |
| Mathematics (MTH 150 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 Subspecialty— Associate of Applied Science Degree For Direct Employment**

### **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 115 | Drugs in American Society               | 3 |          |
| SSE 116 | Introduction to Alcohol Abuse           | 3 |          |
| SSE 127 | Political and Legal Aspects of Drug Use | 3 |          |
| SSE 133 | Introduction to Social Welfare          | 3 |          |
| SSE 134 | Casework Methods I                      | 3 |          |
| SSE 135 | Group Work                              | 3 |          |
| SSE 199 | Co-op Related Class in SSE              | 1 | SSE 133* |
| SSE 199 | Co-op Work in SSE                       | 3 | SSE 133* |
| SSE 216 | Community Organization and Development  | 3 | SSE 133  |
| SSE 218 | Treatment of the Drug Abuser            | 3 |          |
| SSE 234 | Casework Methods II                     | 3 | SSE 134  |
| SSE 237 | Group Technique Applications            | 3 | SSE 135  |

### **General Education and Support Courses**

|           |  |   |          |
|-----------|--|---|----------|
| WRT 101   | Writing I  | 3 | WRT 100* |
| WRT 102   | Writing II   | 3 | WRT 101  |
| HUM/ART   | Humanities and Fine Arts Elective<br>(See Graduation section of this catalog for the associate of applied science degree listing.)       | 3 |          |
| SCI/MTH   | Science and Mathematics Electives<br>(See Graduation section of this catalog for the associate of applied science degree listing.)       | 6 |          |
| SOC/BEH   | Social and Behavioral Sciences Elective<br>(See Graduation section of this catalog for the associate of applied science degree listing.) | 3 |          |
| SSE ELEC  | May be fulfilled by taking an SSE course which is not listed as a core course.   | 3 |          |
| ELECTIVES |  | 6 |          |

### **Suggested Course Sequence**

See a social services faculty advisor.

\*For additional prerequisite information, check Course Section.

## **Social Services Substance Abuse Subspecialty— Associate of Arts Degree For Transfer**

Verification of transfer courses should be established with the transfer university or college, or with a Pima Community College counselor or faculty advisor.

### **Required Courses (70-75 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.

|         |   |   |         |
|---------|---|---|---------|
| SSE 115 | Drugs in American Society               | 3 |         |
| SSE 116 | Introduction to Alcohol Abuse           | 3 |         |
| SSE 127 | Political and Legal Aspects of Drug Use | 3 |         |
| SSE 133 | Introduction to Social Welfare          | 3 |         |
| SSE 134 | Casework Methods I                      | 3 |         |
| SSE 135 | Group Work                              | 3 |         |
| SSE 216 | Community Organization and Development  | 3 | SSE 133 |
| SSE 218 | Treatment of the Drug Abuser            | 3 |         |
| SSE 234 | Casework Methods II                     | 3 | SSE 134 |
| SSE 237 | Group Technique Applications            | 3 | SSE 135 |

#### Support Courses

|           |                            |   |          |
|-----------|----------------------------|---|----------|
| SSE 199** | Co-op Related Class in SSE | 1 | SSE 134* |
| SSE 199** | Co-op Work in SSE          | 3 | SSE 134* |

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

|                                  |     |
|----------------------------------|-----|
| English Composition              | 6   |
| Humanities and Fine Arts         | 9   |
| Biological and Physical Sciences | 8   |
| Mathematics (MTH 150 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

#### Required Courses (18 Credit Hours)

| Course Number | Course Title                           | Credit Hours | Prerequisites |
|---------------|--|--------------|---------------|
| SSE 133       | Introduction to Social Welfare         | 3            |               |
| SSE 134       | Casework Methods I                     | 3            |               |
| SSE 135       | Group Work                             | 3            |               |
| SSE 216       | Community Organization and Development | 3            | SSE 133       |

|         |                              |   |         |
|---------|------------------------------|---|---------|
| SSE 234 | Casework Methods II          | 3 | SSE 134 |
| SSE 237 | Group Technique Applications | 3 | SSE 135 |

#### Suggested Course Sequence

See a social services faculty advisor.

### Social Services Substance Abuse—Basic Certificate

#### Required Courses (18 Credit Hours)

| Course Number | Course Title                            | Credit Hours | Prerequisites |
|---------------|---|--------------|---------------|
| SSE 133       | Introduction to Social Welfare          | 3            |               |
| SSE 134       | Casework Methods I                      | 3            |               |
| SSE 115       | Drugs in American Society               | 3            |               |
| SSE 116       | Introduction to Alcohol Abuse           | 3            |               |
| SSE 127       | Political and Legal Aspects of Drug Use | 3            |               |
| SSE 218       | Treatment of the Drug Abuser            | 3            |               |

#### Suggested Course Sequence

See a social services faculty advisor.

### Social Services Domestic Violence Intervention—Basic Certificate

#### Required Courses (18 Credit Hours)

| Course Number | Course Title                               | Credit Hours | Prerequisites |
|---------------|--|--------------|---------------|
| AJS 146       | Child Abuse Intervention and Protection    | 3            |               |
| SOC 127       | Marriage and the Family (Same as HEC 127)  | 3            |               |
| SSE 133       | Introduction to Social Welfare             | 3            |               |
| SSE 134       | Casework Methods I                         | 3            |               |
| SSE 138       | Domestic Violence: Causes and Cures        | 3            |               |
| SSE 236       | Crisis Intervention, Theory and Techniques | 3            | SSE 134       |

#### Suggested Course Sequence

See a social services faculty advisor.

# 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

Verification of transfer courses should be established with the transfer university or college, or with a Pima Community College counselor or faculty advisor.

### 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.

|         |                                   |   |
|---------|-----------------------------------|---|
| SPE 105 | Voice and Diction                 | 2 |
| SPE 110 | Public Speaking                   | 3 |
| SPE 124 | Argumentation and Debate          | 3 |
| SPE 130 | Small Group Discussion            | 3 |
| SPE 125 | Forensics                         | 1 |
| SPE 136 | Oral Interpretation of Literature | 3 |

### Support Courses

|                  |   |      |           |
|------------------|---|------|-----------|
| FOREIGN LANGUAGE | Four transferable semesters in one foreign language or demonstrated proficiency at fourth semester level. | 4-16 | **        |
| 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 lists.)

|  |     |
|--|-----|
| English Composition  | 6   |
| Humanities and Fine Arts   | 9   |
| Biological and Physical Sciences   | 8   |
| Mathematics (MTH 150 or above)   | 3   |
| Social and Behavioral Sciences   | 9   |
| (ANT 102 AND PSY 250 are required in addition to 3 other credit hours from the General Education course list.) |     |
| Other Requirement options  | 5-6 |
| (Foreign language satisfies this requirement.)   |     |

### Suggested Course Sequence (Read down.)

|   |                                   |                       |
|---|-----------------------------------|-----------------------|
| Reading requirement                       | ANT 102                           | PSY 250               |
| English composition                       | SPE 105                           | Foreign language      |
| SPE 110                                   | English composition               | Social and Behavioral |
| SPE 125                                   | Foreign language                  | Sciences elective     |
| Foreign language                          | Biological and                    | SPE 136               |
| Mathematics elective                      | Physical Sciences                 | Humanities and Fine   |
| Humanities and Fine Arts elective         | SPE 124                           | Arts elective         |
| Biological and Physical Sciences elective | SPE 130                           | Foreign language      |
|   | Humanities and Fine Arts elective |                       |



\*For additional prerequisite information, check Course Section.

\*\*Bilingual or international students should consult an advisor concerning exceptions to this requirement. If fewer than 16 credits are required in foreign language, additional credits of transferable electives must be completed to meet the minimum associate of arts degree requirement of 60 credits.

## Training for Special Education

Paraprofessionals in the training for special education program need a general understanding of special children and specific training in teaching techniques for special children. The objectives of this program are to train paraprofessionals to:

1. understand the various handicapping conditions;
2. recognize high-risk children and refer them to appropriate personnel;
3. use assessment and prescriptive diagnostic procedures;
4. use appropriate teaching techniques; and
5. be familiar with programs and services of community agencies working with handicapped children.

### Training for Special Education—Basic Certificate For Direct Employment

#### 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. |                     |              |               |
| ECE 126  | Teaching Techniques | 3            |               |
| PSY 100A   | Psychology I        | 3            |               |

#### General Education and Support Courses

|         |  |   |          |
|---------|--|---|----------|
| SLG 101 | American Sign Language I                               | 4 |          |
| TSE 132 | Behavior Modification Techniques for Special Education | 3 |          |
| WRT 101 | Writing I  | 3 | WRT 100* |

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

WRT 101  
ECE 126  
TSE 132  
PSY 100A  
SLG 101

\*For additional prerequisite information, check Course Section.

### Training for Special Education—Advanced Certificate For Direct Employment

#### Required Courses (34-36 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. |   |              |               |
| TSE 130  | Techniques for Teaching Multiple Handicapped              | 3            |               |
| TSE 142  | Special Speech and Language Techniques                    | 3            |               |
| TSE 155  | Issues in Special Education                               | 3            |               |
| <b>General Education and Support Courses</b>                             |   |              |               |
| ECE 117  | Child Growth and Development                              | 3            |               |
| TSE 150  | Behavior Modification Techniques for Special Education II | 3            | TSE 132       |
| SCI/MTH  | Science and Mathematics Elective                          |              |               |
|  | Complete one of the following:                            | 3-5          |               |
|  | ACC 100, 101, 102   |              |               |
|  | AST 101, 102, 111, 112                                    |              |               |
|  | BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205      |              |               |
|  | BUS 151   |              |               |
|  | CHM 121, 130, 140, 141, 151, 152                          |              |               |

GEO 101, 102  
 GLG 101, 102  
 MTH 060, 065, 070, 090, 110,  
 115, 120, 125, 130, 135, 140,  
 145, 150, 155, 160, 170, 175,  
 180, 185, 210, 215, 219  
 PHY 101, 102, 105, 121, 122,  
 131, 132, 210, 216, 221, 230

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

Basic Certificate requirements  
 ECE 117  
 TSE 142  
 TSE 130

TSE 155  
 Science/Mathematics  
 elective  
 TSE 150

### Training for Special Education—Associate of Applied Science Degree

#### 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. |              |               |

Advanced Certificate requirements 34-36

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

|         |  |   |
|---------|--|---|
| TSE 238 | Characteristics of Learning Disabilities                 | 3 |
| TSE 240 | Techniques for Teaching the Mentally Handicapped Student | 3 |
| TSE 245 | The Young Handicapped Child                              | 3 |
| TSE 250 | Classroom Communication Skills                           | 3 |
| TSE 255 | Behavior Disorders in the Classroom                      | 3 |
| TSE 265 | Adaptive Technology in Special Education                 | 3 |

#### General Education and Support Courses

|         |                                   |     |          |
|---------|-----------------------------------|-----|----------|
| ECE 110 | Communication Skills for Children | 3   |          |
| MTH 130 | Algebra II                        | 3   | MTH 070* |
| WRT 102 | Writing II                        | 3   | WRT 101* |
| HUM/ART | Humanities and Fine Arts Elective |     |          |
|         | Complete one of the following:    | 3-4 |          |
|         | ART 130, 131, 132, 135            |     |          |
|         | DRA 140, 141                      |     |          |
|         | HUM 110, 111                      |     |          |
|         | Foreign Language                  |     |          |
|         | LIT 260, 265                      |     |          |
|         | MUS 151, 201, 202                 |     |          |
|         | PHI 101, 120                      |     |          |

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

|                                   |                                   |         |
|-----------------------------------|-----------------------------------|---------|
| Advanced Certificate requirements | TSE 255                           | TSE 250 |
|                                   | TSE 238                           | TSE 265 |
| Reading requirement               | Humanities and Fine Arts elective |         |
| WRT 102                           |                                   |         |
| MTH 130                           | TSE 245                           |         |
| ECE 110                           | TSE 240                           |         |

\*For additional prerequisite information, check Course Section.

## Transportation and Traffic Management

The diverse field of transportation and traffic management is one of the most dynamic in modern society. Our businesses, our government and our private lives are dependent upon the efficient movement of people and goods.

The transportation certificate and degree programs have been designed in cooperation with the major shippers of commodities, representatives of all available carrier modes, Tucson Transportation Club, Tucson Movers Association and Delta Nu Alpha Transportation Fraternity. A curriculum has been established to develop skills for new entrants to the transportation industry and to enhance the skills of persons currently involved in transportation.

The program certificate and degree options utilize the career ladder concept. This means that a student may smoothly progress from the basic certificate, requiring 19 credit hours, to the advanced certificate, requiring 18 additional credit hours, and then to the associate of applied science degree, requiring an additional 30-31 credit hours for a program total of 67 credit hours. The course work provides graduates a suitable background for further study and work in the transportation industry.

## Transportation and Traffic Management—Basic Certificate For Direct Employment

### 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. |                                |              |               |
| BUS 151  | Mathematics of Business        | 3            | MTH 060*      |
| CSC 105  | Survey of Microcomputer Uses   | 3            |               |
| TTM 101  | Fundamentals of Transportation | 3            |               |
| TTM 102  | Economics of Transportation    | 3            |               |

### General Education and Support Courses

|          |  |   |          |
|----------|--|---|----------|
| BUS 100  | Introduction to Business                     | 3 |          |
| OED 111A | Typing I: Keyboarding                        | 1 |          |
| OED 111B | Typing I: Basic Correspondence and Centering | 1 | OED 111A |
| OED 121  | Calculating Machines                         | 2 | BUS 151  |

### Suggested Course Sequence (Read down.)

TTM 101  
TTM 102  
BUS 151  
CSC 105  
OED 111A  
OED 111B  
OED 121  
BUS 100

\*For additional prerequisite information, check Course Section.

## Transportation and Traffic Management—Advanced Certificate For Direct Employment

### Required Courses (37 Credit Hours)

| Course Number  | Course Title                   | Credit Hours | Prerequisites |
|--|--------------------------------|--------------|---------------|
| Basic Certificate requirements   |                                | 19           |               |
| <b>Core Courses</b> - A grade of C or better is required for graduation. |                                |              |               |
| MKT 111  | Marketing                      | 3            |               |
| TTM 104  | Rates and Tariffs              | 3            |               |
| WRT 101  | Writing I                      |              | WRT 100*      |
| or 150   | Practical Communications       | 3            |               |
| <b>General Education and Support Courses</b>                             |                                |              |               |
| ACC 101  | Financial Accounting           | 3            |               |
| ECO 100  | Introduction to Microeconomics | 3            | MTH 070*      |
| MAN 122  | Supervision                    | 3            |               |

### Suggested Course Sequence (Read down.)

|                                |         |
|--------------------------------|---------|
| Basic Certificate requirements | MKT 111 |
|                                | MAN 122 |
| WRT 101 or 150                 | ACC 101 |
| ECO 100                        |         |
| TTM 104                        |         |

\*For additional prerequisite information, check Course Section.

## Transportation and Traffic Management—Associate of Applied Science Degree For Direct Employment

### 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. |              |               |

Advanced Certificate requirements 37

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

|         |                                    |   |
|---------|------------------------------------|---|
| TTM 201 | Principles of Air Transportation   | 3 |
| TTM 202 | Principles of Motor Transportation | 3 |
| TTM 204 | Physical Distribution Management   | 3 |

**General Education and Support Courses**

|         |   |     |          |
|---------|---|-----|----------|
| ACC 102 | Managerial Accounting                   | 3   | ACC 101* |
| BUS 200 | Business Law I                          | 3   |          |
| HUM 251 | Western Humanities I                    | 4   |          |
| HUM 252 | Western Humanities II                   | 4   |          |
| IBC 140 | Basic Techniques of International Trade | 3   |          |
| SPE 120 | Business and Professional Communication | 3   |          |
| SOC/BEH | Social and Behavioral Sciences Elective |     |          |
|         | Complete one of the following:          | 3-4 |          |
|         | ANT 101, 102, 200, 210, 215, 225        |     |          |
|         | ECO 100, 101                            |     |          |
|         | GEO 103                                 |     |          |
|         | HIS 101, 102, 141, 142, 147             |     |          |
|         | MAN 110                                 |     |          |
|         | POS 100, 110, 112, 120, 130             |     |          |
|         | PSY 100A, 100B, 265                     |     |          |
|         | SOC 101, 120                            |     |          |

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

|                                   |         |   |
|-----------------------------------|---------|---|
| Advanced Certificate requirements | HUM 251 | Social and Behavioral Sciences elective |
| Reading requirement               | ACC 102 | TTM 202                                 |
| IBC 140                           | SPE 120 | TTM 204                                 |
| BUS 200                           | TTM 201 |   |
|                                   | HUM 252 |   |

\*For additional prerequisite information, check Course Section.

## 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

**Required Courses (20-21 Credit Hours)**

| Course Number | Course Title | Credit Hours | Prerequisites |
|---------------|--------------|--------------|---------------|
|---------------|--------------|--------------|---------------|

**Core Courses** - 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 |  |

**General Education and Support Courses**

|           |  |     |  |
|-----------|--|-----|--|
| MAC 130   | Basic Metallurgy                                 | 3   |  |
| MTH       | 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, 270                                     |     |  |
|           | PHY 101  |     |  |
|           | SML 101, 102, 103                                |     |  |
|           | WLD 162, 163, 164, 170, 180, 199, 299            |     |  |

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

|                      |
|----------------------|
| WLD 150              |
| WLD 160              |
| Mathematics elective |
| MAC 130              |
| WLD 115              |
| Technical elective   |

## Welding—Technical Certificate For Direct Employment

### 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 150*      |
| <b>General Education and Support Courses</b>                             |  |              |               |
| MAC 130  | Basic Metallurgy   | 3            |               |
| MAC 285  | Physical Metallurgy  | 3            | MAC 130       |
| MAN 110  | Human Relations in Business and Industry                               | 3            |               |
| WRT 100  | Writing Fundamentals   | 3            | WRT 070*      |
| MTH 110  | Technical Mathematics I  | 3            | MTH 060*      |
| TECH ELEC  | Technical Elective<br>Complete 3 or 4 credit hours from the following: | 3-4          |               |
|  | CSC 105  |              |               |
|  | DFT 150, 180   |              |               |
|  | MAC 110, 270   |              |               |
|  | PHY 101  |              |               |
|  | SML 101, 102, 103  |              |               |
|  | WLD 118, 162, 163, 164, 170, 180, 199, 299                             |              |               |

### Suggested Course Sequence (Read down.)

|         |                    |
|---------|--------------------|
| WRT 100 | WLD 250            |
| WLD 115 | MAC 130            |
| MTH 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

### Required Courses (62-63 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.

|         |                             |   |          |
|---------|-----------------------------|---|----------|
| WLD 115 | Blueprint Reading           | 3 |          |
| WLD 118 | Structural Steel Estimating | 3 | WLD 115* |
| WLD 150 | Oxyacetylene Welding        | 4 |          |
| WLD 160 | Arc Welding                 | 4 |          |
| WLD 250 | Pipe Welding                | 4 | WLD 150* |
| WLD 261 | Gas Metal Arc Welding       | 4 | WLD 150* |
| WLD 262 | Gas Tungsten Arc Welding    | 4 | WLD 150* |

### General Education and Support Courses

|         |   |     |          |
|---------|---|-----|----------|
| MAC 130 | Basic Metallurgy  | 3   |          |
| MAC 285 | Physical Metallurgy   | 3   | MAC 130  |
| MAN 110 | Human Relations in Business and Industry                            | 3   |          |
| MTH 110 | Technical Mathematics I   | 3   | MTH 060* |
| MTH 120 | Technical Mathematics II  | 3   | MTH 110  |
| SML 101 | Sheet Metal and Pattern Layout I                                    | 4   |          |
| WRT 100 | Writing Fundamentals  | 3   | WRT 070* |
| WRT 154 | Technical Communications I  | 3   | WRT 100* |
| HUM/ART | Humanities and Fine Arts Elective<br>Complete one of the following: | 3-4 |          |
|         | ART 130, 131, 132, 135  |     |          |
|         | DRA 140, 141  |     |          |
|         | HUM 251, 252, 253   |     |          |
|         | Foreign Language  |     |          |
|         | LIT 260, 265  |     |          |
|         | MUS 151, 201, 202   |     |          |
|         | PHI 101, 102, 120   |     |          |





## Youth Care—Advanced Certificate For Direct Employment

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<br>or 225 | Juvenile Justice Procedures<br>Crime and Delinquency | 3 |  |
| ECE 107           | Human Development and Relations                      |   |  |
| or 117            | Child Growth and Development                         | 3 |  |
| ECE 111           | Techniques for the Special Child                     |   |  |
| or 114            | Effective Parenthood                                 | 3 |  |
| SSE 135           | Group Work   | 3 |  |
| YCA 163           | Introduction to Youth Care                           | 3 |  |
| YCA 290           | Field Experience                                     | 3 |  |

### General Education and Support Courses

|          |  |     |          |
|----------|--|-----|----------|
| WRT 101  | Writing I                                |     | WRT 100* |
| or 150   | Practical Communications                 | 3   |          |
| MTH      | Determined by assessment test            | 3   |          |
| SOC/BEH  | Social and Behavioral Sciences Electives |     |          |
|          | Complete one of the following:           | 3-4 |          |
|          | ANT 101, 102, 200, 210, 215, 225         |     |          |
|          | PSY 100A, 100B, 101, 265                 |     |          |
|          | SOC 101, 120                             |     |          |
| SPE ELEC | Speech Elective                          |     |          |
|          | Complete one of the following:           | 3   |          |
|          | SPE 102, 110 or 120                      |     |          |

### 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

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 (61-68 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         |   |   |
| or 117  | Child Growth and Development            | 3 |   |
| ECE 111 | Techniques for the Special Child        | 3 |   |
| ECE 114 | Effective Parenthood                    | 3 |   |
| SSE 134 | Casework Methods I                      | 3 |   |
| SSE 135 | Group Work                              | 3 |   |
| YCA 163 | Introduction to Youth Care              | 3 |   |
| YCA 290 | Field Experience                        | 3 | * |

### General Education and Support Courses

|          |                            |     |          |
|----------|----------------------------|-----|----------|
| HUM 251  | Western Humanities I       |     |          |
| or 252   | Western Humanities II      |     |          |
| or 253   | Western Humanities III     | 3   |          |
| PSY 101  | Introduction to Psychology |     |          |
| or 100A  | Psychology I               |     |          |
| and 101B | Psychology II              | 4-6 |          |
| WRT 101  | Writing I                  | 3   | WRT 100* |

|                   |  |      |          |
|-------------------|--|------|----------|
| WRT 102           | Writing II   | 3    | WRT 101* |
| WRT 150<br>or 154 | Practical Communications<br>Technical Communications I   | 3    | WRT 100* |
| SCI/MTH           | Science and Mathematics<br>Electives<br>Complete two of the following:<br>BIO 101, 102, 160, 204, 210;<br>CHM 130<br>MTH - (Any math course at the<br>100 level or higher)   | 6-10 |          |
| SOC/BEH           | Social and Behavioral Sciences<br>Electives<br>Complete one of the following:<br>ANT 101, 102, 200, 210, 215,<br>225; PSY 100A, 100B, 101, 265;<br>SOC 101, 120  | 3-4  |          |
| SPE ELEC          | Speech Elective<br>Complete one of the following:<br>SPE 102, 110, 120   | 3    |          |
| ELEC              | Recommended electives:<br>ECE 106, 107; FSN 113<br>PSY 140, 214, 216<br>SPA (Any Spanish course at the<br>100 level or higher)<br>SSE 115, 116, 133, 138, 234, 236<br>(Other courses may be taken as<br>electives with approval of a<br>youth care advisor.) | 0-3  |          |

### 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

Verification of transfer courses should be established with the transfer university or college, or with a Pima Community College counselor or faculty advisor.

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 MTH 150 (College Algebra) or above. The student is urged to take this course if an equivalent course was not taken. MTH 150 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 111<br>or 114 | Techniques for the Special Child<br>Effective Parenthood | 3 |
| ECE 107           | Human Development and Relations                          |   |
| or 117            | Child Growth and Development                             | 3 |
| SSE 134           | Casework Methods I                                       | 3 |
| SSE 135           | Group Work   | 3 |
| YCA 163           | Introduction to Youth Care                               | 3 |

### Support Courses

|           |                  |     |   |
|-----------|------------------|-----|---|
| YCA 290** | Field Experience | 0-3 | * |
|-----------|------------------|-----|---|

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

|   |     |
|---|-----|
| Biological and Physical Sciences  | 8   |
| <b>(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.)</b> |     |
| English Composition   | 6   |
| Humanities and Fine Arts  | 9   |
| Mathematics (MTH 150 or above)  | 3   |
| Social and Behavioral Sciences  | 9   |
| Other Requirement options   | 5-6 |

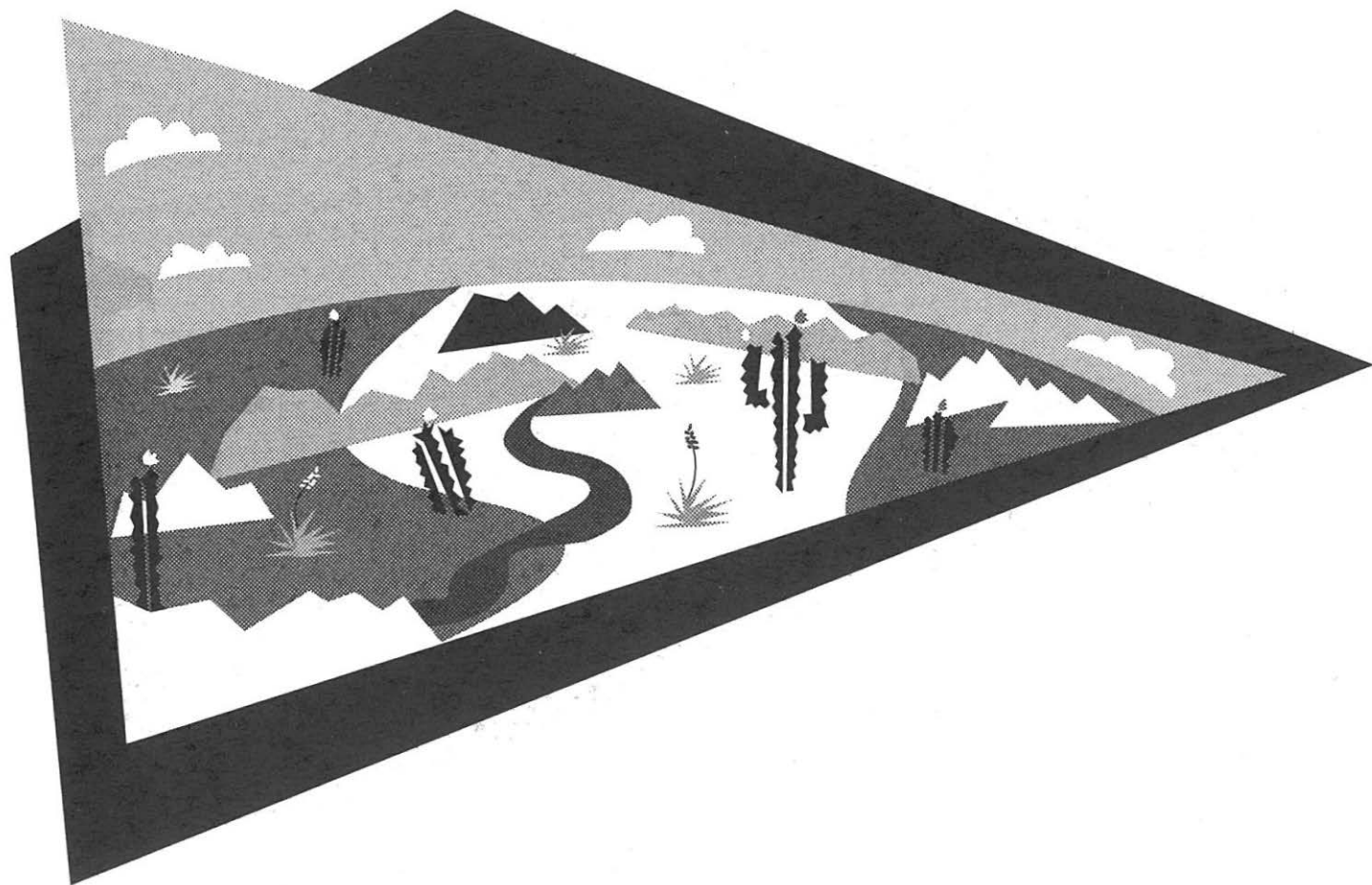
**Suggested Course Sequence**

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.

# 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 may 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:

| <b>ACC</b>    | <b>101</b>    | <b>Financial Accounting</b> | <b>3 cr. hrs.</b>        | <b>3 periods</b>                     |
|---------------|---------------|-----------------------------|--------------------------|--------------------------------------|
| 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.**

**ACCOUNTING****ACC 060 Basic Tax Preparation /2 cr. hrs./3 periods (2 lec., 1 lab)**

□Prerequisite: 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.

**ACC 100 Practical Accounting Procedures /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

A practical approach to the study of accounting for office, sales and small business personnel. Includes basic accounting cycle, special journals, procedures for controlling cash and payroll accounting. Accounting systems and procedures for small businesses are stressed.

**ACC 101 Financial Accounting /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introduction to financial accounting. The basic accounting model, the measurement processes involved and the data classifications and technology which are essential to the interpretation and effective use of financial statements. Emphasis on the communication of financial information.

**ACC 102 Managerial Accounting /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: ACC 101 and MTH 070.

Introduction to managerial accounting. Includes full cost, differential and responsibility accounting. Emphasis on criteria and tools for planning, directing day-to-day operations and controlling.

**ACC 173 Introduction to Fund Accounting /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: ACC 101.

Accounting practices in governmental units, such as city, county, and state agencies and other not-for-profit organizations.

**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 Practice on the Microcomputer /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: ACC 100 or 101.

Fundamentals of commercial accounting programs used on microcomputers. Includes use of general ledger, accounts receivable, accounts payable, inventory control and payroll accounting systems. Accounting applications for the electronic spreadsheet are also covered. Hands-on experience is emphasized.

**ACC 201 Intermediate Accounting I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: ACC 102.

Accounting theory and practice applicable to current assets, fixed assets, liabilities, sources and application of funds. For those who plan to specialize in accounting.

**ACC 202 Intermediate Accounting II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: ACC 201.

Accounting theory and practice applicable to corporate net worth accounts, investments, reserves and income. For those who plan to specialize in accounting.

**ACC 203 Cost Accounting /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: ACC 102.

Interpretation, use and analysis of cost data for management planning, coordination and control. Emphasis on the application of theories and concepts which underlie cost accounting and budgeting.

**ACC 204 Individual Tax Accounting /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: None.

Principles of federal taxation of individuals and sole proprietorships.

**ACC 205 Corporate and Partnership Tax Accounting /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: ACC 101.

Principles of federal taxation of partnerships and corporations (including S corporations). Gift, trust and estate taxation are also covered.

**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 012 Defensive Tactics /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Theory of rough-and-tumble fighting. Includes fundamentals, precautions, close-in defense and attack, control over an adversary, the armed and unarmed opponent, club maneuvers, prisoner handling and control, and physical fitness.

**AJS 101 Introduction to Administration of Justice Systems /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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 109 Criminal Law /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: AJS 101 or concurrent enrollment or consent of instructor.

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: 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: 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.



**AJS 152 Beginning Marksmanship /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: 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.)**

Same as YCA 163.

**AJS 201 Rules of Evidence /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: AJS 109 or concurrent enrollment or consent of instructor.

The origin, development, philosophy and constitutional basis of evidence. Includes constitutional and procedural considerations affecting arrest, search and seizure; 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: 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: 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: AJS 101 or concurrent enrollment.

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: None.

Analysis of the philosophy, organization, functions and jurisdiction of juvenile agencies and courts. Includes Arizona juvenile statutes, detention, court procedures and case disposition; 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)**

□Prerequisites: 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: 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: PSY 100A or SOC 101 recommended.

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.)**

□Prerequisites: 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: 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 256 Justice System Administration /5-3 cr. hrs./5-3 periods (5-3 lec.)**

□Prerequisite: AJS 101 or consent of instructor.

Exploration of selected topics in justice system administration. Includes current system issues. Specific content will vary with topic offered.

**AJS 277 Advanced Criminalistics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: Consent of instructor.

Participation in community administration of justice 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.

**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.

## ADVERTISING ART

**ADA 100 Applied Computer Graphics /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

The microcomputer as a graphics machine. Includes production, manipulation and printing of simple illustrations. Also includes presentation graphics and desktop publishing. (Same as TIL 100.)

**ADA 101 Advertising Art /3 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: None.

Basic layout procedures for the various advertising media, including direct mail, newspaper ads, magazine ads, billboards, brochures, stationery and television. Also includes a general survey of advertising art, its history, objectives, and career opportunities.

**ADA 102 Advertising Design I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Basic principles of design, color and typography applicable to advertising design. Includes composition, color mixing and relationships, and screen applications.

**ADA 103 Advertising Drawing I /4 cr. hrs./5 periods (4 lec., 1 lab)**

□Prerequisite: None.

The basic essentials of light, shading, proportion, form and perspective are stressed. Students will learn to render products in a realistic manner using markers.

**ADA 104 Illustration I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Basic principles and methods of illustration. Includes a wide range of subject matter and media (pencil, colored pencil, pen and ink, watercolor, designer's gouache, markers, acrylics and oils). Emphasis on composition and technique.

**ADA 105 Airbrush Techniques I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Use and application of the air brush in the advertising art field.

**ADA 106 Advertising Drawing II /4 cr. hrs./5 periods (4 lec., 1 lab)**

□Prerequisite: ADA 103.

Application of basic drawing techniques to a variety of compositions. Includes principles of head drawing.

**ADA 107 Airbrush Techniques II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 105.

Continuation of ADA 105. Advanced airbrush techniques for advertising art, editorial art and industrial applications.

**ADA 108 Television Commercial Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

The language and procedures used by advertising agencies in producing a television commercial. Includes conceptualization, storyboarding, art directing and producing. Does not include the technical aspects of television production which are covered in MEC 125, 175, and 225.

**ADA 109 Cartooning /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Basic principles and methods of cartoon illustration for advertising and editorial purposes. Includes pen and ink techniques, expressive drawing, creativity and a marketable cartooning style.

**ADA 111 Production Techniques and Processes I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: MTH 060 or equivalent or concurrent enrollment.

Basic skills in preparing art work for printing. Inking, paste-up, type specifications, copy fitting, photo-sizing, photo-cropping, photostat making, and keyline and overlay cutting for color areas.

**ADA 112 Cartooning II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 109.

Continuation of ADA 109. Further development in principles and methods of cartoon illustration of advertising and editorial purposes. Includes pen-and-ink techniques, expressive drawing, creative thinking and marketable cartooning style.

**ADA 113 Cartooning III /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 112.

Principles and methods of cartoon drawing and illustration for advertising and editorial purposes. Includes further development and application of skills and building a portfolio for presentation.

**ADA 115 Introduction to Desktop Publishing for Advertising Art /1 cr. hr./ 2 periods (1 lec., 1 lab)**

□Prerequisite: None.

Computer generated text and graphics for brochures and business packages. Includes desktop terminology, software, creating a document and the professional environment.

**ADA 118 Package Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: ADA 101, 102.

Procedures and techniques for creating wrapper and container comprehensives. Includes layout, packaging, construction techniques, mock-ups and the professional environment.

**ADA 120 Advertising Design II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: ADA 102 and 103.

Advanced layout techniques, combining product images with typography for various advertising media. Continued practice in type selection and the use of size, contrast, organization and color.

**ADA 131 Computer Painting /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 100 or competency in computer graphics.

Painting computer-generated, two-dimensional color graphics. Includes computer painting technology, tools for computer painting, applications of painting programs and output devices.

**ADA 140 Presentation Graphics /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 100 or 215 or some computer graphics knowledge. Computer generated presentation graphics. Includes features, color use, creating graphs, charts and output formats and devices. Also includes the development of effective presentations using integrated text and graphics.

**ADA 199 Co-op Related Class in ADA /1 cr. hr./1 period (1 lec.)**

□Prerequisites: ADA 102, 120 and 210, and concurrent enrollment in ADA 199 Co-op Work in ADA.

See Cooperative Education section for description.

**ADA 199 Co-op Work in ADA /2 cr. hrs./10 periods (10 lab)**

□Prerequisites: ADA 102, 120 and 210, and concurrent enrollment in ADA 199 Co-op Related Class in ADA.

See Cooperative Education section for description.

**ADA 201 Airbrush Techniques III /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 107.

Continuation of ADA 107. Additional techniques for advertising art, editorial art and industry applications. Emphasis on development of an individual style and an area of specialization.

**ADA 202 Airbrush Techniques IV /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 201.

Continuation of ADA 201. Each student will develop an area of speciali-

zation in one of the following: photo retouching, medical illustration, advertising art, fine art, or technical illustration.

**ADA 204 Illustration II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 104.

Continuation of ADA 104. Includes advanced techniques in a variety of media with emphasis on developing an individual style.

**ADA 205 Advertising Drawing III /4 cr. hrs./5 periods (4 lec., 1 lab)**

□Prerequisite: ADA 106.

Advanced techniques for rendering proportions, light, shading, form and anatomy of the human figure.

**ADA 207 Advertising Drawing IV /4 cr. hrs./5 periods (4 lec., 1 lab)**

□Prerequisite: ADA 205.

Application of advanced techniques to compositions featuring a variety of products. Emphasis on use of colored markers in preparing layouts.

**ADA 210 Advertising Design III /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 120.

Application of advanced techniques for the design and layout of ads, brochures, billboards, stationery, logos, direct mail, menus, posters and television commercials.

**ADA 211 Production Techniques and Processes II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: ADA 111, and MTH 060 or an understanding of fractions and decimals as determined by instructor.

Continued practice and development of production skills, including two-color printing techniques. Practice in designing and producing brochures, posters, flyers, and camera-ready and keylined ads.

**ADA 212 Production Techniques and Processes III /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 211.

Continued practice and development of production skills including three- and four-color printing techniques.

**ADA 213 Production Techniques and Processes IV /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 212.

Continuation of ADA 212. Practice and development of production art skills required for complex color printing. Includes the development of speed, accuracy, and organizational skills on multifaceted publications and portfolio preparation.

**ADA 215 Desktop Publishing I for Advertising Art /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Desktop publishing for advertising art. Includes creating advertisements,

brochures, newsletters and catalogs that require skills in layout and design. Uses Pagemaker or other current software.

**ADA 216 Desktop Publishing II for Advertising Art /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None. May be taken concurrently with ADA 215.

Design, layout and drawing techniques on a computer. Includes freestyle drawing, auto-trace, pattern and texture, spot-color overlaps, four color separations, and text and graphics special effects using Adobe Illustrator or other current software.

**ADA 217 Desktop Publishing III For Advertising Art /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: ADA 215, 216.

Advanced computer layout with Bezier curve graphics. Includes color and scans, output formats and devices, grid related layout techniques and text manipulation, and font creations. Combines Pagemaker and Adobe Illustrator or other current software.

**ADA 218 Illustration III /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 204.

Continuation of ADA 204. Includes advanced medium techniques with an emphasis on individual style, media applications, pre-press applications and portfolio preparation.

**ADA 219 Photo/Image Editing /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 216 or 217.

Computer retouching and manipulation of photos and illustrations. Includes hardware, software, treatments, input and output devices and professional environment.

**ADA 220 Advertising Design IV /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 210.

Continued practice and skill development in layout and design. Emphasis on completing a portfolio.

**ADA 222 Advertising Art Business and Portfolio /2 cr. hrs./3 periods (1 lec., 2 lab)**

□Prerequisites: ADA 207, 220.

Business techniques for the advertising art industry. Includes designer/client relationship, fee structures for designer services, documenting time, portfolio development, and advertising and promotion.

**ADA 232 Computer 3D Modeling /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 131.

Solid modeling on the computer. Includes the use of current computer software, menus, texture mapping, multiple lighting and rendering techniques, color, printing, precision model making and compatibility.

**ADA 233 Computer Animation /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ADA 100.

Animation on the computer. Includes page flipping, color cycling, transitions, metamorphosis and classical techniques. AutoDesk Animator and other available software will be used.

**ADA 240 Computer Multimedia Design and Production /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: ADA 131, 215, 216, and 233 or equivalent experience in computer graphics.

Multimedia software for merging computer art with visual media. Includes systems, applications, components and the design of graphics, animation and desktop publishing for creating presentations and interactive programming.

**ADA 296 Advertising Art Independent Projects: /1-4 cr. hrs./3-12 periods (3-12 lab)**

□Prerequisite: Consent of instructor.

Self-directed laboratory projects. Includes establishing objectives, procedures and a method of evaluation. May be taken four times up to a maximum of 16 credit hours.

## AIR CONDITIONING

**ACD 101 Principles and Psychrometrics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 060 or satisfactory score on Mathematics assessment test.

Introduction to air conditioning and heating. Includes principles of operation, definition of terms, and use of charts and tables pertaining to the study and calculation of air properties and controlled changes.

**ACD 102 Load Calculation and Air Distribution /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: MTH 110.

Heating and cooling requirement estimating, using textbook techniques and manual ASHRAE forms. Includes air flow requirements, duct sizing and design, and air distribution pressure balancing.

**ACD 120 Electricity, Circuitry and Controls /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: ACD 101.

Electricity for air conditioning and heating. Includes basic electrical theory, single-phase and three-phase circuits, reading electrical schematics, testing and hookup of high voltage components and low voltage control components.

**ACD 125 Troubleshooting and Service /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: ACD 120.

Mechanical skills needed to troubleshoot and repair air conditioning and heating equipment. Includes hands-on practice in working with tubing, charging and dehydration of air conditioning units, measurement of temperatures and velocities of air flow, measurement of refrigerant charges, and analysis of air conditions and heating system capacities.

**ACD 126 Pneumatic HVAC Controls /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisites: ACD 120 and 125, or appropriate field experience.

Pneumatic controls for HVAC systems. Includes major components, controlled devices, relays, thermostats and calibration.

**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 Refrigeration /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: ACD 125 or appropriate field experience.

Advanced electrical theory for commercial refrigeration systems. Includes measurement of resistance, amperage, and voltage; calculation of horsepower and efficiencies; schematic reading; trouble-shooting; repairs; and operation of heat pumps and low temperature commercial equipment.

**ACD 250 Estimating /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: ACD 210 and DFT 101 or appropriate field experience.

Basic principles of computing material costs from actual construction drawings through use of handbooks and formulas. Includes pricing of all items associated with sheet metal products and air conditioning units.

**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.

## ANTHROPOLOGY

**ANT 101 Human Origins and Prehistory /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: None.

Survey of cultural anthropology and linguistics and introduction to the comparative study of cultures.

**ANT 110 Buried Cities and Lost Tribes /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Same as ARC 110.

**ANT 112 Exploring Non-Western Cultures /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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.)**

Same as HIS 122.

**ANT 123 The Anthropology of Music and Dance /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introduction to music and dance in their cultural context. Emphasis on the American Southwest.

**ANT 127 History and Culture of the Mexican-American in the Southwest /3 cr. hrs./3 periods (3 lec.)**

Same as HIS 127.

**ANT 128 The Mexican-American in Transition /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 135 Pre-Columbian Art /3 cr. hrs./3 periods (3 lec.)**

Same as ART 135 and HIS 135. (See ART 135 for course description.)

**ANT 136 Masks /3 cr. hrs./3 periods (3 lec.)**

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: 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.)**  
Same as HIS 148.

**ANT 150 Afro-American History and Peoples /3 cr. hrs./3 periods (3 lec.)**  
Same as HIS 150.

**ANT 160 History and Peoples of Latin America I /3 cr. hrs./3 periods (3 lec.)**  
Same as HIS 160.

**ANT 170 History and Peoples of Africa /3 cr. hrs./3 periods (3 lec.)**  
Same as HIS 170.

**ANT 200 Biological Anthropology /3 cr. hrs./5 periods (2 lec., 3 lab)**  
□Prerequisite: 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: 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: 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.)**  
Same as ARC 205.

**ANT 206 Contemporary Native Americans of the Southwest /3 cr. hrs./3 periods (3 lec.)**  
□Prerequisite: 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: Concurrent enrollment in ANT/ARC 205.  
Same as ARC 207.

**ANT 210 Cultural Anthropology /3 cr. hrs./3 periods (3 lec.)**  
□Prerequisite: ANT 102.  
In-depth exploration of theories and methods used in studying and comparing cultures. Selected topics are pursued.

**ANT 215 The Nature of Language /3 cr. hrs./3 periods (3 lec.)**  
□Prerequisite: None.  
Introduction to the basic concepts of linguistics and their implications for the study of culture and society.

**ANT 225 Archaeology /3 cr. hrs./3 periods (3 lec.)**  
Same as ARC 225.

**ANT 250 Archaeology Laboratory /3 cr. hrs./7 periods (1 lec., 6 lab)**  
Same as ARC 250.

**ANT 275 Archaeological Excavation I /3 cr. hrs./9 periods (9 lab)**  
Same as ARC 275.

**ANT 276 Archaeological Exploration I /3 cr. hrs./9 periods (9 lab)**  
Same as ARC 276.

**ANT 277 Archaeological Excavation II /3 cr. hrs./9 periods (9 lab)**  
□Prerequisite: ANT/ARC 275.  
Same as ARC 277.

**ANT 278 Archaeological Exploration II /3 cr. hrs./9 periods (9 lab)**  
Same as ARC 278.

**ANT 280 Field Projects /3 cr. hrs./9 periods (9 lab)**  
□Prerequisite: 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: BUS 105.  
Same as ARC 281.

**ANT 282 Managing Archaeological Data /2 cr. hrs./4 periods (1 lec., 3 lab)**  
□Prerequisites: ANT/ARC 275, 276, BUS 105.  
Same as ARC 282.

**ANT 283 ArcheoCAD /3 cr. hrs./5 periods (2 lec., 3 lab)**  
□Prerequisite: BUS 105.  
Same as ARC 283.

**ANT 284 Archaeocartography /3 cr. hrs./5 periods (2 lec., 3 lab)**  
□Prerequisite: BUS 105.  
Same as ARC 284.

**ANT 285 Field Mapping I /3 cr. hrs./9 periods (9 lab)**  
Same as ARC 285.

**ANT 286 Field Mapping II /3 cr. hrs./9 periods (9 lab)**  
□Prerequisites: ANT/ARC 285 and consent of instructor.  
Same as ARC 286.



**ANT 289 Field Instruments /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: ANT/ARC 286, BUS 105.

Same as ARC 289.

**ANT 296 Individual Studies /1-3 cr. hrs./1-3 periods (1-3 lec)**

□Prerequisite: 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.)

## ARCHAEOLOGY

**ARC 075 Field Archaeology /3 cr. hrs./9 periods (9 lab)**

□Prerequisite: 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.)**

Same as ANT 101.

**ARC 105 Survey of Microcomputer Uses /3 cr. hrs./4 periods (3 lec., 1 lab)**

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: 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: 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: 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: 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: 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: 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: 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: 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: 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)**

□Prerequisites: 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.)

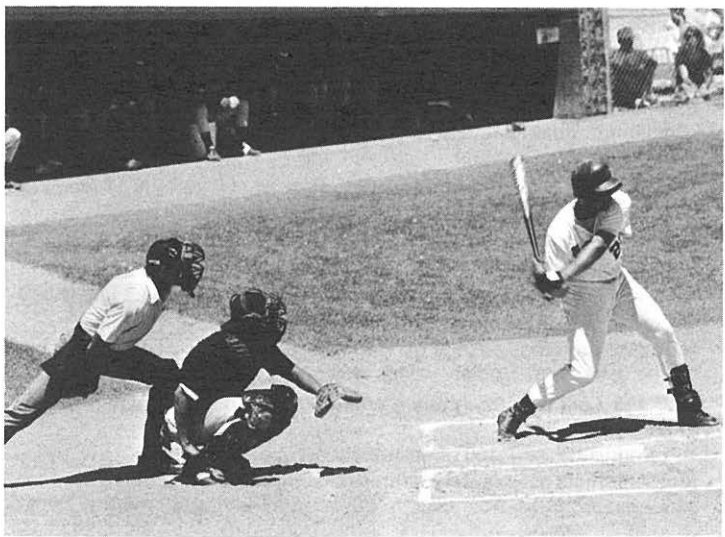
**ARC 280 Field Projects /3 cr. hrs./9 periods (9 lab)**

Same as ANT 280.

**ARC 281 Field Computers /1 cr. hr./2 periods (2 lab)**

□Prerequisite: 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)**

□Prerequisites: 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: 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: 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: 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)**

□Prerequisites: 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)**

□Prerequisites: 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)**

Same as ANT 296.

**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: 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: ART 100.

Introduction to drawing. Includes use of graphic media: pencil, charcoal and ink on paper. Emphasis on elements of design as applied to representational drawing. The student will have a set of finished drawings at the conclusion of the semester.

**ART 111 Drawing Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

□Prerequisite: 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: ART 100.

Extension of design principles introduced in ART 100. Includes analyzing color and creating the illusions of dimension, light and transparency with color. Projects use a variety of media. Emphasis on color theory and relationships.

**ART 120 Sculptural Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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: 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: 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: 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: None.

Slide and lecture discussions of art forms of western civilization from prehistoric art through Gothic art. May be taken as a humanities elective.

**ART 131 Art and Culture II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Slide and lecture discussions of art forms from the Renaissance into the 20th century. May be taken as a humanities elective.

**ART 132 Modern Art Survey /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Slide and lecture discussions of modern art forms as seen in the art developments of the latter 19th century and the 20th century. May be taken as a humanities elective.

**ART 133 Survey of American Art /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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: ART 100 or concurrent enrollment.

Introduction to ceramics, including wheel-and hand-built forms and basics of glazing.

**ART 163 Kiln Workshop /2 cr. hrs./4 periods (1 lec., 3 lab)**

□Prerequisite: 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: 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: 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: 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: 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: 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: 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: ART 100.

Weaving on a four-harness loom. Projects involve 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: ART 100.

Exploration of fiber as an art medium. Includes skill development in such techniques as paper making, basketry, crocheting, plaiting and macrame. Projects will involve sculptural form as well as two-dimensional design.

**ART 185 Papermaking Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)**

□Prerequisite: 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: 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: ART 110.

Continuation of ART 110. Emphasis on further development of imaginative and technical skills in the use of space and graphic design. Students complete the course with a portfolio of finished drawings.

**ART 212 Printmaking I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ART 100.

Printmaking processes such as silk-screen, etching, block printing and monotypes. Students may choose to work in areas of particular interest.

**ART 213 Life Drawing /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ART 100. (ART 110 is recommended.)

Drawing the human figure using the two-dimension concept as a graphic vehicle of expression. Students have opportunities to work in various media. Drawing proficiency is stressed.

**ART 214 Printmaking II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: ART 100 and 212.

Continuation of ART 212. Advanced problems in intaglio, etching, monotypes, screen and block printing processes.

**ART 215 Painting I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ART 110. (ART 115 is recommended.)

Studio course in beginning oil painting. Introduction to still-life object painting, landscape and figure studies. Palette-mixing technique and stretcher bar building are also introduced.

**ART 216 Screenprinting I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ART 100.

Introduction to screenprinting. Includes screen construction, the use of cut film, photo film, stencil making techniques, printing techniques and one-color and multi-color work.

**ART 217 Painting II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: ART 115, 215.

Continuation of ART 215. Further principles and practice of painting techniques. Includes mixed media, the art market and contemporary painting methods.

**ART 218 Screenprinting II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ART 216.

Continuation of ART 216. Advanced work in cut film, photo film and experimental stencil making techniques. Students may select areas of interest for concentration and refinement of skills.

**ART 220 Sculpture II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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: 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 / 1-3 cr. hrs./1-3 periods (1-3 lec.)**

□Prerequisite: Consent of instructor.

Movements, periods, ideas and problems in art and design. Specific subjects are offered each semester in separate sections or for individual study, according to need. May be taken four times for a maximum of twelve credit hours.

**ART 260 Ceramics II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ART 160.

Continuation of ART 160. Further development in wheel- and hand-built forms, glazes and color blends.

**ART 261 Ceramics III /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ART 260.

Advanced study for students who demonstrate mastery of ceramics skills and principles taught in ART 160 and 260. Includes clay composition, glaze calculations and advanced design problems.

**ART 270 Metalwork II: Jewelry /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ART 170.

Jewelry design and production techniques. Includes casting, construction, cold forging and stone setting in precious and nonprecious metals.

**ART 271 Metalwork II: Smithing and Casting /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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: ART 180.

Advanced study for students experienced on multi-harness looms. Students may select areas of interest for in-depth exploration.

**ART FOR PERSONAL DEVELOPMENT****APD 009-076 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: 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: None.

Workshop designed to develop skill in drawing.

**APD 011 Designing Home Interiors /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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: None.

Workshop designed to develop skill in photography.

**APD 013 Advanced Photography /2 cr. hrs./4 periods (1 lec., 3 lab)**

□Prerequisite: 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: 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: 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: 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: 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: 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: None.

Workshop designed to develop skill in ceramics.

**APD 022 Weaving I /2 cr. hrs./4 periods (1 lec., 3 lab)**

□Prerequisite: 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: 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: 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: APD 054.

Advanced techniques in the printing of color negatives. Includes ciba-chrome 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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 111 Solar System Laboratory /1 cr. hr./3 periods (3 lab)

□Prerequisite: 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: None.

Laboratory for AST 102, involving exercises, star gazing sessions and field trips to planetariums and observatories.

### AST 295 Special Topics in Astronomy: /1-5 cr. hrs./1-10 periods (0-5 lec., 0-10 lab)

□Prerequisite: 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.

## AUTOMOTIVE TECHNOLOGY

### AUT 101 Automotive Maintenance /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: None.

Techniques of routine vehicle maintenance. For those who have little or no automotive service experience.

### AUT 111 Automotive Body and Fender Repair /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: 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: 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: 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: 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 Automotive Engine Tune-up /4 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: None.

Tune-up principles and procedures. Includes evaluating internal and external ignition and fuel system parts, performing tune-ups on four types of engines and using diagnostic and emission detecting equipment to adjust engines to given emission standards.

### AUT 128 Automotive Electrical Fundamentals /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Fundamentals of electricity as applied to automotive electrical problems. Includes use of electrical test instruments to measure voltage, current and resistance in automotive electrical system.

### AUT 129 Automotive Electrical Component Repair and Adjustment /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Diagnosis, repair, replacement, and/or adjustment of electrical components used on the modern automobile. Includes starters, generators, distributors, computer controls, solenoids, switches, and connecting wires.

### AUT 132 Automatic Transmission Removal, Replacement and In-Car Repair /4 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: 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: 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: 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: 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: None.

Diagnosis and service of hydraulic brake systems. Includes principles and inspection, brake shoes, wheel cylinders, master cylinders, drum and disc brake lathe operation, drum and disc service, hydraulic control valves, and power brake units.

**AUT 142 Automotive Air Conditioning /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: 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 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 MECHANICS

**AVM 088 Preventive Maintenance for Pilots /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: Concurrent enrollment in AVM 115 or mathematics assessment above MTH 060 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: AVM 101.

Continuation of AVM 101. Includes safety, bend allowance, layout, fasteners, machine usage, patching techniques and structural repair techniques.

**AVM 110 Aircraft Blueprint Reading /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: None.

Structure and system functions of aircraft. Includes fuselage, control systems, support systems, ground handling and servicing and publications.

**AVM 150 Structural Repair III /4 cr. hrs./8 periods (2 lec., 6 lab)**

□Prerequisite: 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: 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: 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: 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: 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)**

□Prerequisites: 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: AVM 203.

Continuation of AVM 203. Includes sealants and sealant applications, heat treatment, plastics and plastic repairs and structural repair processes.

**AVM 210 Radome and Fiberglass Repair /5 cr. hrs./7 periods (4 lec., 3 lab)**

□Prerequisite: AVM 204.

Construction and repair of aircraft structures. Includes laminated materials and layups, bonded and fiberglass structure repair, metal bonded honeycomb repair, and radome construction and repair.

**AVM 220 Airframe Structures /6 cr. hrs./8 periods (4 lec., 4 lab)**

□Prerequisite: 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: 30 months of experience, concurrently performing the duties of airframe and power plant maintenance, or 18 months of experience performing the duties appropriate to this rating.

Theory of operation, repair and maintenance of various aircraft systems and components. Includes direct current electrical systems, repair and trouble-shooting, hydraulic and pneumatic systems, aircraft instrumentation, communication and navigation systems, air conditioning and pressurization, fire detection and extinguishing systems, and aircraft fuel systems.

**AVM 230 Power Plant Mechanics /6 cr. hrs./8 periods (4 lec., 4 lab)**

□Prerequisite: 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: 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: 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: 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: 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: AVM 210.

Simulated industry repair performance. Includes quality assurance, required paperwork and repairs to aircraft structures.

**AVM 260 Aircraft Composite Repair /4 cr. hrs./10 periods (1 lec., 9 lab)**

□Prerequisite: AVM 250.

Materials and processes used in the construction and repair of aircraft components. Includes safety, composite materials, lamination, composite layup and equipment, bonding materials, repair techniques, experimental composite usage, and quality assurance.

**BILINGUAL STUDIES FOR THE DEAF**

**BSD 070 ASL/English Studies I /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: Documentation of hearing loss or permission of the Disabled Student Resources office.

A bilingual developmental course in American Sign Language and written English. Includes ASL grammar, vocabulary, and composition paired with the grammar, vocabulary, and composition of written English.

**BSD 071 ASL/English Studies II /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: 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.

**BSD 074 ASL/English Studies III /6 cr. hrs./6 periods (6 lec.)**

□Prerequisite: 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: 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: None.

A one-semester introductory course covering basic principles and concepts of biology. Methods of scientific inquiry and behavior of matter and energy in biological systems are explored. Recommended for students prior to entrance into nursing and other allied health programs. May not be used with BIO 101 or BIO 102 as part of a two-semester biology sequence.

**BIO 101 General Biology (Non-Majors): Selected Topics /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

□Prerequisite: None.

Selected biological topics, including methods used by biologists to make discoveries and evaluate scientific data. Includes scientific investigation, cell biology, immunology, genetics and diversity of living organisms.

**BIO 102 General Biology (Non-Majors): Additional Topics /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

□Prerequisite: None.

Biological topics not covered in BIO 101. Reviews methods used by biologists to make discoveries and evaluate scientific data. Includes plant and animal structure and function, evolution and environmental biology.

**BIO 105 Environmental Biology /4 cr. hrs./6 periods (3 lec., 3 lab.)**

□Prerequisite: None.

Fundamentals of ecology and their relevance to human impact on natural ecosystems.

**BIO 109 Natural History of the Southwest /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: None.

Study of the common plants and animals of the Southwest including their distribution, adaptation, behavior and ecology.

**BIO 115 Wildlife of North America /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: None.

Introduction to the mammals, birds, fish, reptiles, amphibians and selected invertebrates of North America. Native Arizona species are stressed. Includes discussion of national, state and private wildlife agencies.







**BIO 160 Introduction to Human Anatomy and Physiology /4 cr. hrs./ 6 periods (3 lec., 3 lab)**

□Prerequisite: None.

Study of structure and dynamics of the human body. For students who desire a one semester course in anatomy and physiology.

**BIO 183 Marine Biology /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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)**

□Prerequisites: BIO 100 or 101 plus 102 or one-year of high school biology.

Study of principles and processes in plant biology with emphasis on vascular plants. Includes survey of plant kingdom.

**BIO 190 Animal Biology /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisites: High school biology and/or high school chemistry.

Study of principles and processes in animal biology from molecular to population levels of organization. Includes survey of major animal groups.

**BIO 195 Biology of Cells /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisites: CHM 151 and concurrent enrollment in CHM 152.

Principles of cell and molecular biology. For biology majors.

**BIO 198 Special Topics: /1-4 cr. hrs./1-10 periods (1-4 lec., 0-9 lab)**

□Prerequisite: None.

Special and current topics in biology. May be taken four times for a total of 16 credit hours.

**BIO 201 Human Anatomy and Physiology I /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisites: BIO 100 or equivalent, and college reading requirement. College chemistry recommended.

A study of the structure and function of the body, emphasizing cellular and biochemical aspects. For students in health careers, not for biology or pre-med majors. Includes an introduction to cells and tissues and to the skeletal, muscular and circulatory systems.

**BIO 202 Human Anatomy and Physiology II /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: BIO 201.

Continuation of BIO 201. Emphasis on nervous, respiratory, digestive, urinary and reproductive systems.

**BIO 204 Survey of Human Diseases /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: 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./7 periods (3 lec., 4 lab)**

□Prerequisite: One semester of a biological science.

Study of microorganisms and their relationship to health, ecology, and related fields.

**BIO 207 Microbiology II /4 cr. hrs./7 periods (3 lec., 4 lab)**

□Prerequisite: BIO 205.

Medical implications of microbes. Includes infection and immunity by a variety of microbial agents on a variety of hosts and an introduction to food and water microbiology.

**BIO 210 Communicable Diseases /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 226 Ecology /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: One semester of biology or geology.

Introduction to the concepts and principles of ecology including organization, function and development of ecosystems; biogeochemical cycles; population dynamics; and other related topics.

**BIO 230 Wildflowers of Arizona /2 cr. hrs./4 periods (1 lec., 3 lab)**

□Prerequisite: BIO 184.

Identification of common and important native or naturalized plants found in Arizona. Emphasis on grass, rose, legume, composite, and pine families.

**BIO 242 General Genetics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: BIO 190, 195 or 184; CHM 151, 152 and concurrent enrollment in CHM 236.

Basic principles and concepts of inheritance.

**BIO 243 Genetics Laboratory /1 cr. hr./3 periods (3 lab)**

□Prerequisites: BIO 190, 195 or 184; CHM 151, 152 and concurrent enrollment in CHM 236.

Laboratory investigations of basic principles of genetics.

**BIO 298 Special Projects /1-4 cr. hrs./3-12 periods (3-12 lab)**

□Prerequisite: One year of biology.

Exploration of special interest areas. Content to be determined by student and facilitator/instructor.

**BUSINESS****BUS 100 Introduction to Business /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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)**

Same as CSC 105 and ARC 105. (See CSC 105 for course description.)

**BUS 106 Business Spreadsheet Applications /2 cr. hrs./3 periods (2 lec., 1 lab)**

□Prerequisite: None.

Introduction to the use of the electronic spreadsheet to solve business problems. Includes creation, manipulation and production of spreadsheets and graphs for a variety of business applications. Students gain hands-on experience using a personal computer to complete class projects.

**BUS 107 Business Data Base Applications /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Introduction to personal computer data-base software, emphasizing applications for the business environment. Topics covered include file creation, data manipulation and preparation of reports. Students gain hands-on experience using a personal computer to complete class projects.

**BUS 151 Mathematics of Business /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 060 or satisfactory assessment test score.

Mathematical procedures as applied to business problems. Includes basic quantitative methods for banking, payroll, purchasing, selling, consumer credit, insurance, stocks and bonds, financial statements, depreciation and taxes in business. Also includes arithmetical, algebraic and elementary statistical techniques.

**BUS 200 Business Law I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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 I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 170 or concurrent enrollment.

Introduction to statistical techniques and their application to economics and business decision making. Data structures, frequency distribution, probability, probability distributions, normal distribution, testing, hypothesis making, Chi-square distribution, regression and correlation analysis.

**BUS 206 Statistical Methods In Economics and Business II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: BUS 205.

Continuation of BUS 205. Variance, sampling, statistical quality control, Bayesian decision making, non-parametric statistics, multiple and non-linear regression, time series and index numbers.

**BUS 210 International Business /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: None.

Legal and social environment of business. Includes an introduction to law, public and private law, business formation and business and government regulation.

**BUS 295 Business Seminar I /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Laboratory portion of the Business Administration program. Credit is given for working in an approved training station. Student must work an average of 15 hours each week under supervision and will be evaluated by a supervisor and the instructor/coordinator.

**BUS 296 Business Seminar II /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Continuation of BUS 295.

**CERAMIC MANUFACTURING****CMT 101 Safety and Ceramic Parts Handling /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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: None.

Basic electricity and applications for the operation and maintenance of ceramic manufacturing 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: 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: CMT 107.

Minor maintenance of furnaces used in the production of ceramic

products. Includes kiln operation, global 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: 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: MTH 070.

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: 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: 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)**

□Prerequisites: CHM 125 and 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: 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 Fundamentals of Chemistry /5 cr. hrs./7 periods (4 lec., 3 lab)**

□Prerequisite: 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 Fundamentals of Organic and Biochemistry /5 cr. hrs./7 periods (4 lec., 3 lab)**

□Prerequisite: 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: 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)**

□Prerequisites: MTH 130 and either pass the entrance exam or complete CHM 080 with a grade of A or B.

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: CHM 151.

Continuation of CHM 151 with emphasis on certain chemical concepts such as equilibrium, kinetics, acids, bases, complex ions and oxidation-reduction.

**CHM 192 Electronic Industrial Chemistry /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisites: ETR 104, and 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: None.

Laboratory projects varying with students' interests and reasons for enrolling.

**CHM 235 General Organic Chemistry I /5 cr. hrs./7 periods (4 lec., 3 lab)**

□Prerequisite: 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: 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.

**CHINESE****CHI 050 Conversational Chinese I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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.

**COMMERCIAL DRIVER'S LICENSE****CDL 101 Commercial Driver's License I /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: Arizona Driver License.

Preparation for commercial vehicle learner's permit. Includes commercial driver's license (CDL) types, endorsements, safety act rules, equipment pre-operation inspection, safe vehicle operations, documentation for inspection, driving skills in theory and cargo safety.

**CDL 102 Commercial Driver's License: Basic Operation /4 cr. hrs./7 periods (1 lec., 6 lab)**

□Prerequisite: CDL 101 or Commercial Driver's License instruction permit.

Principles and techniques for the operation of commercial motor vehicles. Includes an introduction to the components of a tractor-trailer; control systems; vehicle inspection practices and procedures; basic control, shifting, and backing techniques; and the coupling and uncoupling of units. Also includes the identification and characteristics of special rigs.

**CDL 103 Commercial Driver's License: Operating Practices /6 cr. hrs./11 periods (1 lec., 10 lab)**

□Prerequisite: CDL 102.

Continuation of CDL 102. Includes visual search techniques, communication, speed and space management, night operations, extreme driving conditions, safe operating procedures, hazard perception, emergency maneuvers, and skid control and recovery.

**CDL 104 Commercial Driver's License: Vehicle Maintenance /1 cr. hr./1.5 periods (1 lec., .5 lab)**

□Prerequisite: CDL 103.

Continuation of CDL 103. Includes vehicle systems, preventive maintenance and servicing, and diagnosing and reporting malfunctions.

**CDL 105 Commercial Driver's License: Nonvehicle Activities /2 cr. hrs./2.5 periods (2 lec., .5 lab)**

□Prerequisite: CDL 104.

Continuation of CDL 104. Includes handling and documenting cargo, Hours of Service Regulations, accident procedures, personal health and safety, trip planning, and public and employer relations.

**CDL 106 Commercial Driver's License: Hazardous Material and Tanker Endorsement /1 cr. hr./1 period (1 lec.)**

□Prerequisite: CDL 105.

Continuation of CDL 105. Includes the intent of the regulations, transportation of hazardous materials, communication rules, loading and unloading, driving and parking rules, and emergencies associated with hazardous material and tankers.

**COMPUTER SCIENCE****CSC 090 Developmental Applications on Microcomputers /1-2 cr. hrs./1.5-2.5 periods (1-2 lec., .5 lab)**

□Prerequisite: 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: MTH 070 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: 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: /1.5-4 cr. hrs./5-12 periods (variable lec., variable lab)**

□Prerequisite: 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: 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: 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: 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: 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: None.

Study of microcomputer application packages. Includes operating system commands, word processing, spreadsheet and database applications. Not for programming or engineering majors. (Same as ARC 105 and BUS 105.)

**CSC 106 Data Base Concepts /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: CSC 105 or consent of instructor.

Basic data base concepts in the microcomputer environment. Includes data base setup, information access, and programming. CSC 106A through CSC 106C together constitute CSC 106.

**CSC 106A Data Base Concepts: Introduction /1 cr. hr./1.35 periods (1 lec., .35 lab)**

□Prerequisite: CSC 105 or consent of instructor.

Beginning concepts of data base processing using the microcomputer. Includes developing a data base, assessing information interactively and producing reports using a popular software package.

**CSC 106B Data Base Concepts: Intermediate /1 cr. hr./1.35 periods (1 lec., .35 lab)**

□Prerequisite: CSC 106A.

Intermediate concepts of data base processing using the microcomputer. Includes modification of the data base structure, manipulation and reorganization of the data base, use of functions, and production of complex reports using commercial data base software.

**CSC 106C Data Base Concepts: Advanced /1 cr. hr./1.35 periods (1 lec., .35 lab)**

□Prerequisite: CSC 106B.

Advanced concepts of data base processing using the microcomputer. Includes macros, programming with a procedural data base language, and customizing data entry and output using a commercial data base software package.

**CSC 108 Microcomputer Operating Systems /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: 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: 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: 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: 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 130 Programming Fundamentals /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: 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: 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: CSC 100.

Examination of basic computer hardware and software concepts. Includes operating systems, time sharing, file organization, utilities and multiprogramming. Instruction and lab experience make use of available text editors.

**CSC 136 Microcomputer Components /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: 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 140 FORTRAN Programming /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisites: CSC 100, and MTH 070 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)**

□Prerequisites: 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: 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 Advanced BASIC Programming /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisites: CSC 130 and BASIC programming experience.

Advanced programming techniques in BASIC on microcomputers. Includes sequential file manipulation, string and array processing, sorting, master versus transaction files, updates and menus using business examples. Different versions of BASIC are explained.

**CSC 195 Job Entry Procedures /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Principles and techniques for successful job hunting. Includes application letter and resume writing, interviewing and related topics. (Same as GEB 195.)

**CSC 196 Work Standards and Job Attitudes /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: None.

Practical work experience on assigned data processing projects in data entry, controls and operations. May be taken 4 times up to a maximum of

12 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: 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 Data Base Procedural Language Programming /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: CSC 106C, 130 or 131.

Advanced data base topics and programming. Includes the use of an associated procedural data base language.

**CSC 220 Networking /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisites: CSC 130 or 131, 135.

Survey of a wide variety of networks and their implementation. Includes data transmission, different platforms, protocols, and local and wide area networks. Also includes case studies of installations and hardware, and software solutions to real world applications.

**CSC 225 Intermediate Programming Fundamentals /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: CSC 130.

Intermediate topics in programming techniques and problem solutions using Pascal. Includes arrays, modularity, user-defined types and sub-ranges, sets, fixed and variant records, search and sort algorithms, binary files, recursion, and dynamic allocation.

**CSC 230 Advanced Pascal and Data Structures /4 cr. hrs./6 periods (4 lec., 2 lab)**

□Prerequisite: CSC 130 or 225.

Advanced topics in computer science and programming using Pascal. Includes user-defined data types, sets, arrays, records, text and binary file manipulation, sort and search algorithms, algorithmic analysis, recursion, pointers, linked lists, stacks, queues, binary trees, hash tables, and graphs.

**CSC 235 Advanced Computer Operations /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: 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)**

□Prerequisites: CSC 106 and 204.

Installation of horizontally integrated software to solve information processing problems. Integrated software functions in the microcomputer environment, such as electronic spreadsheets, data base, graphics, telecommunications and programming languages.

**CSC 250 Introduction to Assembly Language /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisites: CSC 130 or 131, and 140 or 160 or 170.

Beginning 8088 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: 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)**

□Prerequisites: CSC 130 and ACC 102.

Study of microcomputer applications. Includes a word processor, a spread sheet, a micro level data base, 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)**

□Prerequisites: CSC 135 and 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)**

□Prerequisites: 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: 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: 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 8088 Assembly Language /4 cr. hrs./6 periods (4 lec., 2 lab)**

□Prerequisite: CSC 250.

Advanced 8088 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: 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: 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.

**CSC 280 Systems Analysis /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: CSC 160.

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 data base concepts) and documentation design (source and printed output). Selected business system applications are used to apply the above tools.

**CSC 281 Systems Design /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: 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: CSC 274.

Writing of compilers, operating systems and utility programs. Includes sorting and timing techniques.

**CSC 291 Data Base Concepts /4 cr. hrs./6 periods (4 lec., 2 lab)**

□Prerequisites: CSC 260 and 280.

Fundamentals of data structures and generalized data management systems. Includes hierarchical, network and relational systems and SQL concepts. A relational data base system will be used as the laboratory data base tool.

**CSC 294 Current Topics in Computer Science: /3-4 cr. hrs./4-6 periods (3-4 lec., 1-2 lab)**

□Prerequisite: 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 three times for a maximum of 12 credit hours.

**CSC 296 Machine Architecture and Organization /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: 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: 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 /.5 cr. hr./1 period (1 lab)**

□Prerequisite: 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 total of two credit hours.

**CSD 124 Data Entry Keystroke Development /2 cr. hrs./6 periods (6 lab)**

□Prerequisite: None.

Training for keystroke development. Includes exercises using data entry software to increase keystrokes per hour and accuracy level. May be taken up to four times for a total of 8 credit hours.

**CSD 125 Data Entry Principles, Controls & Operations I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Entering simulated production data from several types of source documents utilizing microcomputer and on-line simulation devices. Emphasis on low error rate production.

**CSD 126 Data Entry Principles, Controls and Operations II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: CSD 125.

Advanced training at the job entry level in the operation of data entry devices. Includes error conditions and correction, keying data, record inserting, deleting, duplications, production statistics, speed building and multiformating.

**CSD 127 Data Entry Principles, Controls and Operations III /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: CSD 126.

Procedures for microcomputer and on-line types of data entry equipment. Includes setup, keying, verifying, record keeping, and printing. Also includes saving, printing and file selection using appropriate data entry data base software.

**CSD 128 Data Entry Skills Update /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Data entry techniques and procedures, using current equipment and software designed to upgrade skills of data entry operators. Includes creating files, inputting data, search-and-find exercises, speed building, inserting, deleting, verifying and recording statistics. May be taken four times up to a maximum of 12 credit hours.

**CSD 129 Data Entry Software Procedures /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Data entry software procedures. Includes an integrated software package, word processing, spreadsheets, data base programs and the use of DOS.

**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.

**COMPUTER SCIENCE FOR INDUSTRY****CSI 132 Software Testing Concepts /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: Consent of instructor.

Computer software testing through verification. Includes the software development cycle, psychology and economics of testing, program inspection, walk-through and reviews, white and black box testing, component testing, product verification testing, testing tools, and tracking methods.

**CSI 134 Software Testing - Systems and Complex Applications /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: Consent of instructor.

Software systems and complex applications. Includes the testing and the development cycle, responsibilities, objectives analysis, system level testing, test plans and reviews, tools, documentation, tracking and controls and postmortem analysis.

**CSI 136 Principles of Software Engineering /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: Consent of instructor.

Basic principles of software engineering. Includes techniques for each phase of software development and maintenance. These phases include requirements analysis, specifications, preliminary design, detailed design, code, unit test, integration test and system test.

**CSI 138 Control Structures, Verification and Complexity Analysis /2-3 cr. hrs./2-3 periods (2-3 lec.)**

□Prerequisites: MTH 230 and CSC 230.

Principles of control structures and verification in computer science. Includes abstractions of control to show how the control structures reflect underlying problem-solving methods that can be encoded in any language; reasoned arguments are presented about program correctness stressing the level of care that should be exercised by software engineers. Also includes topics of automata theory, regular languages and models of computation when offered as a three-credit course.

**CSI 200 Data Abstraction /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: CSI 138.

Structures of data and skill building for reasoning about programs. Includes data abstraction in which the specifications for a data type are separated from the implementation of the data type. Develops skills to reason about the correctness of a particular implementation with respect to a set of specifications and the time and space performance of that implementation. Also stresses the application of science to the programming task.

**CSI 210 Operating Systems Concepts /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: CSI 200.

Concepts and methods of computer operating system construction. Includes a review of external functions, algorithms for CPU scheduling, memory management and general resource allocation, abstraction of functions to provide a community of cooperating sequential processes and the difficulties which arise from this process. Also includes an overview of several operating systems to show how all the segments conform.

**CSI 220 Computer Hardware Fundamentals /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: CSI 200.

Principles of computer hardware design. Includes a review of Boolean algebra and its relationship to logic design elements, logical design of common computer components and subsystems and basic electrical/electronic properties of digital circuits that pertain to properties constraining hardware performance.

**CSI 222 Computer Organization and Architecture /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: CSI 220.

Organization of digital computer systems and the relationship between computer architecture and programming models. Includes the five major subsystems of computers: control, computation, memory, input and output (I/O) and interconnection; their interactions with each other; methods of improving system performance; reduced instruction set computers; data-driven computer and object-oriented architectures and

computer networks.

**CSI 224 Program Testing and Validation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: CSI 200.

Theory and techniques of program testing and validation. Includes theoretical issues in testing, practical techniques for generating test data, testing and validation, tools that are available to support the testing process and the basic principles of system testing and basic models of software reliability.

**CSI 230 Structured Analysis and Design Techniques /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Advanced design techniques in system and programming development. Includes the life cycle, history and political implications of software development, implementation strategies, systems analysis, measures of design quality, comparison of design models, data modeling, software systems in differing implementation environments and maintenance considerations in software development.

**CSI 232 Improved Programming Technologies /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Advanced programming technologies for programmers who design, implement and/or maintain computer programs. Includes problem-solving strategies, software development life cycle models, enterprise analysis, low- and high-level software design, maintenance, metrics and quality assurance of software, programming teams, process control, automated tools, libraries and speed learning.

**CSI 234 Data Organization /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: CSI 200.

Concepts of the role of data in programming systems. Includes data related techniques that are common to the design and manipulation of compilers, data bases and operating systems; methods for data encoding, packaging, linking and indexing; algorithms for representing and traversing graphs; methods for organizing and searching the data structure of the set: linear lists, search trees, hashing techniques and range queries.

## CONSTRUCTION

**CON 062 Drafting for Personal Use /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: None.

Beginning construction drafting for students who have little or no drafting or construction experience and who may have a project they wish to work on. Work will include floor plans, elevations and sections. Not intended for drafting majors.

**CON 070 Basic Writing for Construction Trades /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Basic writing skills for construction trades. Includes grammar and mechanics necessary to communicate effectively in construction related documents.

**CON 072 Aggregate Testing /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Methods for testing aggregates. Includes receiving and preparing field samples, reduction of samples to test size, and procedures for determining moisture content, gradation and unit weight.

**CON 073 Aggregate Sampling /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

An introduction to aggregates and aggregate sampling procedures. Includes detail of the uses, classifications, procedures, and properties of aggregates. Also includes practice in determining correct procedures for given sampling assignments and actual experience in sampling aggregates.

**CON 074 Concrete Sampling /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

An introduction to concrete terminology, technology, materials, and field sampling and testing procedures. Includes sampling ready-mixed hydraulic concrete and field tests of freshly mixed hydraulic concrete.

**CON 075 Basic Science for Construction Trade /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

An introduction to the physical sciences. Focuses on basic concepts of physics, chemistry, and geology as they apply to the construction industry.

**CON 100 Principles of Construction /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: None.

Methods used to determine types of materials, equipment and labor required for construction projects to meet building codes. Includes blueprint reading, building codes, electrical and mechanical systems, inspection, testing and properties of concrete, timber, steel and soil.



**CON 110 Construction: Civil Blueprint Reading I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 Construction: Commercial Blueprint Reading I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: None.

Introduction to drafting. Includes developing the following working drawings for a small single family residence: plot plan, floor plans, sections, details, and structural, mechanical, electrical and plumbing plans. Emphasis on line weights, lettering and composing working drawing sets.

**CON 119 Building Materials /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: 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 130 Construction: Piping Systems /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Principles and techniques of piping system construction. Includes project planning, piping design, installation, safety parameters, inspection criteria and maintenance.

**CON 140 Construction: Electricity /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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 149 Independent Study in Construction /1-4 cr. hrs./3-12 periods (3-12 lab)**

Independent readings or special projects. Content to be determined by conference between student and instructor.

**CON 150 Construction: Concrete/Masonry /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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 154 Heavy Equipment Servicing and Minor Maintenance /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: None.

An introduction to the basic skills of heavy equipment servicing and minor maintenance. Includes safety, identification and use of tools, operation and maintenance of the various sub-systems associated with construction equipment.

**CON 160 Construction: Carpentry I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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)**

□Prerequisites: CON 112 and MTH 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 170 Construction: Carpentry II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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 171 Leadership and Motivation /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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: 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: 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 man-

agement, 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: 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: 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: None.

Survey of the Uniform Building Code. Includes overview of codes, ordinances and regulations, UBC organization and code application problems.

**CON 182 Introduction to the Uniform Mechanical Code /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Survey of Uniform Mechanical Code. Includes an overview of codes, ordinances and regulations, UMC organization and code application problems.

**CON 183 Introduction to the Uniform Plumbing Code /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Survey of Uniform Plumbing Code. Includes an overview of codes, ordinances and regulations, UPC organization and code application problems.

**CON 184 Introduction to the National Electric Code /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Survey of National Electric Code. Includes an overview of codes, ordinances and regulations, NEC organization and code application problems.

**CON 197 Training for Construction: /1-8 cr. hrs./5-40 periods (5-40 lab)**

□Prerequisite: Consent of instructor.

Supervised fieldwork experience on a specific construction project at the project site.

**CON 199 Co-op Related Class in CON /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**CON 199 Co-op Work in CON /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**CON 200 Soil Mechanics /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: CON 119 and MTH 120.

Techniques of soil mechanics. Emphasis on sound solutions to construction problems in the area of foundation work and earth structures. Includes basic soil relationships, permeability, consolidation, shear strength, cuts and slopes, lateral pressures, soil exploration and sampling, compaction and stabilization.

**CON 205 Construction: Civil Blueprint Reading II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 206 Construction: Commercial Blueprint Reading II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: CON 111.

Continuation of CON 111. Blueprint reading and specifications for general and heavy commercial construction. Includes heavy timber, structural steel and reinforced concrete construction for townhouses and large commercial buildings.

**CON 210 Building and Material Cost Estimating /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: CON 119 and MTH 110 or higher.

Principles of building and material cost estimating. Includes specifications; site work; concrete, steel, masonry, electrical, piping, carpentry and alteration take-offs; job overhead; subcontractor's bids; and pricing.

**CON 212 Construction Drafting III /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: 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: 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: 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: 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: CON 212C.

Advanced electrical drafting principles and applications using various media and specialized techniques.

**CON 215 Introduction to Microcomputers for the Construction Industry /4 cr. hrs./6 periods (2 lec., 4 lab)**

□ Prerequisites: CON 112, CSC 105 and MTH 110 or higher.

Microcomputer construction applications. Includes word processing, spreadsheet applications from among electrical, mechanical, plumbing, solar and structural systems, and computer-aided construction graphics.

**CON 220 Construction: Management /3 cr. hrs./3 periods (3 lec.)**

□ Prerequisite: None.

Construction management procedures, including analysis of the general provisions of contracts and review of material submittals.

**CON 222 Site Development Drafting /4 cr. hrs./6 periods (3 lec., 3 lab)**

□ Prerequisites: CON 112 and MTH 110 or higher.

Introduction to drafting principles involved in the development of construction sites: topography, grading and drainage, boundary descriptions and site planning.

**CON 262 Construction Drafting IV /4 cr. hrs./6 periods (3 lec., 3 lab)**

□ Prerequisites: CON 212 and 222.

Further advanced construction drafting principles and applications.

**CON 265 Computer-Aided Construction Drafting /4 cr. hrs./6 periods (2 lec., 4 lab)**

□ Prerequisite: CON 215.

Advanced construction drafting principles and applications using computer-aided drafting. Includes creating, saving and plotting plans, details and overlays.

**CON 299 Co-op Related Class in CON /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**CON 299 Co-op Work in CON /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

## COOPERATIVE EDUCATION

**199 Co-op Related Class /1 cr. hr./1 period (1 lec.)**

□ Prerequisite: 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: 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 16 credit hours.

**299 Co-op Related Class /1 cr. hr./1 period (1 lec.)**

□ Prerequisite: 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: 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 16 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: 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: 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: 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: 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: 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: 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: 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.

**CORRECTIONS OFFICER ACADEMY****COA 124 Corrections Officer Academy I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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.)**

Same as HED 140B.

**CREDIT MANAGEMENT****CRM 177 Fundamentals of Credit Management /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Historical roots and role of commercial credit, the credit function in financial management, determination of credit policies and procedures,

## CREDIT MANAGEMENT—DANCE—DENTAL ASSISTING

and administration of credit departments. Introduction to sources of information for financial analysis.

### **CRM 207 Applied Credit Management /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: CRM 177.

Application of credit management procedures to the diagnosis and solution of credit problems; financial statement analysis, evaluation, ratios, and credit management specialties.

### **CRM 208 Advanced Credit Management /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: CRM 207.

Survey of laws and regulations in commercial credit including contract and corporate law, negotiable instruments, and bankruptcy. Includes credit correspondence.

### **CRM 217 Credit Administration I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: CRM 208.

Management theory and practices for credit managers. Staff selection, training and review, negotiation strategies, and collection techniques.

### **CRM 218 Credit Administration II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: CRM 217.

Application of credit management principles, financial analysis, theory and use of liquidity, solvency, efficiency and profitability ratios, and credit law.

## DANCE

### **DNC 166 Beginning Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: None.

Development of basic skills in stretch and strength for dance. Includes proper biomechanical function and care of the body, dance theory and technique and a capacity for movement expressivity. (Same as FSS 166.)

### **DNC 167 Intermediate Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: None.

Development of intermediate skills in stretch and strength for dance. Includes proper biomechanical function and care of the body, dance theory and technique. More complex material is introduced and greater movement articulation is expected. (Same as FSS 167.)

### **DNC 168 Advanced Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: 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 movement expressivity. More complex material is introduced and greater movement demands of articulation and expressivity. (Same as FSS 168.)

### **DNC 169 Dance Repertoire /2 cr. hrs./3 periods (1 lec., 2 lab)**

□Prerequisite: DNC 166, 167, or 168.

Principles of dance composition and techniques. Includes learning and performing dances and developing dance technique skills within a repertoire experience. (Same as FSS 169.)

## DENTAL ASSISTING

### **DAE 059 Preparation for Oral Radiography Certification /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: Consent of program coordinator.

Chemical and physical properties of dental materials and their uses in specific operative procedures. Includes units of measure, various measuring devices and maintenance of all related equipment.

**DAE 165 Pre-Clinical Procedures /2 cr. hrs./5 periods (1 lec., 4 lab)**

□Prerequisite: 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.)**

□Prerequisites: 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.)**

□Prerequisites: 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)**

□Prerequisites: DAE 161 through 165.

Application of acquired skills in a clinical environment under direct supervision of the dentist and instructor.

**DENTAL HYGIENE****DHE 101 Dental Care Basics /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: Admission to Dental Hygiene Program.

Dental Hygiene clinical environment. Includes asepsis and infection control, legal and ethical record keeping, gathering and evaluating patient health information, body mechanics, CPR and dental office emergency procedures.

**DHE 104 Dental and Oral Morphology /2 cr. hrs./4 periods (1 lec., 3 lab)**

□Prerequisite: Admission to Dental Hygiene Program.

Form and function of primary and permanent dentition. Observation, identification and recording of normal and abnormal intra oral pathology.

**DHE 107 Oral Embryology and Histology /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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 Dental Practice /2 cr. hrs./4 periods (1 lec., 3 lab)**

□Prerequisite: Admission to Dental Hygiene Program.

Basics of computer operation. Includes laboratory experiences with systems used in dentistry.

**DHE 113 Pre-Clinical Dental Hygiene I /4 cr. hrs./8 periods (2 lec., 6 lab)**

□Prerequisites: DHE 101, 104, 107, 110.

Intra oral procedures. Includes head and neck examination, preliminary oral and dental charting, scaling and polishing teeth, application of fluorides and individualized patient home health care procedures.

**DHE 116 Oral Radiography /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: 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.)**

□Prerequisites: DHE 101, 104, 107, 110.

Etiology, diagnosis and prognosis of periodontal disease.

**DHE 121 Nutrition and Prevention Dentistry /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: DHE 101, 104, 107, 110.

Foods, including selection, consumption and utilization. Application of nutritional counseling and motivational techniques for patient compliance in the control of dental disease.

**DHE 124 Clinical Dental Hygiene II /3 cr. hrs./7 periods (1 lec., 6 lab)**

□Prerequisite: 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: Completion of first year of Dental Hygiene Program.

Chemical and physical properties of materials used in dental practice. Includes taking and processing study models for patient treatment planning.

**DHE 201 Clinical Dental Hygiene III /5 cr. hrs./13 periods (1 lec., 12 lab)**

□Prerequisite: 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: Completion of first year of Dental Hygiene Program.

Oral pathology. Includes diagnosis and etiology, oral manifestation of generalized disease and neurological conditions.



**DHE 207 Pharmacology and Pain Control /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: Completion of first year Dental Hygiene Program.  
Identification of drugs which affect or are affected by dental treatment. Includes pain control in dentistry, use of sedatives and the administration of anesthesia.

**DHE 210 Clinical Dental Hygiene IV /4 cr. hrs./10 periods (1 lec., 9 lab)**

□Prerequisites: 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)**

□Prerequisites: 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.)**

□Prerequisites: 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: 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: 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: 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)**

□Prerequisites: DLT 101, 102 and 103.  
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)**

□Prerequisites: DLT 101, 102 and 103.  
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)**

□Prerequisites: DLT 101 through 105.  
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.)**

□Prerequisites: DLT 101, 102 and 103.  
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.

**DLT 201 Dental Laboratory II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: DLT 101 through 106.  
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.)**

□Prerequisites: DLT 101 through 106.

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)**

□Prerequisites: DLT 101 through 106.

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)**

□Prerequisites: DLT 201, 202 and 203.

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)**

□Prerequisites: DLT 201, 202 and 203.

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)**

□Prerequisites: DLT 201, 202, 203.

Application of dental laboratory techniques. Includes complete dentures, partial dentures, crown and bridge work, dental ceramics, orthodontics, and maxillofacial appliances.

## DESIGN

**DES 111 Fundamentals of Design /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: 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 140 Design Concepts Review /1-3 cr. hrs./1-3 periods (1-3 lec.)**

□Prerequisite: Consent of instructor.

Directed to NCIDQ design test topics. Includes design concepts, program requirements, building and barrier free codes, space planning, plumbing, furniture scale and arrangement, appropriateness of design, furniture selection, finish materials, lighting, electrical, HVAC, cabinet section and perspective/axonometric sketch.

**DES 149 Independent Study in Design /1-4 cr. hrs./3-12 periods (3-12 lab)**

□Prerequisite: Consent of instructor.

Independent readings or special projects. Content to be determined by conference between student and instructor.

**DES 150 Functional Design /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: None.

Design of objects and systems. The development of design solutions for particular design problems. Students select their own areas of design interest.

**DES 151 Structural Concepts /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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./3 periods (3 lec.)**

□Prerequisite: 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 156 Design for Living /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Functional interior design and application. Includes contemporary and classical design periods, composition and traffic flow. Intended for students who wish to decorate their interior environment with emphasis on Tucson's historical southwestern heritage.

**DES 198 Special Topics in Design: /1-4 cr. hrs./1-10 periods (1-4 lec., 0-9 lab)**

□Prerequisite: Consent of instructor.

Special and current topics in applied design. Includes topics such as futuristic design, solar studies, environmental applied design, south-western themes, and preservation of historical environments.

**DES 199 Co-Op Related Class in Applied Design /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**DES 199 Co-Op Work in Applied Design /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**DES 210 Marketing For Designers /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: None.

Professional marketing concepts of industrial and interior design products and services. Includes developing comprehensive marketing plans, identifying target markets, market development and direct marketing through advertising and public relations, personal profile and portfolio development.

**DES 211 Graphic Communication I /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: DES 111 or concurrent enrollment.

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 212 History of Design /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

History of industrial and interior design work. Includes prehistoric 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)**

Same as LTP 215.

**DES 220 Interior Methods and Materials /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 221 Industrial Methods and Materials /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Manufacturing process and materials. Includes industrial methods, testing, selection, specifications and field trips to manufacturing sites to explore existing technology.

**DES 222 Graphic Communication II /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: DES 211.

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: 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 250 Industrial Design /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: DES 150 or consent of instructor.

Effective design of industrial products and processes. Includes solutions to problems in fabrication, manufacture and modularity of various products.

**DES 251 Computer Communications/Applications /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: DES 211.

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)**

□Prerequisites: DES 211 and 222.

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)**

□Prerequisites: DES 211 and 222.

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 260 Transportation Design /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Design of air, land, sea and space vehicles. Includes analyzation of problems involved in moving humans or products from point to point, planning and drawing the project, writing a description of parameters, goals of the design, and final solution.

**DES 299 Co-Op Related Class in Applied Design /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**DES 299 Co-Op Work in Applied Design /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**DRAFTING****DFT 101 Blueprint Reading/Sketching /4 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: None.

Reading blueprints and freehand technical sketching in orthographics, lettering, sections and auxiliaries, dimensioning, manufacturing operations and tolerance of position and form.

**DFT 101A Blueprint Reading /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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: None.

Introduction to technical drafting concepts and techniques. Students

proceed through problems they will meet in their association with engineers and designers, becoming familiar with drafting tools, sketching, lettering, geometric construction, orthographic projection, dimensioning, isometrics, sections and auxiliary views.

**DFT 151 Technical Drafting II /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: DFT 150.

Continuation of DFT 150, furthering the student's skills. Includes dimensioning, tolerancing, detail and assembly drawings, and hardware selection.

**DFT 154 Electronic Drafting /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: ETR 100 or higher.

Basic concepts and techniques of drafting for the electronics industry. Includes schematics, logic diagrams, printed circuits and integrated circuits. Primarily for the electronics technical drafting student.

**DFT 155 Electro-Mechanical Design I /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisites: DFT 151 and 154.

Practical packaging applications common to the electronics industry. Includes electronic, mechanical, environmental, functional and manufacturing aspects of electro-mechanical gear design. Students will utilize drawing boards and computer aided drafting equipment for drawing projects.

**DFT 170 Microelectronic Drafting /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: DFT 155 or consent of instructor.

Introduction to the fundamentals of drafting oriented towards micro-electronic design. Includes schematics, logic diagrams, and the design and drafting of thin and thick microcircuits. Students will utilize drawing boards and computer aided drafting equipment for drawing projects.

**DFT 180 Computer Aided Drafting I /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisite: DFT 150 or consent of instructor.

Principles and techniques of the CAD system. Includes terminology, commands to draw lines, angles, arcs, circles, and ellipses, geometric construction, pictorials, multi-view projection, sectional views, and dimensioning. Generation of library symbols, formatting, and plotting.

**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 I /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisites: DFT 180 or one year CAD experience and consent of instructor.

Advanced Computer Aided Drafting (CAD) principles and applications.

## DRAFTING

Includes two dimensional drawing techniques, use of blocks, symbols, shapes, attributes and data extraction, menu customization and file management techniques, macros and script files, multiple drawings, and advanced plotting techniques. Also includes LISP commands.

### **DFT 211 Advanced Computer Aided Drafting: Three-Dimensional / 4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisites: DFT 180 or one year of CAD experience and consent of instructor.

Advanced computer aided drafting (CAD) three-dimensional principles and applications. Includes techniques, customizing menus for specific applications, 3-D LISP techniques, CAD program updates and an introduction to animation techniques.

### **DFT 240 Manufacturing Processes I / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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 256 Mechanical Design I / 4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: DFT 151.

Advanced technical drawing concepts, techniques, and problems in mechanical design, typical of industry, to develop skill, accuracy and speed. Students will utilize drawing boards and computer aided drafting equipment on drawing projects.

### **DFT 257 Mechanical Design II / 4 cr. hrs./6 periods (4 lec., 2 lab)**

□Prerequisite: DFT 256.

Continuation of DFT 256. Complex mechanical design problems. Introductions to and application of geometric dimensioning and tolerancing (ANSI Y14.5M) as used by the United States government and many industrial firms. Designed to increase the student's awareness of dimensioning and tolerancing techniques, and computer aided drafting equipment.

### **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: 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 repeated twice for a maximum of 9 credits.

### **DRA 103 Voice and Movement for the Actor I / 1 cr. hr./2 periods (2 lab)**

□Prerequisite: 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: 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: 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 108 Mime and Dance for Actors / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Designed to assist actors with the use of the human body and surrounding space in areas of movement. Included are mime and dance. The dance will focus on creative movement and traditional dance in theater.

### **DRA 109 Special Topics in Theater: / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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.

### **DRA 111 Stagecraft / 2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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: 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: 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)**

□Prerequisites: 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: 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: 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: 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: 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.)**

□Prerequisites: 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)**

□Prerequisites: 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)**

□Prerequisites: 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: 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)**

□Prerequisites: 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)**

□Prerequisites: 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: 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: None.

Interdisciplinary and intercultural approach to human development and interpersonal relationships from birth to death.

**ECE 108 Literature/Social Studies for Children /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Survey of materials, principles and techniques for the selection and presentation of children's literature and social studies concepts.

**ECE 110 Communication Skills for Children /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Language and communication in early childhood education. Includes developing materials, using existing programs and using computers in language development.

**ECE 111 Techniques for the Special Child /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Techniques, procedures and trends in special education as they relate to

the following areas of exceptionality: visually impaired, auditorially impaired, mentally impaired, physically impaired, emotionally disturbed, speech impaired and learning disabled.

**ECE 112 Music/Art for Children /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Materials, activities and procedures for developing children's musical and artistic skills.

**ECE 114 Effective Parenthood /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Examination of parental factors contributing to optimal physical, intellectual, affective and moral development of children. Includes a variety of specific problem-solving techniques.

**ECE 117 Child Growth and Development /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Growth, development and acculturation of the child from conception to adolescence.

**ECE 118 Introduction to Education /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Educational theories and philosophies. Includes supervised fieldwork to provide exposure to varied educational settings.

**ECE 120 Supervision and Administration /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Survey of administrative responsibilities within all areas of early childhood education.

**ECE 124 Math/Science for Children /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Concepts, methods and materials used in teaching mathematics and science to children. Includes developing materials and using existing programs and computers.

**ECE 126 Teaching Techniques /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Theory and practice of classroom management techniques with supervised field experience.

**ECE 128 Preschool Education /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: None.

Acquisition and development of required competencies in day care programs. Includes classroom instruction and supervised experience in

care of infants, toddlers and school-age children.

**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: 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

**ECO 100 Introduction to Microeconomics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 070.

Basic principles of economic theory. Includes analysis of consumer and producer choices; how prices and incomes are determined in the U.S. economy; and applications of economic principles to such issues as monopoly, pollution and different economic systems.

**ECO 101 Introduction to Macroeconomics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 070.

Basic economic principles as they apply to the economy as a whole. Includes determinants of gross national product, level of employment and prices; the role of money and banking institutions; and applications of economic principles to such issues as inflation, recession, federal government tax and expenditure policies.

**ECO 160 Personal and Family Finance /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Principles to assist individuals and families in making decisions regarding earning, spending and investing money. Includes choosing a career, making major purchases, sources of consumer information and putting one's dollars to work.

**ECO 200 Principles of Economics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 070.

The microeconomic principles of consumer and producer choices and

how markets work. The macroeconomic principles of how the U.S. economy works, the role of money and the banking system. Not open to students who have taken or are taking ECO 100 and/or ECO 101.

**ECO 210 Survey of Economic Theory /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 175.

Introduction to current economic theory. Designed for engineering majors. The microeconomics of consumer and producer choice and the macroeconomics of gross national product, employment and price level determination. Not open to students who have taken or are taking ECO 100 and/or ECO 101.

**ECO 230 Money and Banking /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: ECO 101.

Basic principles of the U.S. financial system. Nature of money and credit, how money and credit influence the economy, the role of commercial banks and the Federal Reserve Bank, interest rate determination and international monetary policies.

## EDUCATION

**EDU 100 Principles of Bilingual Education /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Examination of basic principles of bilingual education. Includes philosophy, history, rationale, legislation and models. (Same as PRD 100.)

**EDU 101 Teaching Techniques: Desert Plants /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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 102 Teaching Techniques: Predators and Prey /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

An introduction to the ecological relationship between predator and prey and two different ways of teaching the concept in the classroom. Includes preparing an "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. (Offered in conjunction with the Arizona Sonoran Desert Museum.)

**EDU 103 Creating Visual Aids /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Provides teachers with visually portrayed concepts which will enable them to create visual aids for the content area of math, reading, science, social studies, music, physical education and speech. Includes creating visual aids for the classroom, room decor, bulletin boards, and calendars.

**EDU 104 Teaching Mathematics Through Problem Solving, K-8 / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 106 Group Processes for the Elementary Classroom /1 cr. hr./ 1 period (1 lec.)**

□Prerequisite: None.

Group processes for elementary instruction. Includes application of visual aids as a teaching tool, techniques for group learning and organizing groups.

**EDU 111 Teaching Strategies for High-Risk Children I /2 cr. hrs./ 2 periods (2 lec.)**

□Prerequisite: None.

Administration and interpretation of the diagnostic procedures of the Reading Recovery Program for high-risk children. Includes administering and interpreting tests in the **Diagnostic Survey**. Maintains and analyzes test records, and completes the **Diagnostic Summary** describing the reading performance of selected first grade students.

**EDU 112 Teaching Strategies for High-Risk Children II /3 cr. hrs./ 3 periods (3 lec.)**

□Prerequisite: EDU 111.

Prepares teachers to teach and assume the responsibilities of implementing a Reading Recovery Program in the first grade classrooms. Includes planning and implementing daily lessons, monitoring student progress, deciding when to discontinue students from the program, documenting daily student performance and assisting first grade teachers in creating supportive classrooms for Reading Recovery children.

**EDU 113 Teaching Strategies for High-Risk Children III /3 cr. hrs./ 3 periods (3 lec.)**

□Prerequisite: EDU 112.

A continuation of EDU 112. Includes a continuance of the skill building process in preparing instructors to teach in the Reading Recovery and skills for each strand of the K-8 curriculum.

**EDU 114 Teaching Math Through Problem Solving II for K-8 /3 cr. hrs./ 3 periods (3 lec.)**

□Prerequisite: 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 125 Water and Environment /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: 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: 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 198 Special Topics in Education: /5-4 credits/5-12 periods (variable lec., variable lab)**

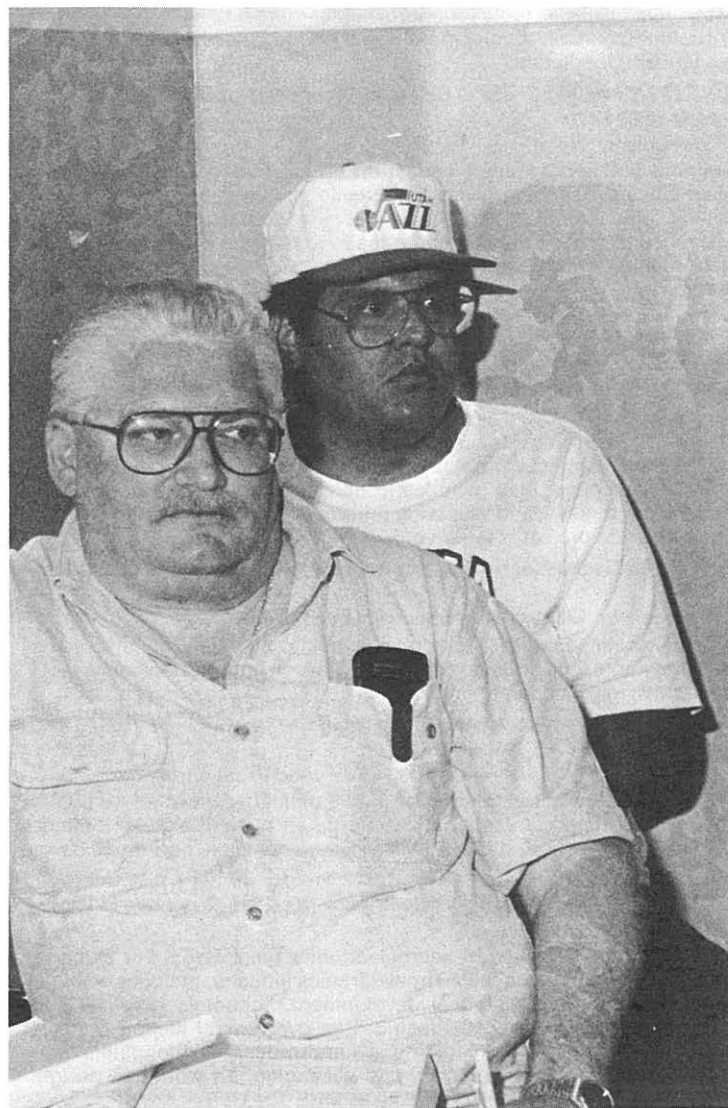
□Prerequisite: Consent of instructor.

Selected topics in education for classroom instruction. Includes current specialized materials to meet classroom needs for local educators.

**EDU 203 Instructional Strategies for Secondary Bilingual Education / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Development of classroom management skills and instructional techniques using two languages. Designed for the middle school, junior high school and high school bilingual teacher. Special attention is given to



assessment skills as tools for improving learning and instruction and to curriculum material development based on the language and culture of the student population.

**EDU 205 Teaching Civics to Bilingual/Bicultural Populations /3 cr. hrs./ 3 periods (3 lec.)**

□Prerequisite: None.

Training teachers in adult education civics. Includes principles and techniques of teaching civics bilingually/biculturally to learners from diverse educational backgrounds who are preparing for permanent residence and/or citizenship under the requirements of the Immigration Reform and Control Act of 1986 (IRCA).

## ELECTRONICS

**ETR 100 Exploring Electronics /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: 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: MTH 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: ETR 101, and MTH 125 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: 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)**

□Prerequisites: 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: MTH 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: 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: ETR 102 or concurrent enrollment.

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: 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 and QTC 123.)

**ETR 124 Electronic Measurements /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: ETR 105 or concurrent enrollment.

Techniques to perform AC and DC measurements on passive and active component circuits. Requires the use of a variety of measuring devices such as recorders, transducers, audio and radio frequency generators, frequency counters, spectrum analyzers and distortion analyzers, with emphasis on oscilloscope operation.

**ETR 125 Printed Circuit Board Solder Assembly /3 cr. hrs./5 periods (1 lec., 4 lab)**

□Prerequisite: 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, compo-



nent preparation, component recognition, installation and high reliability soldering of these components to a printed circuit board. (Same as MRE 125.)

**ETR 130 Basic Microcomputer Repair /4 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: None.

Computer system assembly and start up. Includes operating systems, tools and equipment, peripheral connections, customer relations, troubleshooting, parts and supplies.

**ETR 132 Microcomputer Peripheral Repair /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: ETR 130.

Peripheral equipment repair. Includes troubleshooting and servicing dot matrix and letter quality printers, monitors, floppy and hard drives.

**ETR 133 Computer Aided Schematic Capture/PCB Development /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: 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)**

□Prerequisites: ETR 105 and 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: 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: MTH 070.

Microcomputer operation, including 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 205 Advanced Microcomputer Repair /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: ETR 130.

Continuation of ETR 130. Includes microprocessors, system architecture, tools and test equipment, busses, handshaking and troubleshooting.

**ETR 222 Transducers /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: ETR 230.

Theory and application of electronic sensors used in modern process control systems. Includes solution of interface problems, the physics of the sensor and methods of application.

**ETR 230 Linear Integrated Circuits /6 cr. hrs./8 periods (4 lec., 4 lab)**

□Prerequisite: 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: 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)**

□Prerequisites: ETR 105 and 110.

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)**

□Prerequisites: ETR 230, and ETR 250 or concurrent enrollment.

Advanced analog circuits used in current digital systems. Includes power supplies, power failure, surge protection, and power amplifiers.

**ETR 255 Microcomputer Systems I /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisites: ETR 160 and 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: 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 257 Computer Peripherals /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisites: ETR 251 and 256 (both may be taken concurrently with ETR 257).

Computer peripheral equipment and its interface to the parallel data transmission methods. Includes modems and selected microcomputer applications, such as data acquisition, peripheral control and automated component testing.

**ETR 265 Communications/RF Microwave /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: 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: 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: ETR 230.

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: 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: 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: 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: 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)**

□Prerequisites: 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.

**EMT 059 Emergency Cardiac Care /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: Acceptance into Advanced Paramedic Program.  
In-hospital clinical procedures for the paramedic.

**ENGINEERING**

**ENG 101 Problem-Solving Using Computers / 3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: MTH 180 or concurrent enrollment and high school physics or equivalent.  
Design of problem-solving algorithms. Includes implementation in a structured programming language and application to engineering.

**ENG 102 Problem-Solving and Engineering Design / 3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: ENG 101 and high school physics or equivalent.  
Basic engineering principles. Includes problem solving techniques, software tools and the engineering design process culminating in a design project.

**ENG 110 Construction Surveying / 3 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisite: MTH 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: MTH 090 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)**

□Prerequisites: MTH 150 and 155, or 160.  
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 210 Engineering Mechanics: Statics / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: PHY 210 and concurrent enrollment in MTH 215.  
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: 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: 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: 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: 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.)**

□Prerequisites: ENG 101 and MTH 185.

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./5 periods (2 lec., 3 lab)**

□Prerequisites: PHY 216 and MTH 185.

Introductory survey of the electrical engineering discipline with emphasis on electrical power applications.

**ENG 261 Elements of Electronics /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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 280 Introduction to Circuits and Electronics I /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisites: ENG 102 and concurrent enrollment in MTH 215.

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)**

□Prerequisites: ENG 280 and concurrent enrollment in MTH 219.

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 061 Elementary Listening, Speaking and Pronunciation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: Placement by ESL assessment test.

Basic skills in standard pronunciation of American English for beginning level students. Includes listening and speaking practice.

**ESL 062 Elementary Grammatical Patterns I /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: Placement by ESL assessment test.

Basic listening, speaking, reading and writing skills in frequently used patterns of American English. Includes reading, writing and laboratory exercises to reinforce these patterns.

**ESL 063 Elementary Grammatical Patterns II /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: Placement by ESL assessment test.

Continuation of ESL 062. Includes additional reading, writing and laboratory exercises.

**ESL 064 Elementary Reading /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: Placement by ESL assessment test.

Basic reading skills for beginning ESL students. Includes vocabulary building, comprehension, analysis of the main idea and supporting details, and interpretation of different types of reading.

**ESL 071 Intermediate Listening, Speaking and Pronunciation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: ESL 061 or 063 or placement by ESL assessment test.

Listening and pronunciation skills to help in the acquisition of conversational ease. Includes speaking practice.

**ESL 072 Intermediate Grammatical Patterns /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: ESL 063 or placement by ESL assessment test.  
Listening and speaking skills in the frequently used patterns of American English. Includes reading and writing to reinforce these patterns.

**ESL 073 Intermediate Reading /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: ESL 064 or placement by ESL assessment test.  
Reading skills for intermediate ESL students. Includes vocabulary building, comprehension, analysis of the main idea and supporting details, and interpretation of different types of reading including selected modified readings from American and English literary classics.

**ESL 074 Intermediate Writing /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: ESL 063 or placement by ESL assessment test.  
Writing skills for intermediate ESL students. Includes basic word order, usage, basic verb tenses, sentence patterns, paragraph development and punctuation.

**ESL 081 Advanced Listening, Speaking and Pronunciation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: ESL 071 or 072 or placement by ESL assessment test.  
Listening and pronunciation skills to develop fluency in American English. Includes the use of oral reading, conversational practice and exercises.

**ESL 082 Advanced Grammatical Patterns /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: ESL 072 or placement by ESL assessment test.  
Listening and speaking skills in the frequently used patterns of American English. Includes reading and writing to reinforce these patterns.

**ESL 083 Advanced Reading /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisites: ESL 073 or placement by ESL assessment test.  
Reading skill for advanced ESL students. Includes speed and comprehension in reading through conscious analysis of paragraph structure and recognizing the progressive development of ideas.

**ESL 084 Advanced Writing /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: ESL 074 or placement by ESL assessment test.  
Writing skills for advanced ESL students. Includes grammar, sentence patterns, paragraph development and organization.

**ESL 090 English with Ease /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: ESL 072, 074 or satisfactory placement on ESL assessment test.  
Advanced conversational English. Includes vocabulary development, cultural contexts, listening and reading comprehension, fluency practice,

and retention and production of idioms and set expressions in a variety of situations.

**ENVIRONMENTAL TECHNOLOGY**

**ENV 100 Introduction to Environmental Technology /4 cr. hrs./4 periods (4 lec.)**

□Prerequisites: College reading requirement or concurrent enrollment in REA 100, and concurrent enrollment in WRT 100 and MTH 060.  
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)**

□Prerequisites: ENV 100, MTH 070.  
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: 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.

**ENV 106 Chemistry of Water/Wastewater Treatment /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisites: ENV 100 and concurrent enrollment in MTH 070.  
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 108 Electrical and Mechanical Maintenance /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: ENV 100 or concurrent enrollment, MTH 070 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 120 Introduction to Wastewater Treatment /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisites: ENV 100 or concurrent enrollment, MTH 070 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 122 Municipal Collection Systems /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisites: ENV 100 and concurrent enrollment in MTH 070.

Operation and maintenance of collection systems. Includes municipal collection system management, components and design, principles of construction, inspections and testing, cleaning and maintenance, underground repair, lift stations, rehabilitation, application of mathematics, and safety programs.

**ENV 140 Introduction to Water Treatment /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisites: ENV 100 or concurrent enrollment, MTH 070 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 142 Water Distribution Systems /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisites: ENV 100, and concurrent enrollment in MTH 070.

Operation and maintenance of distribution systems. Includes water distribution system management, operation and maintenance, water quality considerations, disinfection, pipe installation, tapping, valves, fire hydrants, services and meters, cross-connection control, pumps and prime movers, storage facilities, instrumentation and control, map drawing and records, public relations, application of mathematics, and safety programs.

**ENV 150 Introduction to Hazardous Materials /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: ENV 100 or concurrent enrollment, MTH 070 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 151 OSHA: Hazardous Materials - Health and Safety /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisites: ENV 100 or concurrent enrollment, MTH 070 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 153 Chemistry of Hazardous Materials /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: 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.)**

□Prerequisites: 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.)**

□Prerequisites: 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)**

□Prerequisites: 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.)**

□Prerequisites: 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 200 Industrial/Workplace Safety /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: 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: 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: 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.

**ENV 208 Environmental Laboratory Analysis /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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: 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 Biological Wastewater Treatment /3 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisites: ENV 106, 120 and concurrent enrollment in MTH 130.

Principles of biological treatment. Includes trickling filters, biological towers, rotating biological contactors, conventional and modified activated sludge systems, land treatment, solids treatment, and biological nutrient removal. Emphasis is placed on utilizing visual, laboratory, and mathematical techniques for process control and troubleshooting.

**ENV 222 Physical-Chemical Treatment of Wastewater /3 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisites: ENV 106, 120 and concurrent enrollment in MTH 130.

Physical/chemical methodologies to treat municipal and industrial wastewater. Includes use of chemicals, microscreens, and filters to remove solids from wastewaters, flotation processes, neutralization, coagulation and precipitation, activated carbon adsorption and process control utilizing laboratory techniques.

**ENV 240 Advanced Water Treatment /3 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisites: ENV 106, 140 and concurrent enrollment in MTH 130.

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)**

□Prerequisites: ENV 102, 142.

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 299 Co-op Related Class in ENV /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: Consent of instructor.

See Cooperative Education section for description.

## EQUINE SCIENCE

### **EQS 082 Introduction to Equine Training /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: None.

Concepts of behavioral psychology as they relate to training horses. Includes an introduction to horses and their use in society, the study of positive and negative reinforcement and their effect on the training of horses. Specific skills of handling, lunging, long-lining, and use of cues while riding are emphasized.

### **EQS 083 Equine Animal Science /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introduction to the health, breeding and care of horses. Includes anatomy, physiology, reproduction, health maintenance, disease prevention and general care. Prepares students for entry level jobs with large animal veterinarians.

### **EQS 084 Advanced Equine Animal Science /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: EQS 083.

Continuation of EQS 083. Management theories and practices as they relate to both small equine businesses and the equine industry as a whole. Includes breeding, nutrition, preventive medicine, management and marketing of horses.

### **EQS 089 Equine Training for Show Competition /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: None.

Covers the principles of presenting horses for show competition. Includes terminology, techniques for judging conformation, and the concepts of behavioral psychology and its application to showing horses. Specific skills for preparing a horse for presentation, using equipment correctly, and free lunging are emphasized.

### **EQS 100 Beginning Western Horsemanship /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

An introduction to the basics of Western horsemanship. Includes proper horse-handling procedures such as grooming, haltering, leading, saddling, bridling and basic riding skills for the Western style horse. Emphasis on developing beginning rider's ability to apply precise, prompt, smooth aids while guiding the horse through various schooling maneuvers.

### **EQS 110 English Horsemanship I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

An introduction to English horsemanship. Includes proper horse-handling procedures such as grooming, haltering, leading, saddling, bridling, posting and basic riding skills for the English style horse.

Emphasis on developing beginning rider's ability to apply precise, prompt, smooth aids.

### **EQS 120 English Horsemanship II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: EQS 110.

A continuation of English Horsemanship I. Includes conditioning and care of sport horses, rules and procedures of English sports, use of specialized tack and equipment. Emphasis on development of a secure, balanced seat and independent aids for the rider.

### **EQS 130 Introduction to Farrier Science /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: 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 140 Rodeo Skills /1-3 cr. hrs./1-3 periods (1-3 lec.)**

□Prerequisite: Consent of instructor.

Designed to assist students in learning rodeo rules, applications for competitive events, and developing rodeo skills in barrel racing, team roping, calf roping and goat tying. Riding events and ethics will be stressed. Includes how to become a good competitor.

### **EQS 141 Advanced Rodeo Skills /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: EQS 140.

Advanced principles of barrel racing, team roping, calf roping, goat tying, and riding events. Enhancing a positive attitude for competition is covered. Includes a review of rodeo rules and personal ethics. Rodeo skills and practicing events are independent of the class.

## EXPLORATORY

### **EXP 020 Techniques of Microwave Cooking /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Fundamental principles and proper operation of microwave ovens. Includes safety, special techniques in microwave cooking and the advantages and disadvantages of microwave cooking.

### **EXP 051 Social Science Survey /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: None.

Units from the social or behavioral sciences selected by the student.

### **EXP 088 Political Involvement /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Survey of local, state and national government campaigns. Includes the process of running for political office and the principles of effective campaign management. Designed to aid persons who wish to become involved in the political process.

## FASHION DESIGN AND CLOTHING

### **FDC 111 Clothing Construction (Beginning) I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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: 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: None.

Flat pattern method of pattern making with emphasis on engineering.

### **FDC 122 History of Fashion /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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: 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: 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)**

□Prerequisites: FDC 111 and 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: 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: 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: 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: 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: 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 /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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 122 Personal Risk Management /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: FIN 121.

Introduces the process of risk analysis and the concept of insurance as a method of risk management. Includes an analysis of risk exposures, selection of a method of risk management and the language of insurance and risk management. Helps prepare the student for the second IBCFP certification examination.

**FIN 123 Personal Investment Strategies /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: FIN 121.

Covers investment techniques and analysis, which includes markets, taxation, risk analysis and appropriate use. Also includes the interpretation of prospectus and corporate financial statements. Helps the student prepare for the third IBCFP certification examination.

**FIN 124 Tax Management and Planning /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: FIN 121.

Covers individual income, business and tax sheltered investment taxation. Includes current and estate tax planning techniques. Helps the student prepare for the fourth IBCFP certification examination.

**FIN 131 Principles of Credit Unions /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: None.

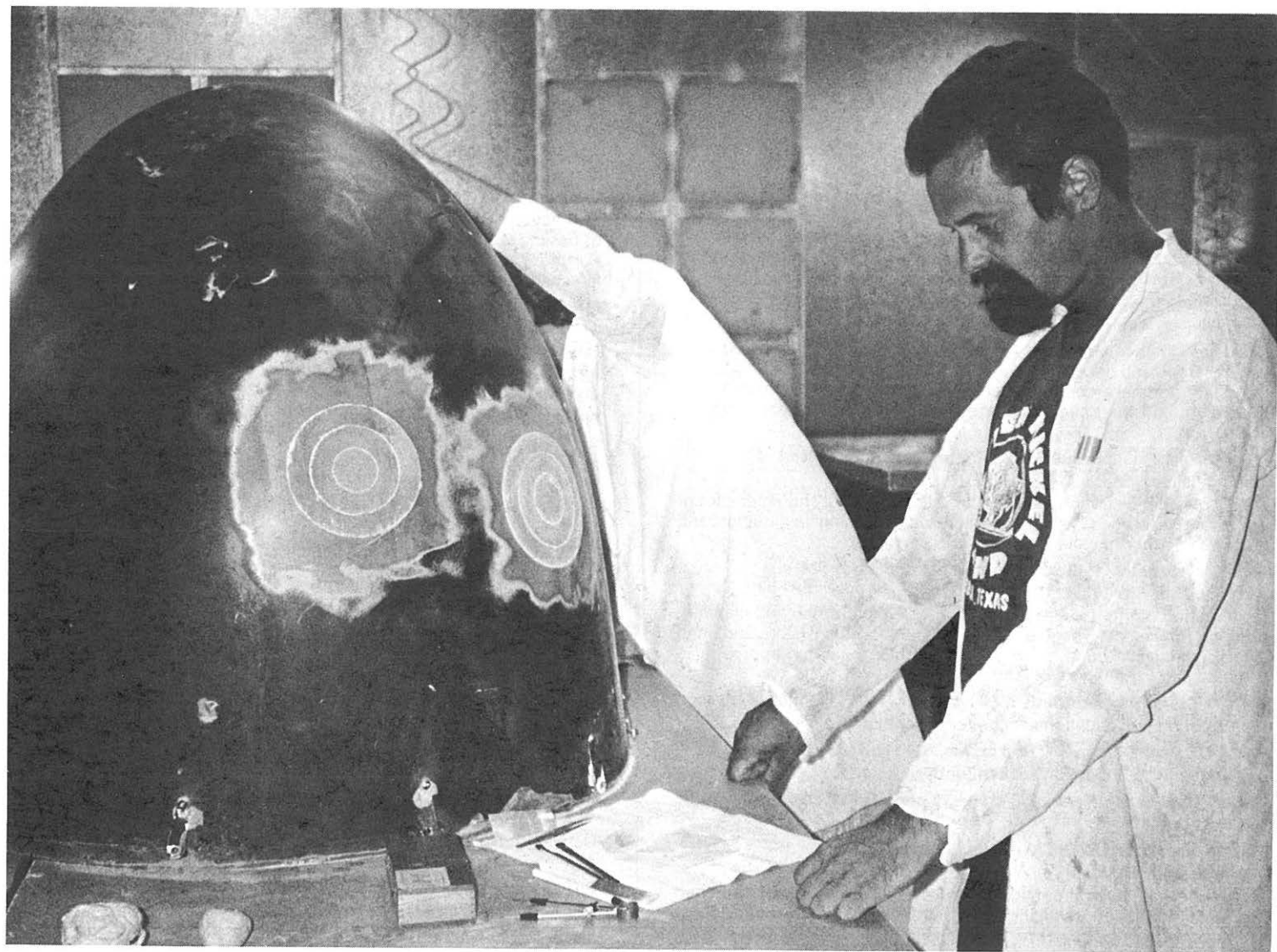
Commercial bank operations. Includes major banking functions, federal and state laws, organization, structure and management of commercial banks in today's deregulated financial environment.

**FIN 161 Commercial Lending Basics /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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.)**

Same as RLS 205.

**FIN 208 Installment Credit /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: FIN 141.

Continuation of FIN 141. Responsibilities and techniques of supervision. Includes organizational options and the hiring, orienting and appraising of employees.

**FIN 227 Residential Appraising for Lenders /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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: 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.

**FIN 245 Retirement Planning and Employee Benefits /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: FIN 121.

Covers qualified, nonqualified and government sponsored retirement programs, techniques for estimating retirement income needs. Helps the student prepare for the fifth IBCFP certification examination.

**FIN 246 Estate Planning /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: FIN 124.

Fundamentals of the Unified Transfer Tax system and techniques that reduce the size of the gross estate. Includes probate procedures, trusts, property ownership and will substitutes. Also covers life insurance, lifetime gifting, overuse of the marital deductions, charitable deductions and intrafamily and business transfers. Helps the student prepare for the sixth IBCFP certification examination.

**FIN 247 Financial Planning and Case Studies /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: FIN 245, 246.

Integration of the six stages of financial planning. Includes prioritizing clients' needs according to their resources and writing a comprehensive financial plan.

## FIRE SCIENCE

**FSC 149 Fire Operations I /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: 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: 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.

**FSC 151 Introduction to Fire Science /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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.)**

□Prerequisites: FSC 152 and MTH 070 or consent of instructor.

Basic chemical concepts and their applications to the field of fire science.

**FSC 154 Advanced Fire Prevention /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Fire prevention in high risk and industrial occupancies. Includes application of codes in the installation, operation, storage and transportation of dangerous materials; investigation and determination of fire causes; legal aspects of fire prevention; and prosecution of violators.

**FSC 155 Fire Investigation: Arson III /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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 161 Hazardous Materials II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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

## FIRE SCIENCE—FITNESS AND SPORT SCIENCES

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: MTH 070. (PHY 101 recommended.)

Principles of hydraulics as applied to fire suppression. Includes physical laws affecting the movement of water through pipes, hydrants, pumpers, hoses, etc.; functions and limitations of mechanical equipment to overcome these restrictions; effect of friction loss; head and pressure; water system; fire flow requirements; and organization for fire suppression.

### **FSC 163 Fire Apparatus and Equipment /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None. (PHY 101 recommended.)

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: None.

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: 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: None.

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: 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: 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 Fire Investigation: Origin and Recognition of Arson /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Basic principles of arson investigation.

### **FSC 185 Advanced Fire Investigation: Arson /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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.

## FITNESS AND SPORT SCIENCES

### GENERAL ACTIVITIES PROGRAM FOR ALL STUDENTS:

#### Individual & Dual Sports Courses

- FSS 104 Beginning Badminton /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 110 Beginning Golf /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 111 Intermediate Golf /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 112 Advanced Golf /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 113 Beginning Racquetball /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 114 Intermediate Racquetball /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 115 Advanced Racquetball /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 116 Beginning Tennis /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 117 Intermediate Tennis /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 118 Advanced Tennis /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 119 Track and Field /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 122 Beginning Fencing /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 123 Intermediate Fencing /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 124 Advanced Fencing /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 144 Wrestling /1 cr. hr./2 periods (1 lec., 1 lab)

#### Team Sports Courses

- FSS 125 Beginning Basketball /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 126 Intermediate Basketball /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 127 Advanced Basketball /1 cr. hr./2 periods (1 lec., 1 lab)
- FSS 128 Beginning Baseball /1 cr. hr./2 periods (1 lec., 1 lab)

- FSS 129 Softball /1 cr. hr./2 periods (1 lec., 1 lab)**  
**FSS 130 Soccer /1 cr. hr./2 periods (1 lec., 1 lab)**  
**FSS 131 Beginning Volleyball /1 cr. hr./2 periods (1 lec., 1 lab)**  
**FSS 132 Intermediate Volleyball /1 cr. hr./2 periods (1 lec., 1 lab)**  
**FSS 133 Advanced Volleyball /1 cr. hr./2 periods (1 lec., 1 lab)**

#### Combative Activities Courses

- FSS 136 Beginning Judo /1 cr. hr./2 periods (1 lec., 1 lab)**  
**FSS 137 Intermediate Judo /1 cr. hr./2 periods (1 lec., 1 lab)**  
**FSS 138 Advanced Judo /1 cr. hr./2 periods (1 lec., 1 lab)**  
**FSS 139 Beginning Tae Kwon Do /1 cr. hr./2 periods (1 lec., 1 lab)**  
**FSS 140 Intermediate Tae Kwon Do /1 cr. hr./2 periods (1 lec., 1 lab)**  
**FSS 141 Advanced Tae Kwon Do /1 cr. hr./2 periods (1 lec., 1 lab)**  
**FSS 142 Defensive Tactics /2 cr. hrs./3 periods (2 lec., 1 lab)**

□Prerequisite: None.

The theory of rough and tumble fighting; fundamentals and precaution, close-in defense and attack; control over and advising; the armed and unarmed opponent; chin maneuvers; prisoner handling and control; and physical fitness.

- FSS 143 Self-Defense for Women /2 cr. hrs./3 periods (2 lec., 1 lab)**

- FSS 145 Beginning Karate /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: None.

History and philosophy of Okinawan Karate techniques and performance categories. Includes self-defense strategies.

- FSS 146 Intermediate Karate /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: FSS 145.

Continuation of FSS 145. Includes intermediate level katas (combinations of movements).

#### Fitness Related Courses

- FSS 150 Fitness Activities /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: None.

This course is designed to give the neophyte exerciser an overview of several fitness activity components including a personal fitness evaluation as well as a basis of understanding the physiology of exercise. They will also participate in four activity areas: (1) walking/jogging, (2) biking, (3) aerobic dancing and (4) weight lifting.

- FSS 151 Sports Conditioning /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: 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.

- FSS 152 Independent Activity /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: 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.

- FSS 153 Fitness Assessment and Circuit Training /1-2 cr. hrs./2-3 periods (0-1 lec., 2 lab)**

□Prerequisite: None.

Evaluation of present fitness level, includes cardiorespiratory, flexibility, strength and body-fat evaluations. Activity/exercise program based on evaluations. Follow-up evaluation at middle and end of semester.

- FSS 160 Ballroom/Latin Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: None.

Basic techniques of ballroom and Latin dancing. Includes foxtrot, waltz, swing, rumba, cha-cha, and tango. Also includes dance movement variations.

- FSS 179 Bench Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: None.

High intensity, low impact aerobics. Includes developing skill in stepping onto a platform while simultaneously performing upper body movements. For both beginning and advanced students.

- FSS 185 Beginning Weight Training /1 cr. hr./2 periods (1 lec., 1 lab)**

- FSS 186 Intermediate Weight Training /1 cr. hr./2 periods (1 lec., 1 lab)**

- FSS 187 Advanced Weight Training /1 cr. hr./2 periods (1 lec., 1 lab)**

#### Dance Courses

- FSS 161 Country Swing /1 cr. hr./2 periods (1 lec., 1 lab)**

- FSS 162 Beginning Tap Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

- FSS 163 Intermediate Tap Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

- FSS 164 Advanced Tap Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

- FSS 165 Square Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

- FSS 166 Beginning Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Same as DNC 166.

- FSS 167 Intermediate Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Same as DNC 167.

- FSS 168 Advanced Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)**

Same as DNC 168.

- FSS 169 Dance Repertoire /2 cr. hrs./3 periods (1 lec., 2 lab)**

Same as DNC 169.

**FSS 170 Introduction to Bailes Folklóricos Mexicanos /2 cr. hrs./ 3 periods (1 lec., 2 lab)**

**FSS 171 Folkloric Mexican Dance I: Oaxaca /2 cr. hrs./3 periods (1 lec., 2 lab)**

**FSS 172 Bailes Folklóricos Mexicanos: Vera Cruz /2 cr. hrs./3 periods (1 lec., 2 lab)**

**FSS 173 Folkloric Mexican Dance II: Michoacan /2 cr. hrs./3 periods (1 lec., 2 lab)**

#### **Aerobic Dance Exercise Courses**

**FSS 176 Low Impact Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)**

**FSS 177 Medium Intensity Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)**

**FSS 178 High Intensity Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)**

#### **Special Interest Courses**

**FSS 192 Prenatal/Postnatal Fitness /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: Pregnant or less than three months postnatal.

Will educate the expectant mother in conditioning muscle groups in childbirth and exercise adaptations for pregnancy. Class will include moderate exercise for flexibility, muscle toning, aerobic conditioning and relaxation skills.

**FSS 193 Plus-Sized Exercise /2 cr. hrs./3 periods (1 lec., 2 lab)**

□Prerequisite: Twenty-five pounds or more overweight.

A 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.

**FSS 194 Therapeutic Fitness /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: FSS 208 or consent of instructor.

Instruction for fitness leaders. Includes appropriate teaching methodology, modifications, contraindications and medication effects for people with arthritis, diabetes, chronic lung disease, heart disease, obesity, senior adults and pre- and post-natal women.

**FSS 195 Athletic-Academic Success /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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.

#### **FITNESS AND SPORT SCIENCES/FITNESS TECHNICIAN MAJOR COURSES**

**FSS 199 Co-op Related Class in FSS /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**FSS 199 Co-op Related Work in FSS /1-3 cr. hrs./5-15 periods (5-15 lab)**

See Cooperative Education section for description.

**FSS 236 Motivation and Human Relations in Motor Performance / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Elements of human behavior which enable the professional and technician to motivate and relate to the physically active participant. Designed to examine professional behavior in the fitness work place.

**FSS 237 Fitness Facilities: Care and Maintenance /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Examination of equipment needs in a variety of fitness facilities. Includes basic care of facilities, e.g., minor repairs, care and inventory of equipment and towel and locker room maintenance.

**FSS 238 Introduction to Sports Injury Management /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

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: None.

Survey of opportunities in, qualifications for and general orientation to the fields of health, physical education and recreation. For prospective professionals in these fields.

**FSS 240 Adaptive and Corrective Programs /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Examination of various programs of physical rehabilitation in recreation and physical education. Includes techniques of instruction.

**FSS 241 Nutrition and Body Composition /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

The practical application of nutrition, exercise, training and ideal body composition as it relates to various population groups.



**FSS 242 Elementary School Physical Education /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 Designed Exercise /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Evaluation and interpretation of basic physiological responses to exercise, nutrition and weight control and the application of each to create a total fitness profile.

**FSS 279 Motor Development /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

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: None.

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 of Physical Education /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Examination of the historical development of physical education. Includes social, political, religious and cultural influences as they shaped the physical activities of man from prehistoric times to the present. Emphasis on the leaders of physical education in each major time period.

**FSS 289 Philosophy of Sport and Physical Education /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

The philosophic process used in understanding various phases of the teaching/coaching profession. Includes major philosophical topics as related to physical education and sport.

**FSS 290 Independent Studies in Fitness and Sport Sciences /3 cr. hrs./9 periods (9 lab)**

□Prerequisite: 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.)**

See Cooperative Education section for description.

**FSS 299 Co-op Related Work in FSS /1-3 cr. hrs./5-15 periods (5-15 lab)**

See Cooperative Education section for description.

**PROFESSIONAL ACTIVITIES COURSES/FOR STUDENTS PLANNING A TEACHING MAJOR OR MINOR IN FITNESS AND SPORT SCIENCES**

**FSS 208 Aerobics /1 cr. hr./3 periods (3 lab)**

**FSS 211 Badminton /1 cr. hr./3 periods (3 lab)**

**FSS 213 Basketball /2 cr. hrs./3 periods (1 lec., 2 lab)**

**FSS 217 Folk and Square Dance /2 cr. hrs./2 periods (2 lec.)**

**FSS 218 Weight Training /1 cr. hr./3 periods (3 lab)**

**FSS 223 Racquetball /1 cr. hr./3 periods (3 lab)**

**FSS 224 Self Defense /1 cr. hr./3 periods (3 lab)**

**FSS 225 Soccer /2 cr. hrs./3 periods (1 lec., 2 lab)**

**FSS 227 Softball /1 cr. hr./3 periods (3 lab)**

**FSS 231 Track and Field /2 cr. hrs./3 periods (1 lec., 2 lab)**

**FSS 232 Volleyball /2 cr. hrs./3 periods (1 lec., 2 lab)**

**FITNESS AND RECREATION**

**FAR 105 Beginning Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: 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: 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.



## FOOD SCIENCE AND NUTRITION

### **FSN 055 International Cuisine /2 cr. hrs./3 periods (1 lec., 2 lab)**

□Prerequisite: 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: 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: 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 113 Food Study /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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: None.

Examination of nutrients and their use by the body for growth and development. Includes maintenance of health through proper diet.

### **FSN 124 Nutrition for the Young Child /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: None.

Designed to provide proficiency in basic communication (listening, speaking, reading and writing), emphasizing an examination of French cultural traditions.

**FRE 111 Elementary French II /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: FRE 110 or equivalent.

Designed to provide increased proficiency in listening, speaking, reading and writing. Continued study of French cultural traditions.

**FRE 210 Intermediate French I /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: FRE 111 or two years of high school French.

Intensive review of grammar in addition to reading selected authors and writing short compositions. Continued practice in speaking French.

**FRE 211 Intermediate French II /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: FRE 210.

Continuation of FRE 210. Emphasis on efficient and contemporary language usage.

**GENERAL BUSINESS****GEB 040 Supervisory Techniques I /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Managerial functions, the supervisory role and leadership styles as they relate to Civil Service regulations.

**GEB 041 Supervisory Techniques II /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Self perceptions, career goals, interpersonal relationships, problem solving and time management as they relate to civil servants.

**GEB 042 Supervisory Techniques III /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Verbal and nonverbal communication, attitudes, motivation, group dynamics and human relationships as they relate to civil servants. Designed for in-service training program.

**GEB 043 Supervisory Techniques IV /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Employee behavior, causes of misbehavior, grievances, ARS Right to Work Code and unionism as they relate to civil servants. Designed for in-service training program.

**GEB 084 Public Relations /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: None.

Basic principles of investing in the stock market. Includes stocks, bonds, speculative investments, mutual funds and commodities.

**GEB 101 Starting a Business /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Principles of entrepreneurship and self-employment. Designed to provide the skills and knowledge necessary to go into business.

**GEB 110 Self Management for Personal Productivity /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: 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: 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 144 Improving Written Communications /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Techniques for improving written communication on the job. Includes interoffice memoranda, technical reports, case summaries and descriptive writing. Emphasis on grammar, punctuation and sentence structure.

**GEB 150 Management Update Techniques I /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: 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: 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: 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: 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.

**GEB 195 Job Entry Procedures /1 cr. hr./1 period (1 lec.)**

Same as CSC 195.

**GEB 196 Work Standards and Job Attitudes /1 cr. hr./1 period (1 lec.)**

Same as CSC 196.

**GENERAL TECHNOLOGY**

**GTC 068 General Welding /2 cr. hrs./4 periods (1 lec., 3 lab)**

□Prerequisite: None.

Techniques and practices of joining metals by electric arc welding as applied in the ironworking trade.

**GTC 085 Aviation Ground School-Private /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introduction to theory and procedures associated with flight, weather and navigation. Provides general background required to become a private pilot.

**GTC 087 Aviation Ground School-Instruments /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Familiarization with various aircraft instruments. Emphasis on instrument flight rules.

**GTC 088 Aviation Ground School-Commercial /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introduction to theory and procedures associated with flight, weather and navigation. Provides general background required to become a commercial pilot.

**GTC 090 Landscaping for the Southwestern Home /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Principles and practices of home gardening. Includes design, elementary botany, environmental considerations and commonly used materials. Emphasis on landscaping in the Southwest.

**GTC 092 Woodshop I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Techniques of wood preparation and finishing. Includes safety practices and use of shop equipment. Emphasis on functional design, drawing and reading project plans. Prepares students for custom wood working.

**GTC 095 Furniture Upholstery Techniques /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: None.

Techniques and procedures for upholstering furniture. Includes methods of constructing frames, the use of power sewing machines, pattern marking and selecting fabrics.

**GTC 096 Advanced Upholstery /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: GTC 095.

Continuation of GTC 095. Advanced techniques of frame rebuilding, pattern design, fabric selection and upholstery fabrication.

**GTC 097 Woodshop II /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Fundamentals of cabinet making and furniture construction. Includes wood preparation, finishing, cabinet and furniture design, and cost estimating.

**GTC 110 Basic Electricity /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: None.

Introduction to electrical principles. Includes electrical safety, DC currents, AC wiring systems, and electrical troubleshooting.

**GTC 120 Blueprint Reading /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Interpretation of construction and engineering drawings through a familiarization with the symbols and language of blueprints.

**GTC 198 Special Topics in Integrated Technologies: /.5-4 cr. hrs./ .5-12 periods (0-4 lec., 0-12 lab)**

□Prerequisite: 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)**

□Prerequisites: ETR 105, ETR 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: None.

The physical elements—weather, climate, vegetation and soils—and their importance to man. Includes their interrelationships, resulting patterns and effects. A physical laboratory science.

### **GEO 102 Physical Geography: Land Forms and Oceans /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: None.

Introduction to the surface of the earth and the forces of nature that shape it. Includes the study of volcanoes, earthquakes, glaciers, rivers and oceans and the interrelation of these forces with man. A physical laboratory science.

### **GEO 103 Cultural Geography /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: 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. A social science.

## GEOLOGY

### **GLG 101 Introductory Geology I /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: None.

An introduction to the physical aspects of the earth's crust; rocks and minerals, their relationship to one another; and the surface and sub-surface processes that operate on and in the earth.

### **GLG 102 Introductory Geology II /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: 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: 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: 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)**

□Prerequisites: 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: 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. This course may be taken four times for credit.

### **GLG 244 Geological Field Excursions /1-3 cr. hrs./5 periods (0-1 lec., 1-5 lab)**

□Prerequisite: GLG 101 or GLG 102 is strongly recommended.

Field excursions to provide encounters with geologic features and processes. Overnight camping is usually involved, moderately strenuous overnight or day hikes may be undertaken.

### **GLG 280 Geology of Arizona /3 cr. hrs./3 periods (2 lec., 1 lab)**

□Prerequisites: GLG 101 and GLG 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: None.

Introduction to the German language. Designed to provide proficiency in basic communication (listening, speaking, reading and writing). Emphasis on German cultural traditions.

### GER 111 Elementary German II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: GER 110 or one year of high school German.

Continuation of GER 110. Designed to provide increased proficiency in listening, speaking, reading and writing. Continued emphasis on German cultural traditions.

### GER 210 Intermediate German I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: GER 111 or two years of high school German.

Intensive review of grammar, in addition to reading selected authors and writing short compositions. Emphasis on practice in speaking German.

### GER 211 Intermediate German II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: GER 210.

Continuation of GER 210. Emphasis on efficient and contemporary language usage.

### GER 240 Independent Study in German /1-4 cr. hrs./1-4 periods (1-4 lab)

□Prerequisite: Consent of instructor.

Independent study in German literature, grammar or special projects under the supervision of an instructor.

## GOVERNMENT/INDUSTRY/BUSINESS

### GIB 197 Training for GIB: /.25-4 cr. hrs./25-4 periods (.25-4 lec., .25-4 lab)

□Prerequisite: 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: None.

Overview of the graphics communication industry and basic principles of graphic reproduction and their application. Includes setting type, paste-up, process camera work, stripping negatives, plate making and offset press operations.

### GRA 102 Graphic Technology II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: GRA 101.

Continuation of GRA 101. Survey of technology in the graphic arts industry. Includes fundamentals of offset lithography, copy preparation, bindery operations, phototypographic techniques and composite paste-up for camera-ready copy.

### GRA 103 Binding, Finishing and Estimating /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Cost determination in the printing and paper finishing processes. Includes printers 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: 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)

□Prerequisites: 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)

□Prerequisites: GRA 101 and MTH 060 or assessment.

Principles and procedures of photo-copy operations. Includes photocopy 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 201 Color Theory and Practice /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: 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: 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: 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: GRA 201.

Techniques used in stripping and platemaking 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: 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)**

□Prerequisites: 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.

**GRA 232 Offset Operations and Maintenance /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: 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 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: None.

A cardiopulmonary resuscitation (CPR) modular system which provides emergency first aid for respiratory failure and cardiac arrest in victims of all ages. Includes mouth-to-mouth breathing, CPR and clearing an obstructed airway. (Same as COA 140.)

## HISTORY

**HIS 076 Ghost Towns of the Southwest /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: None.

Surveys the historic development of Western man, going through the

prehistoric 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: None.

The totality of Chicano life since 1848 and the struggle for self-determination.

**HIS 113 Asian Civilizations I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introductory survey of the Traditional Period of Asian civilizations. Origins and development of social, political and cultural systems in China, Japan and India.

**HIS 114 Asian Civilizations II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introductory survey of the Modern Period of Asian civilizations. Origins and development of social, political and cultural systems in China, Japan and India.

**HIS 122 Tohono O'Odham History and Culture /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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.)**

Same as ANT 135 and ART 135. (See ART 135 for course description.)

**HIS 136 Masks /3 cr. hrs./3 periods (3 lec.)**

Same as ANT 136 and ART 136. (See ART 136 for course description.)

**HIS 141-142 History of the United States I, II /3-3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Survey of U.S. history from Jamestown to the present. Includes the founding and developing of American democracy, minority participation in making of the country and the role of the United States in world affairs.

**HIS 143 American Civilization I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: None.

Survey of Arizona history as a part of the Arizona-Sonora Desert area, moving from the pre-Columbian period through the Spanish conquest, Mexican Republic, U.S. Territory and statehood.

**HIS 148 History of Indians of North America /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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: 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: 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: Consent of instructor.

Independent history studies or projects arranged by the instructor.

**HIS 205 The Adamses in U.S. History /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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 CHILD CARE****HCC 100 Infant and Toddler Care /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Growth and development of infants and toddlers. Includes caretaker roles related to physical, cognitive, emotional and social developmental stages. Also includes discussion of problems of infants and toddlers.

**HCC 101 Nanny I /1-2 cr. hrs./1-2 periods (1-2 lec.)**

□Prerequisite: None.

General requirements of becoming a nanny. Includes historical overview, job descriptions, requirements of employment, daily routines, time management, and assertiveness.

**HCC 102 Nanny II /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Special requirements for becoming a nanny. Includes etiquette and dress, travel, negotiating a work agreement, interviewing, and writing a resume.

**HCC 103 Health and Safety for Young Children /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Basic skills and knowledge for home care of the sick child. Includes procedures for handling emergencies and safety precautions.

**HCC 104 Family Membership and Structure /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Family membership and structure in various socioeconomic and cultural settings. Includes the changing family, healthy and unhealthy dynamics, gender roles, parenting and the nanny as a family member.

**HCC 105 Music and Art Appreciation /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

A survey and exploration of art and music. Includes techniques for improving visual and auditory perception, fostering the appreciation of art and music in young children.

**HCC 199 Co-op Related Class in HCC /1 cr. hr./1 period (1 lec.)**

□Prerequisite: Concurrent enrollment in HCC 199 Co-op Work.

See Cooperative Education section for description.

**HCC 199 Co-op Work in HCC /1-8 cr. hrs./5-40 periods (5-40 lab)**

□Prerequisite: Concurrent enrollment in HCC 199 Co-op Related Class.

See Cooperative Education section for description.

**HOME ECONOMICS****HEC 127 Marriage and the Family /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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 12 credit hours.

**HON 201 Introductory Honors Course /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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 Honors Seminar /1 cr. hr./1 period (1 lec.)**

□Prerequisite: Acceptance in the Honors Program.

Exploration of a specialized area of interest. Involves participation in discussions with students and faculty members from various fields of study in order to develop skills in critical and integrative thinking. May be taken four times for a maximum of four credit hours.

**HON 210 Advisory Student Planning Board /1 cr. hr./1 period (1 lec.)**

□Prerequisite: Acceptance in the Honors Program.

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.

**HON 250 Honors Special Topics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 four times for a maximum of 12 credit hours.

## HOSPITALITY

**HOS 100 Introduction to the Hospitality Industry /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: None.

Principles and procedures of innkeeping. Includes guest services, creating a pleasant atmosphere, salesmanship, accounting, control, and legal aspects.

**HOS 102 Hospitality Financial Accounting /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 060 or equivalent score on assessment.

Basic accounting principles and procedures. Includes posting transactions, payroll computations, journalizing, financial statements, and computer applications.

**HOS 104 Hotel Food and Beverage Management /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 111 Hospitality Management Law /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: HOS 120.

Principles for the professional meeting manager. Includes site selection, convention and visitors bureau, negotiations, contracts and lease agreements, program planning, budgeting and financial management, liability and insurance, housing, facilities, food and beverage arrangements, transportation, audio-visual equipment, and exhibition arrangements.

**HOS 131 Meetings and Convention Management III /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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: Concurrent enrollment in 199 Co-op Related Class.

See Cooperative Education section for description.

**HOS 202 Hospitality Managerial Accounting /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: HOS 102.

Concepts and principles of advanced accounting. Includes financial statements, ratio analysis, cost concepts, cost-volume-profit-analysis, cost approaches to pricing, forecasting methods, operations budgeting, cash management, internal control, capital budgeting, lease accounting, and income taxes.

**HOS 206 Hospitality Human Resource Management /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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./ .25-4 periods (.25-4 lec.)**

□Prerequisite: None.

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.)**

□Prerequisites: 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)**

□Prerequisites: 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: None.

Designed for students who avoid taking mathematics courses or who have anxiety in mathematics courses. Mathematics anxiety defined, underlying causes discussed and anxiety reduction techniques practiced. Includes mathematics study and test-taking. (Same as MTH 050.)

### HDE 100 College Success Skills /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Development of educational goal setting skills to increase opportunities for success. Includes college and community resources and skill development in problem solving. Separate sections may be taught for special groups.

### HDE 100A How To Study /.25 cr. hr./1 period (.25 lec.)

□Prerequisite: 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./1 period (.25 lec.)

□Prerequisite: 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./1 period (.25 lec.)

□Prerequisite: None.

Systematic instruction and practice in taking notes from lectures and print material. Includes recognizing and recording main ideas, details and organization; specific tips for making notetaking easier and instruction in editing and studying notes.

### HDE 100D Testing Tips /.25 cr. hr./1 period (.25 lec.)

□Prerequisite: 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: 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 for Women /2-3 cr. hrs./2-3 periods (2-3 lec.)

□Prerequisite: None.

Techniques for developing the academic, personal, and professional skills of the single parent/homemaker. Includes integrating activities, such as improving self-esteem, developing an educational and financial aid plan, managing time and stress factors, learning college survival skills and critical thinking skills, increasing gender awareness, preparing for and finding employment and improving interpersonal communication skills. (Same as OED 104.)

### HDE 110 Developing Self-Esteem /1 cr. hr./1 period (1 lec.)

□Prerequisite: 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: 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: 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: 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: 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: 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: 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: None.

Supervised practical training for advanced students involved in leadership positions. Provides opportunities to strengthen leadership skills developed in previous courses. May be taken twice for a maximum of four credit hours.

**HDE 190 Career Exploration /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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: 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: None.

Customized course designed for special student interests, needs and faculty expertise in human development area. Consult current class schedule for specific content.

**HUMANITIES****HUM 060 Early Chinese Views of Social Change /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

A study of the I Ching and Taoism in early China.

**HUM 110 Humanities I /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: 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: 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: None.

Reading and research projects to be arranged with instructor.

**HUM 131 Great Ideas /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Topics in humanities. Past studies have included Zen meditation, mythology and mysticism.

**HUM 251 Western Humanities I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Major ancient cultures, from the Sumerian through the Roman, with emphasis on the classical Greek. May include such readings as *The Epic of Gilgamesh*, *Hammurabi's Code*, Hebrew scriptures, *The Odyssey*, *Oedipus Rex*, selections from Aristotle, *On the Nature of the Universe* and *The Aeneid*.

**HUM 252 Western Humanities II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Western culture from the early Christian period through the seventeenth century. May include such readings as selections from the New Testament, *Inferno*, *The Prince*, *Don Quixote*, *Paradise Lost*, *Discourse on Method* and *Tartuffe*.

**HUM 253 Western Humanities III /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Western Culture in the modern world: eighteenth, nineteenth and twentieth centuries. May include such readings as *Candide*, *An Enquiry Concerning Human Understanding*, *Metaphysics of Morals*, *Faust*, *Mrs. Dalloway*, *Walden*, *The Communist Manifesto*, *The Origin of Species* and *No Exit*.

**HUM 260 Intercultural Perspectives /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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.

## INSTITUTE-AUTOMOTIVE TECHNOLOGY

### IAU 120 Automotive Special Topics (Selected Special Topics, Modules A-Z) /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: Journeyman mechanic status.

Automotive "new product" diagnosis and repair procedures and information as required by journeyman-level mechanics in the performance of their job. Specific topics, modules A-Z, will be developed based on changes in automotive technology.

## INSTITUTIONAL FOODSERVICE

### IFS 101 Institutional Food Sanitation /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Principles and practices of food safety and sanitation. Includes sanitary food handling, contamination and food-born 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: None.

Principles and practices of food safety and sanitation. Includes employee safety, accident prevention techniques, fire safety, pest control, house-keeping 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: 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: 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: 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: 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: 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: 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: 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)

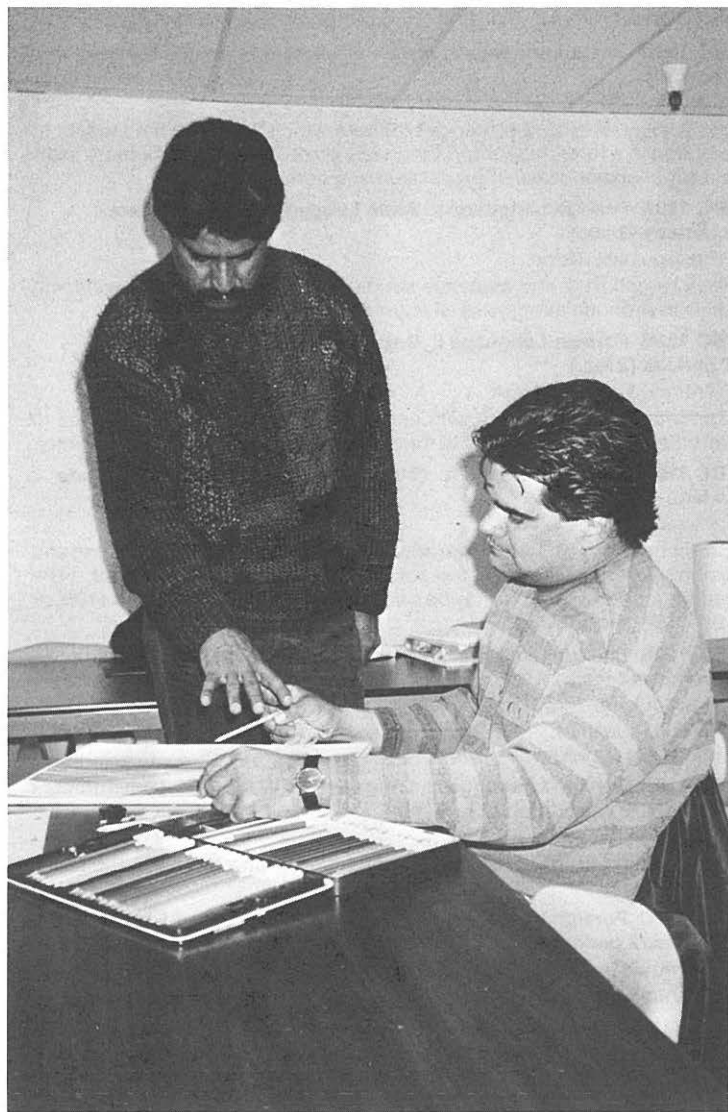
□Prerequisite: None.

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.

### IFS 221 Foodservice System Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: IFS 180.

Organization and management of foodservice systems. Includes planning, preparation, distribution and service of high quality food; scheduling; personnel management; and employee training.



## INTERNATIONAL BUSINESS COMMUNICATION STUDIES

### IBC 100 Foreign Language I: (To Be Specified) /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Basic vocabulary and sentence structure which will allow the student to function in a foreign country. Emphasis on developing elementary skills in pronunciation, ease of expression and comprehension.

### IBC 100A Foreign Language I: Basic Language Skills /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Basic vocabulary and sentence structure with emphasis on developing skills in pronunciation, ease of expression and comprehension.

### IBC 100B Foreign Language I: Basic Language Skills /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: IBC 100A.

Continuation of IBC 100A with emphasis on practice drills designed to develop the student's ability to function effectively in the foreign country.

### IBC 110 Foreign Language II: (To Be Specified) /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: IBC 100.

Continuation of IBC 100. More advanced speaking, listening, reading and writing skills used within the social and business environment. (The requirements of IBC 110 may be satisfied by taking IBC 110A and 110B, or IBC 110A and 110C.)

### IBC 110A Foreign Language II: Advanced Language Skills /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: IBC 100.

Continuation of IBC 100. Speaking, listening, reading and writing skills on a more advanced level.

### IBC 110B Foreign Language II: Language Skills for Social Environment /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: IBC 110A.

Continuation of IBC 110A. Language skills training for use in the social environment.

### IBC 110C Foreign Language II: Language Skills for Work Environment /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: IBC 110A.

Continuation of IBC 110A. Language skills training for the work environment.

### IBC 120 Cultural Similarities and Differences Between the United States and the Foreign Country /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of the cultural values of the foreign country in comparison to those of the United States. Social and religious customs; roles of men and women; attitudes toward time, humor, drugs and alcohol; patterns of communication; political, educational and legal structures; health care values; attitudes toward shopping and conducting business; business structure; and ethics and values.

### IBC 120A Cultural (Social) Similarities and Differences between U.S. and Foreign Country /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Examination of the cultural values of the foreign country in comparison to those of the United States as they apply to social settings. Includes social and religious customs; roles of men and women; attitudes toward time, humor, drugs, and alcohol; and patterns of communication.

### IBC 120B Cultural (Political/Educational) Similarities and Differences between U.S. and Foreign Country /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Examination of the cultural values of the foreign country in comparison to those of the United States as they apply to a political and educational system. Includes political, educational, and legal structure; and health care values.

### IBC 120C Cultural (Business) Similarities and Differences between U.S. and Foreign Country /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Examination of the cultural values of the foreign country in comparison to those of the United States as they apply to business and business settings. Includes attitudes toward shopping and conducting business; business structure; and ethics and values.

### IBC 130 Living in the Foreign Country /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Entry requirements and basic information for living in a foreign country. Includes passport and immunization; taxes; driving and importation regulations; the monetary, transportation and telephone systems; local housing; medical facilities; support services; and entertainment possibilities. Also covers types of foods available, special food preparation and appropriate dress.

### IBC 135 The International Job /1 cr. hr./1 period (1 lec.)

□Prerequisite: 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.

**IBC 136 Global Economy /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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. Methods of limiting imports and eliminating trade barriers will also be discussed.

**IBC 140 Basic Techniques of International Trade /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Principles of international trade, including political and legal factors, export documentation, customs regulations, financial considerations, trade zones, trading companies, communications, exporting techniques and case studies.

**IBC 140A Basic Techniques of International Trade: Introduction and Overview /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Principles of international trade, including political and legal factors, documentation, customs, duty and freight forwarding procedures.

**IBC 140B Basic Techniques of International Trade: Banking, Trade Zones and Trading Companies /1 cr. hr./1 period (1 lec.)**

□Prerequisite: IBC 140A.

Continuation of IBC 140A. Principles of international trade, including accounting, banking, insurance, foreign trade zones and export trading companies.

**IBC 140C Basic Techniques of International Trade: Communications and Case Studies /1 cr. hr./1 period (1 lec.)**

□Prerequisite: IBC 140B.

Continuation of IBC 140B. Principles of international trade, including communication with foreign firms and techniques of exporting to specific geographic areas. Topics examined through case studies.

**IBC 150 Cultural Shock Management /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Examination of the stages and symptoms of cultural shock. Methods of acculturation and re-acculturation. Designed to help students manage cultural shock as they enter a new culture and return to their own culture.

**IBC 150A Cultural Shock Management: Entry /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Examination of the stages and symptoms of cultural shock and methods

of acculturation. Designed to help students manage cultural shock as they enter a new culture.

**IBC 150B Cultural Shock Management: Re-entry /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Examination of the stages and symptoms of cultural shock experienced as one re-enters his own culture. Includes methods of coping with this problem. Designed to help students manage cultural shock as they re-enter their own culture upon return from a foreign assignment or visit.

**IBC 160 Hosting Foreign Business Personnel /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Training in hosting foreign business personnel. Emphasis on integrating routine hosting considerations with sensitivity to the culture of the visitor.

## INTERPRETER TRAINING

**ITP 100 The Community and the Exceptional Person /3 cr. hrs./3 periods (3 lec.)**

Same as SLG 100.

**ITP 105 Expressive/Receptive Fingerspelling and Numbers /2 cr. hrs./2 periods (2 lec.)**

Same as SLG 105.

**ITP 120 History of Deafness /3 cr. hrs./3 periods (3 lec.)**

Same as SLG 120.

**ITP 150 Principles of Etiology and Audiology /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Examination of hearing and hearing loss. Includes the normal ear and its function, normal audition and its measurement, the most common causes of hearing loss and their effects, and hearing aids and their functions and limitations.

**ITP 180 Psychosocial Aspects of Deafness /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: SLG 101.

Overview of the psychological and social aspects of deafness and hearing impairment. Includes the effect of hearing loss on the hearing-impaired individual. Emphasis is placed on the perspective of being a deaf or hearing-impaired individual in a hearing world.

**ITP 201 American Sign Language III /4 cr. hrs./6 periods (3 lec., 3 lab)**

Same as SLG 201.

**ITP 202 American Sign Language IV /4 cr. hrs./6 periods (3 lec., 3 lab)**

Same as SLG 202.



**ITP 203 American Sign Language V /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: ITP 202 or concurrent enrollment.

Introduction and overview of the linguistic structure of American Sign Language. Semantics, morphology, phonology syntax and other components of ASL will be introduced and compared to English in light of current research. This course seeks to integrate linguistic information introduced in ASL I - IV into an applied linguistic framework.

**ITP 220 Interpreting I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: ITP 201.

Introduction to theories, principles and special settings of interpreting. Includes code of ethics, definitions, role playing and simulated interpreting.

**ITP 250 Interpreting II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: ITP 220.

Development of expressive and receptive interpreting skills in educational and community situations. Special emphasis on situations involving platform, conference, interview, television, medical, legal and deaf-blind interpreting.

**ITP 270 Sign to Voice /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: ITP 202 or concurrent enrollment.

The "sign to voice" aspect of sign language interpreting. Includes enhancement of vocabulary selection and improvement of technical skills.

**ITP 299 Co-op Related Class in ITP /1 cr. hr./1 period (1 lec.)**

□Prerequisite: ITP 202 or consent of instructor.

See Cooperative Education section for description.

**ITP 299 Co-op Work in ITP /1-8 cr. hrs./5-40 periods (5-40 lab)**

□Prerequisite: ITP 202 or consent of instructor.

See Cooperative Education section for description.

**ITALIAN**

**ITA 110 Elementary Italian I /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: 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: ITA 110.

Continuation of ITA 110. Designed to provide increased proficiency in listening, speaking, reading and writing. Continued emphasis on Italian cultural traditions.

**JAPANESE**

**JPN 110 Elementary Japanese /5 cr. hrs./5 periods (5 lec.)**

□Prerequisite: 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: 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: JPN 111.

Continuation of JPN 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: JPN 210.

Continuation of JPN 210 with emphasis on student development of competencies through oral presentations, journals and continued acquisition of Japanese characters.

**LABOR STUDIES**

**LSP 101 Labor Leadership /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Local union structure, democracy and management. Includes the role of the local union in collective bargaining, the basic clauses of collective bargaining agreements, grievance procedures, arbitration and legal requirements.

**LANDSCAPE TECHNICIAN PROGRAM**

**LTP 100 Landscape Today and Tomorrow /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: Plant Fertility /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: 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: 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: 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: 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: 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: 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: LTP 205.

Introduction to turf, ornamental and drip (emitter) irrigation systems. Designed for technicians in the landscape and irrigation industries. 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: 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 plantscapers, 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: 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: 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: 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 294 Current Topics in Landscape Technology /1-4 cr. hrs./1-16 periods (0-4 lec., 0-12 lab)**

□Prerequisite: 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 four times for a maximum of sixteen credit hours.

**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.

## **LAW ENFORCEMENT ACADEMY**

**LEA 102 Peace Officer Certification I /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: None.

Part A 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 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: 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: 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, student 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: None.

Responsibilities and ethical standards governing legal assistants. Includes procedures in a law or corporate office and in the court and administrative systems. Emphasis on terminology, research and trial preparation.

**LAS 102 Legal Systems and Procedures /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Principles and procedures used in various court systems. Includes jurisdiction, venue, pleading, interviewing and investigation, and initiation of lawsuits in federal, state and appellate courts.

**LAS 103 Legal Research /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: WRT 101 and LAS 101 or employment in the legal or a related field.

Principles and techniques of legal research. Includes law library familiarization, research skills, methods, terminology and basic techniques of writing research memoranda and reports.

**LAS 104 Judgment, Analysis and Ethics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: LAS 101 and 103.

Basic rules and principles of judgment, analysis and ethics. Includes judgment and decision making, analysis of factual situations and ethical problems in specific areas of law practice.

**LAS 106 Civil and Criminal Evidence /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: LAS 103 or concurrent enrollment.

Federal and Arizona rules of evidence, their use in preparing for trial, and their application during civil and criminal litigation. Includes the application of the rules and procedures involving witnesses, exhibits and demonstrative evidence.

**LAS 197 LAS Seminar: /.25-4 cr. hrs./25-4 periods (.25-4 lec.)**

□Prerequisite: None.

Legal Assistant job-related training. Includes presentations by specialists in a given area and topics of timely or limited interest. May be taken up to a maximum of 16 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 Litigation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: BUS 200.

Examination of procedures involved in litigation between consumers and

business entities or governmental agencies. Includes governmental regulation of business, consumer credit transactions and debtor/creditor rights, obligations and remedies.

**LAS 202 Discovery and Trial Preparation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: LAS 102.

Procedures and methods of discovery, gathering and organizing evidence and preparation for trial. Includes discovery procedures, documentary evidence and authentication, witness preparation, pre-trial motions and memoranda, trial proceedings, post-trial motions and entry of judgment, executions and appeal.

**LAS 203 Personal Injury, Malpractice, Products Liability and Complex Litigation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: LAS 101 and 102.

Procedures used in the preparation of cases involving civil liability and complex litigation techniques. Includes personal injury, medical malpractice, products liability, comparative/contributory negligence and an overview of workman's compensation law as it relates to civil personal injury actions.

**LAS 204 Probate Procedures /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: LAS 101 or employment in a legal related field.

Analysis of Arizona probate law regarding wills, trusts and the administration of estates. Includes the estates of decedents, minors and persons under disability, and tax-related matters.

**LAS 205 Asset Analysis, Collection, Management and Distribution /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: LAS 204.

Analysis of the various forms of assets and their classification, valuation, administration and disposition. Includes inventory, accounting and tax return preparations.

**LAS 206 Criminal Trial Procedures I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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: 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.)**

□Prerequisites: WRT 101, LAS 101, 103 or consent of instructor.

Practical application of the principles and techniques of legal writing. Includes application of research and analytical skills in preparation of office, litigation and appellate documents.

**LAS 212 Applications of Microcomputers in the Legal Field /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: LAS 102 or employment in the legal or a related field and CSC 105 or basic computer skills.

Utilization of computers in the legal field. Includes hardware and software applications, document preparation, word processing, law office management, database management, automated litigation support, data communications and computer assisted research, and financial analysis with electronic spreadsheets.

**LAS 213 Computer Assisted Research for the Legal Assistant /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: LAS 103.

Computer assisted legal research system. Includes research techniques, display elements, special services, advanced techniques and cost effective usage.

**LAS 215 Corporate Law Procedures /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: BUS 200 (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: LAS 101 (or concurrent enrollment) or employment in the legal field or a Real Estate License.

Application of legal procedures and requirements in real estate transactions and litigation. Includes drafting of documents and pleadings with emphasis on contracts, closings, deeds, leases, liens and foreclosures.

**LAS 250 Legal Assistant Internship /3 cr. hrs./15 periods (15 lab)**

□Prerequisites: WRT 101, BUS 200 and a minimum of 45 credit hours in the Legal Assistant Program including two courses in one specialty area and LAS 104 and 202.

Volunteer legal assistant work experience at an approved work site. 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: 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: None.

Exploration of a wide variety of popular writing in order to develop the attitudes, habits and skills which make reading enjoyable.

**LIT 231 Introduction to Shakespeare /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 260 Major British Writers /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: WRT 102.

Readings in modern fiction, drama and poetry.

**LIT 262 Major Literary Themes: /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: WRT 102.

Introduction to classic European literature with major authors studied in depth. Covers ancient and medieval works.

**LIT 267 World Literature: Narrative /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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.)**

□Prerequisites: 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.

**MACHINE TOOL TECHNOLOGY****MAC 101 Machine Tool Laboratory Training I /3 cr. hrs./9 periods (9 lab)**

□Prerequisite: None.

Laboratory training for Machine Tool Technology Block Program.

**MAC 103 Machine Shop Mathematics I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 060 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: 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: None.

Introduction to basic machine shop practices. Includes safety, tooling, equipment and applications of general machine shop practices.

**MAC 120 Machine Shop for Technicians II /4 cr. hrs./8 periods (2 lec., 6 lab)**

□Prerequisites: MAC 103 and 110.

An in-depth, hands-on course in the application of modern machine practices and procedures as found in today's machine shops.

**MAC 130 Basic Metallurgy /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 201 Machine Tool Laboratory Training II /3 cr. hrs./9 periods (9 lab)**

□Prerequisite: MAC 101.

Advanced laboratory training for Machine Tool Technology Block Program. Designed to give students job oriented, hands-on training and skill development in the application and operation of machine tools.

**MAC 210 Jig and Fixture Designing I /4 cr. hrs./8 periods (2 lec., 6 lab)**

□Prerequisites: MAC 120 and DFT 150.

Design and application of tools, jigs and fixtures for basic metalworking. Includes application of fixture components and electrical discharge processes.

**MAC 225 Manufacturing Concepts /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MAC 130.

Processes and concepts involved in modern manufacturing and automated production.

**MAC 250 Computer Numerical Control I /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisites: MAC 104 or MTH 120, MAC 120, OED 011 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: 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)**

□Prerequisites: 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: 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: 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: 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: 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: 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 280 Machine Shop for Technicians III /4 cr. hrs./8 periods (2 lec., 6 lab)**

□Prerequisite: MAC 120.

Advanced shop practice in machine tool setup and operations which completes the student's preparation for employment in the machine tool industry.

**MAC 285 Physical Metallurgy /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: 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: Consent of instructor.

Self-directed laboratory projects. Includes establishing objectives, procedures and method of evaluation. May be taken four times up to a maximum of 16 credit hours.

**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: 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: 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: 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: MTH 070.

Contemporary quality-system philosophies. Includes methods and technical operations for quality management in product and service organizations.

**MAN 180 The Business of Management /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

A study of the role of management in business and other human endeavors; management as a total system of functions utilizing resources within constraints imposed by society; the body politic, technology and ideology.

**MAN 199 Co-op Related Class in MAN /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**MAN 199 Co-op Work in MAN /3-6 cr. hrs./15-30 periods (15-30 lab)**

See Cooperative Education section for description.

**MAN 270 Computer Applications for Managers /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

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 Personnel Management /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: BUS 100.

Practical aspects of managing personnel. For the practitioner in personnel management as well as the general manager. 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: 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 bargaining 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.)**

□Prerequisites: 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 Budgeting for Managers: Special Topics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Principles, procedures and skills for budget formulation and financial management for the operating manager. Specific attention to environmental and market conditions in the specific industry. The particular industry being studied may vary from semester to semester.

**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: None.

Basic principles of moving goods and services from producer to consumer. Functions of marketing in relation to manufacturing, wholesaling and retailing.

**MKT 113 Salesmanship /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Basic principles and techniques of selling and their practical application. 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: 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: 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: 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: 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 TTM 204 and PIM 150.)

**MKT 160 Marketing for Nonprofit Organizations /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 199 Co-op Related Class in MKT /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**MKT 199 Co-op Work in MKT /3-6 cr. hrs./15-30 periods (15-30 lab)**

See Cooperative Education section for description.

**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. Students with an earned degree or advanced certificate from an accredited college are not required to take the tests, unless they fit the above categories. (A satisfactory assessment test score may be requested in lieu of, or in addition to, the listed prerequisites for any course. Students who have credit in any college mathematics course equivalent to or above MTH 060 will not receive credit for MTH 060 or any of its components without permission of the mathematics area.)

**MTH 040 Basic Mathematics /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Development of skills necessary to prepare for and pass the General Education Development (GED) mathematics test, which is a part of the High School Equivalency Examination.

**MTH 050 Approaching Mathematics Positively /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Same as HDE 050.

**MTH 060 Introductory Mathematics /3 cr. hrs./3 periods (3 lec.)**

Mathematics 060A through 060C together constitute MTH 060.

**MTH 060A Introductory Mathematics-Whole Numbers /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Introduction to whole numbers. Includes practice with the four basic arithmetic operations and exploration of the principles of place value, order of operations, divisibility, prime factorization and least common multiple.

**MTH 060B Introductory Mathematics-Fractions and Decimals /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 060A or concurrent enrollment.

Introduction to decimals and fractions. Includes practice with the four basic arithmetic operations using decimals and fractions.

**MTH 060C Introductory Mathematics-Percent, Ratio and Measurement /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 060B or concurrent enrollment.

Introduction to percent, ratio, measurement and signed numbers. Includes exploration of the principles of proportion, measures (including the metric system) and their applications, and signed numbers.

**MTH 065 Health Careers Mathematics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Mathematical skills for nursing and chemistry. Includes fractions, decimals, scientific notation, dosages, concentrations, logarithms and conversions in apothecary, metric and household measures.

**MTH 068 Introduction to Algebra /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: MTH 060.

Builds mathematical skills which are needed to make a successful transition from arithmetic to algebra. Includes study skills for mathematics, real number arithmetic, order of operations, laws of exponents, solving linear equations and inequalities in one variable, applications and graphing. Successful completers may enroll in either MTH 070 or MTH 070B.

**MTH 070 Algebra I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 060 or satisfactory score on the mathematics assessment test.

Mathematics 070A through 070C together constitute MTH 070.

**MTH 070A Algebra I-Linear Equations and Polynomials /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 060 or concurrent enrollment in MTH 060C or satisfactory score on mathematics assessment test.

Introduction to inverse operations, linear equations and polynomials. Includes practice with basic operations on signed numbers, order of operations and applying inverse operations to solving linear equations.

**MTH 070B Algebra I-Factoring, Rational Expressions and Graphs /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 070A or concurrent enrollment.

Introduction to factoring, rational expressions, graphing linear equations and inequalities.

**MTH 070C Algebra I-Systems of Equations, Radicals and Quadratic Functions /1 cr. hr./1 period (1 lec.)**

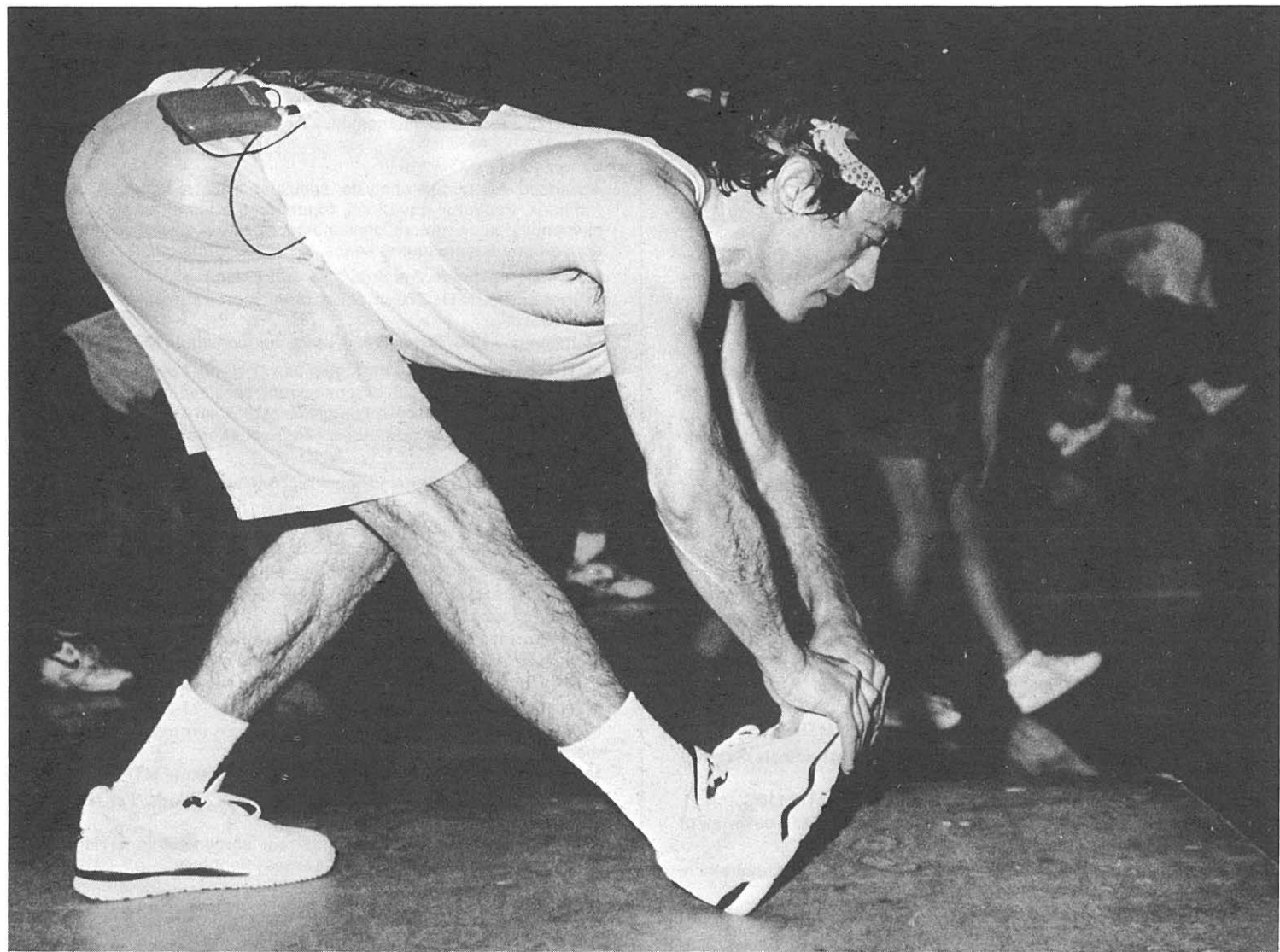
□Prerequisite: MTH 070B or concurrent enrollment.

Introduction to systems of equations, radicals and quadratic equations.

**MTH 090 Elementary Geometry /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 070.

Introduction to geometry. Primarily for students who lack credit in high



## MATHEMATICS

school geometry. Includes angles, parallel and perpendicular lines, triangles, quadrilaterals, circles, congruence, similar figures, geometric constructions and deductive proofs.

### **MTH 110 Technical Mathematics I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 060 or satisfactory score on mathematics assessment test.

Mathematics 110A through 110C together constitute MTH 110.

### **MTH 110A Technical Mathematics I: Arithmetic and Geometry /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 060 or concurrent enrollment in MTH 060C or satisfactory score on mathematics assessment test.

Technical arithmetic and geometry. Includes a review of arithmetic operations, percent, measurements, and basic geometry involving perimeters, areas and volumes.

### **MTH 110B Technical Mathematics I: Algebra, Part I /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 110A or concurrent enrollment.

Introduction to technical algebra. Includes basic algebraic operations, linear equations and factoring.

### **MTH 110C Technical Mathematics I: Algebra, Part II /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 110B or concurrent enrollment.

Continuation of MTH 110B. Includes algebraic fractions, graphs of equations and systems of linear equations.

### **MTH 115 Electronics Mathematics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 070.

Basic algebra review, electrical units and powers of ten, solving equations, Ohm's law, series and parallel circuits, Kirchhoff's laws and simultaneous equations, trigonometry, some AC circuit analysis, common logarithms and the decibel, natural logarithms, and RLC circuits.

### **MTH 120 Technical Mathematics II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 110.

Mathematics 120A through 120C together constitute MTH 120.

### **MTH 120A Technical Mathematics II: Exponents and Radicals /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 110 or concurrent enrollment in MTH 110C.

Exponents and radicals for technical applications. Includes area review of graphing and scientific notation.

### **MTH 120B Technical Mathematics II: Roots, Radicals and Quadratic Equations /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 120A or concurrent enrollment.

Roots, radicals and quadratic equations for technical applications.

### **MTH 120C Technical Mathematics II: Basic Trigonometric Functions /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 120B or concurrent enrollment.

Trigonometric functions for technical applications. Includes graphs, vectors, and solutions of right and oblique triangle problems.

### **MTH 125 Electronics Mathematics Applications /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 115.

Advanced AC circuit analysis, special products, factoring, algebraic fractions, fractional equations, trigonometric identities and equations, elementary plane vectors, phasor algebra, rate of change, limits, integration, differentiation, fourier series, and wave forms.

### **MTH 130 Algebra II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 070 or satisfactory score on mathematics assessment test.

Mathematics 130A through 130C together constitute MTH 130.

### **MTH 130A Algebra II-Linear Equations /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 070 or concurrent enrollment in MTH 070C or satisfactory score on the mathematics assessment test.

Includes real number properties, linear equations and systems of linear equations.

### **MTH 130B Algebra II-Factoring, Fractions and Radicals /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 130A or concurrent enrollment.

Includes products, factoring, rational expressions, fractional equations, exponents and radicals, and complex numbers.

### **MTH 130C Algebra II-Quadratic Equations and Logarithms /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 130B or concurrent enrollment.

Includes quadratic equations, functions and graphs, variation, exponential and logarithmic functions, inequalities and sets.

### **MTH 150 College Algebra /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 130 or satisfactory score on mathematics assessment test.

Mathematics 150A through 150C together constitute MTH 150.

### **MTH 150A College Algebra: Equations and Functions /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 130 or concurrent enrollment in MTH 130C or satisfactory score on mathematics assessment test.

College-level algebraic equations and functions. Includes linear, quadratic and radical equations; relations, functions and transformations; equations of a line; and graphing the parabola.



**MTH 150B College Algebra: Linear Systems, Matrix Operations and Certain Functions /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 150A or concurrent enrollment.

College-level linear systems, matrix operations and certain functions. Includes exponential and logarithmic functions, linear systems of equations and inequalities, determinants, matrix operations and inverses.

**MTH 150C College Algebra: Polynomials, Inequalities, Sequences and Series /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 150B or concurrent enrollment.

College-level polynomials, inequalities, sequences and series. Includes complex numbers, theory of polynomials, sequences, series, binomial expansion, induction and inequalities in two variables.

**MTH 155 Trigonometry /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 150 or concurrent enrollment.

Mathematics 155A through 155C together constitute MTH 155.

**MTH 155A Trigonometry: Algebraic and Circular Functions /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 150 or concurrent enrollment.

Introduction to trigonometry. Includes functions, tests for symmetry, graphical methods involving the use of transformations, and definitions of the six circular functions and their graphs.

**MTH 155B Trigonometry: Angles, Identities, Inverse Functions and Equations /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 155A or concurrent enrollment.

Continuation of MTH 155A. Includes trig functions of angles, proving identities, inverse trig functions and trig equations.

**MTH 155C Trigonometry: Applications, Vectors, Polar Coordinates and Complex Numbers /1 cr. hr./1 period (1 lec.)**

□Prerequisite: MTH 155B or concurrent enrollment.

Continuation of MTH 155B. Includes solving triangles, vectors, polar coordinates and complex numbers.

**MTH 160 Precalculus /5 cr. hrs./5 periods (5 lec.)**

□Prerequisite: MTH 130 or satisfactory score on mathematics assessment test.

College-level algebra and trigonometry. Includes all topics in MTH 150 and 155. Recommended for students planning to take analytic geometry and calculus.

**MTH 170 Finite Mathematics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 150.

Mathematics for students majoring in business. Includes set theory, partitions, permutations, combinations, probability, Bernoulli trials, Markov chains and the simplex method of linear programming.

**MTH 175 Topics in Calculus /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 150.

For students majoring in business. Calculus for business applications. Includes limits, continuity, differentiation and integration of algebraic functions and separable differential equations.

**MTH 180 Analytic Geometry and Calculus I /4 cr. hrs./4 periods (4 lec.)**

□Prerequisites: MTH 160, or 150 and 155.

Introduction to analytical geometry and calculus. Includes limits, continuity, differentiation and integration of algebraic and basic trigonometric functions, and applications of differentiation and integration.

**MTH 185 Analytic Geometry and Calculus II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 180.

Continuation of MTH 180. Includes differentiation and integration of logarithmic and exponential functions, techniques and applications of integration and infinite series.

**MTH 210 Introductory Statistics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 130 or satisfactory score on mathematics assessment test.

Introduction to statistics. Includes averages, standard deviation, frequency distributions, central limit theorem, confidence intervals, correlations, probability, normal curve and tests of hypothesis.

**MTH 215 Analytic Geometry and Calculus III /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: MTH 185.

Continuation of MTH 185. Includes conic sections, polar coordinates, solid geometry, two and three dimensional vectors, moments, partial derivatives and multiple integration.

**MTH 219 Differential Equations /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 215.

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.

**MTH 225 Introduction to Linear Algebra /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 215.

Vector spaces, linear transformations and matrices, systems of linear equations, eigenvalues and diagonalizable matrices.

**MTH 230 Discrete Mathematics in Computer Science /3-4 cr. hrs./3-4 periods (3-4 lec.)**

□Prerequisite: MTH 150.

Mathematical concepts applicable to course work in computer science. Includes logic, sets, proof techniques, induction, graphs, formal lan-



guages, and basic application of discrete mathematics to computer science. Basic applications of discrete mathematics are omitted for the three-credit class.

## MEDIA COMMUNICATION

### **MEC 101 Introduction to Reporting and Media Writing /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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. Requires considerable amount of writing using computers.

### **MEC 102 Survey of Media Communications /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Survey of today's mass communications, their nature, function and impact on society. Includes a review and evaluation of important journalists' work and of performances by newspapers, radio, television, advertising and magazines. One major writing project is required.

### **MEC 124 Writing for Film and Television /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 I /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: 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: 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: 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: 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: MEC 124.

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: None.

Principles and practice of newspaper advertising, sales, circulation, record keeping and accounting.

### **MEC 185 News and Feature Program Production /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisite: MEC 125.

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 188 Desktop Publishing for Journalism and Media Communication /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: 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: 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**

□Prerequisites: 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 12 credit hours.

**MEC 198 Special Topics in Media: /1-4 cr. hrs./1-4 periods (1-4 lec.)**

□Prerequisite: 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 215 Advanced Cinematography /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisite: 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: 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: 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: MEC 101.

Survey of radio and television journalism. Includes broadcast news media, electronic journalism and the broadcast news process.

**MEC 240 Copy Editing and Design /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: MEC 101.

Principles and techniques of newspaper copy editing and design. Includes newsroom settings, copy editing, proofreading, page layout, typography and design.

**MEC 255 Instructional Media II /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: 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: 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: 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./5 periods (2 lec., 3 lab)**

□Prerequisite: MEC 101.

Principles and techniques of media advertising and public relations. Includes planning, sales and production. Students work 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: None.

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: MEC 101.

Fundamentals of audio production for radio and television programs. Using multi-track recording and mixing, students produce audio for advertisements, a song for a record and narration for a slide show. Students may work in college radio or television productions.

**MEC 276 Advanced Audio Production /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisite: 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: MEC 101.

Reporting and interpreting news through pictures. Includes application of basic photography techniques to mass media, analysis of photographs, some layout, and writing cutlines and captions.

**MEC 285 Documentary Television and Film Production /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisites: 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 one hour television documentary.

**MEC 290 Applied Photojournalism /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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**

□Prerequisites: 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 12 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 /2-3 cr. hrs./10-15 periods (10-15 lab)**

See Cooperative Education section for description.

**MENTAL HEALTH TECHNICIAN**

**MHT 101 Mental Health Technician I /7 cr. hrs./12 periods (4 lec., 8 lab)**

□Prerequisite: Acceptance into mental health technician program.

Care of the patient with physical and psychiatric disorders. Includes etiology, normal and abnormal changes in the life cycle, legal-ethical considerations, therapeutic care, holistic care, nursing process, physical and psychological care and a clinical experience.

**MHT 201 Mental Health Technician II /6 cr. hrs./10 periods (4 lec., 6 lab)**

□Prerequisite: MHT 101.

Continuation of MHT 101. Includes the theory of multiple treatment modalities such as somatic treatments, milieu therapy, crisis intervention, short-term psychotherapy, group therapy and family therapy. Also includes admission, transfer, and discharge of a psychiatric client; writing a care plan; behavior modification and functioning as a team member.

**MICROCOMPUTER APPLICATIONS**

**MAP 106 Introduction to Microcomputers /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: 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: 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: MAP 207 or equivalent experience.

In-depth microcomputer applications experience. Intended for those whose major responsibility will be maintenance of a microcomputer laboratory.

**MILITARY SCIENCE-AIR FORCE**

**MLA 101 History of Air Power I /2 cr. hrs./3 periods (1 lec., 2 lab)**

□Prerequisite: None.

Review of chronological development of air power from the advent of the air age through World War II. (Course offered in cooperation with the University of Arizona.)

**MLA 102 History of Air Power II /2 cr. hrs./3 periods (1 lec., 2 lab)**

□Prerequisite: None.

The development of the Air Force from 1946 to the present. (Course offered in cooperation with University of Arizona.)

**MLA 201 Air Force Today I /2 cr. hrs./3 periods (1 lec., 2 lab)**

□Prerequisite: None.

Review of the history, functions and organization of the Air Force, Air Force doctrine, national strategy, and strategic offensive forces. (Course offered in cooperation with the University of Arizona.)

**MLA 202 Air Force Today II /2 cr. hrs./3 periods (1 lec., 2 lab)**

□Prerequisite: None.

Strategic defensive forces, U.S. general purpose forces, and the support commands and operating agencies of the Air Force. (Course offered in cooperation with the University of Arizona.)

**MILITARY SCIENCE-ARMY****MLS 100 Introduction to Leadership /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: None.

Responsibilities and obligations of a commissioned officer. Includes small unit leadership, motivation and practicum. (Course offered in cooperation with the University of Arizona.)

**MILITARY SCIENCE-NAVY****NSP 100 Naval Laboratory I /1 cr. hr./2 periods (2 lab)**

□Prerequisite: 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: 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: 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: 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: 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: 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.)

**MUSIC****MUS 027 Introduction to Ear Training /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: None.

Ear training for individuals with little or no musical background. Learning to perform what is written and identify what is heard through simple melodies and rhythms.

**MUS 036 Singing/Movement for the Stage /2 cr. hrs./3 periods (1 lec., 2 lab)**

□Prerequisite: None.

Singing and movement experience for the singer and/or actor. Music will be selected for each student's skill level. Course work will culminate in student performance. Course may be taken four times for a maximum of eight credit hours.

**MUS 041 Piano Class I-Non-Music Major /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: 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: 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: 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: 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.

**MUS 050 Rhythmic Performance /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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. Course may be taken two times for a maximum of two credit hours.

**MUS 091 Introduction to Guitar /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: None.

Basic instruction and development of guitar playing skills for those who have little or no background in music with emphasis on both classical and popular guitar styles. Includes study of note reading, finger picking, chord strumming and basic right and left hand techniques.

**MUS 100 Guitar I /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: 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: 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: None.

Introduction to fundamentals of music designed to develop basic literacy in music. For those who have little or no background in music. Includes study of notation, melody, harmony, rhythm and musical terminology. Nontransferable as music major credit.

**MUS 105 Jazz Band II /1 cr. hr./3 periods (1 lec., 2 lab)**

□Prerequisite: 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. Course 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: 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. Course 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: 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. Course may be taken four times for a maximum of four credit hours.

**MUS 112 Community Jazz Band I /1 cr. hr./3 periods (1 lec., 2 lab)**

□Prerequisite: 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. Course 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: 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. Course 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: Students chosen by audition.

Participation in regular rehearsals and performances. Emphasis on progressive development of musical skills through interpretation of orchestral literature. Course 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: Students chosen by audition.

Participation in regular rehearsals and performances. Continued emphasis on progressive development of musical skills through interpretation of orchestral literature. Course 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: Students chosen by audition.

Participation in regular rehearsals and performances. Emphasis on progressive development of musical skills through interpretation of literature. Course 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: Students chosen by audition.

Participation in regular rehearsals and performances. Continued emphasis on progressive development of musical skills through interpretation of literature. Course 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: None.

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: 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: None.

Development of aural techniques through dictation and performance of intervals and melodic and simple rhythmic structures. Also includes general techniques of listening to music. Required of all music majors.

**MUS 128 Aural Perception II /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: 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: 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. Course 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: 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. Course may be taken four times for a maximum of twelve credits.

**MUS 136 Voice Class I /1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: 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: 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: 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: 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: 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: 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.

**MUS 145 Applied Music-Private Instruction /2 cr. hrs./5 period (.5 lec.)**

□Prerequisite: 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./5 period (.5 lec.)**

□Prerequisite: 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 151 Exploring Music /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 201 History and Literature of Music I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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: 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./5 period (.5 lec.)**

□Prerequisite: 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.)

**MUS 248 Applied Music-Private Instruction /2 cr. hrs./5 period (.5 lec.)**

□Prerequisite: 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)**

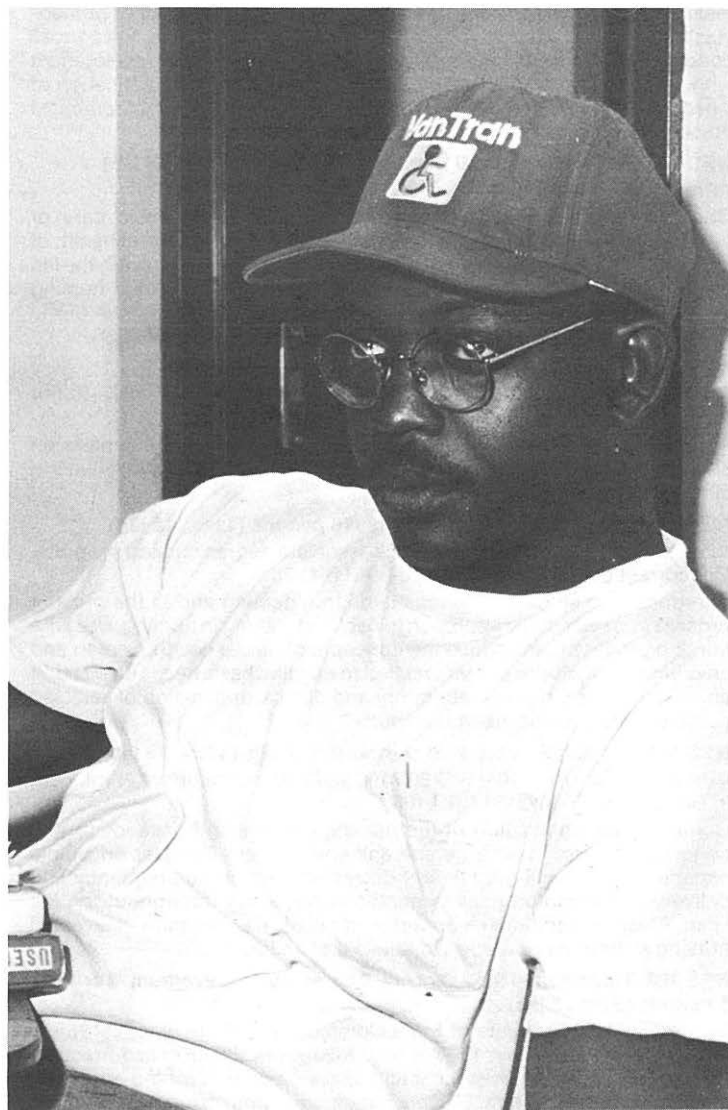
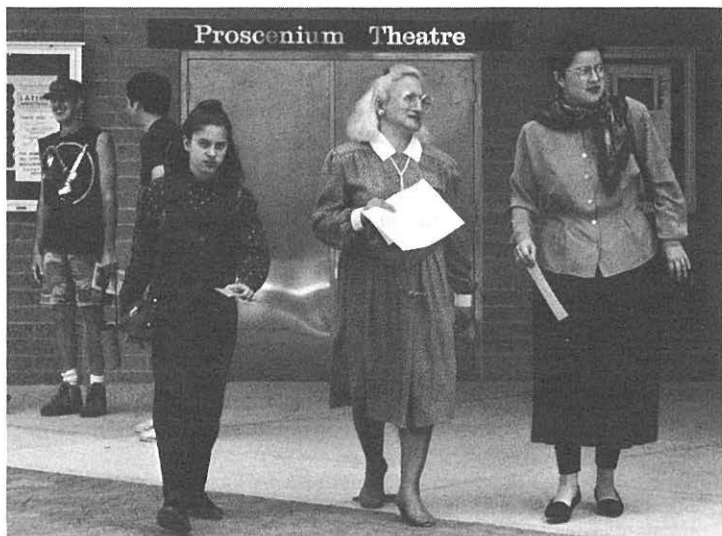
□Prerequisite: MUS 102.

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 /8 cr. hrs./16 periods (4 lec., 12 lab)**

□Prerequisite: 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 /9 cr. hrs./19 periods (4 lec., 15 lab)**

□Prerequisite: 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.)**

□Prerequisites: 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 /8 cr. hrs./16 periods (4 lec., 12 lab)**

□Prerequisites: Acceptance into the associate degree nursing program. Concurrent enrollment in WRT 101 and BIO 201.

Introduces the student to associate degree nursing and to the nursing process as a systematic approach to decision making in nursing. Uses the nursing process to introduce the concepts of nurse, health, person and environment. Includes content related to meeting basic needs of the adult and older client. Presents laboratory and clinical application of selected nursing skills and knowledge to adults.

**NRS 105 Nursing Process II /9 cr. hrs./19 periods (4 lec., 15 lab)**

□Prerequisites: NRS 104, BIO 201 and WRT 101. Concurrent enrollment in BIO 202, WRT 102 and NRS 103.

Continues the application of the nursing process and expands on the concepts of nurse, health, person and environment. Focuses on clients experiencing normal growth and development, normal pregnancy and delivery and common health alterations occurring throughout the life span. Presents additional laboratory and clinical application of selected nursing skills and knowledge to adults and children.

**NRS 190 Transition to the Associate Degree Nursing Program /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: Graduate of Pima Community College Practical Nurse (PN) program after May, 1990 or hold a current valid Licensed Practical Nurse (LPN) license. 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 /11 cr. hrs./23 periods (5 lec., 18 lab)**

□Prerequisites: NRS 103, 105, BIO 202 and WRT 102. Concurrent enrollment in BIO 205 and PSY 110.

Continues the application of the nursing process and concepts of nurse, health, person and environment in the care of clients of all ages with increasingly complex alterations in health. The student focuses on clients and families in the medical/surgical, maternal and pediatric settings. Presents laboratory and clinical application of increasingly complex skills and knowledge to adults and children.

**NRS 202 Nursing Process IV /11 cr. hrs./23 periods (5 lec., 18 lab)**

□Prerequisites: NRS 201 and BIO 205. Concurrent enrollment in NRS 203, Humanities or Fine Arts elective and Social and Behavioral Science elective.

Continues the 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. Emphasis on the roles of the nurse in caring for clients with multiple needs. Presents laboratory and clinical application of complex skills and knowledge in the care of clients in psychiatric and complex medical-surgical settings.

**NRS 203 Trends and Issues II /1 cr. hr./1 period (1 lec.)**

□Prerequisites: NRS 201. Concurrent enrollment in NRS 202.

Continues exploration of the nursing role with emphasis on 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 /5 cr. hrs./11 periods (2 lec., 9 lab)**

□Prerequisite: None.

Basic client care nursing skills. Includes theory base for direct client care and fundamental and advanced psychomotor skills at the nursing assistant level.

## NURSING CONTINUING EDUCATION

### NCE 101 Review for NCLEXPN /1 cr. hr./1 period (1 lec.)

□Prerequisite: 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: 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: 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: 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: 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 217 Fundamental Hemodialysis /6 cr. hrs./10 periods (2 lec., 8 lab)

□Prerequisite: 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: 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.

## OFFICE EDUCATION

### OED 011 Computer Keyboarding /1 cr. hr./1.5 periods (.5 lec., 1 lab)

□Prerequisite: None.

Training on the computer keyboard. Includes function keys, alphabetic keys, numeric 10-key pad and basic formatting.

### OED 050 Fundamentals of Business English and Vocabulary /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

English basics in business. Includes business terminology, definitions, spelling, pronunciation, word usage, simple sentence structure, grammar, and dual language similarities and comparisons. Designed primarily for the unique needs of the Spanish-speaking student, but open to all students.

### OED 091 Upgrading Office Skills /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: OED 111 or keyboarding knowledge.

New techniques and personal improvement in office skills and human relations. Includes assessment, evaluation, new technology and review.

### OED 101 Shorthand I /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisites: OED 111, and OED 151 or concurrent enrollment.

An abbreviated system of writing. Includes the shorthand alphabet, English skills, shorthand speed, and transcription techniques.

### OED 102 Shorthand II /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisites: OED 101 or one year high school shorthand or dictation speed of 50 words per minute, and OED 151 or concurrent enrollment.

Continuation of OED 101. Includes shorthand theory, English skills, and available transcription techniques.

### OED 103 Shorthand Refresher /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: OED 101 or equivalent proficiency.

Review of an abbreviated system of writing. Includes shorthand theory, English usage, and transcription techniques.

### OED 104 Career and Self-Management Skills for Women /2-3 cr. hrs./2-3 periods (2-3 lec.)

Same as HDE 104.

### OED 107 Notehand /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Shorthand system for personal notetaking. Includes practice in taking useful, well-organized lecture and conference notes.

### OED 108 Stenoscrypt I /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: Keyboarding knowledge.

Basic system of alphabetic shorthand. Includes theory, brief forms, phrasing, vocabulary, grammar, punctuation, letter styles, and transcription techniques.

**OED 109 Stenoscrypt II /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisites: OED 108, and OED 111 or keyboarding knowledge.

Advanced system of alphabetic shorthand. Includes theory, brief forms, phrasing, vocabulary, grammar, punctuation, letter styles, and transcription techniques.

**OED 110 Typing Refresher /3 cr. hrs./3 periods (2 lec., 1 lab)**

□Prerequisite: OED 111 or equivalent proficiency.

Review of touch typing. Includes keyboard mastery, typewriter/computer parts, touch keyboarding, proofreading techniques, and simulation. Also includes technique, speed, and accuracy.

**OED 110A Typing Refresher: Skill Building /1 cr. hr./1 period (.7 lec., .3 lab)**

□Prerequisite: OED 111 or equivalent proficiency.

Review of touch typing. Includes keyboard mastery, typewriter/computer parts, touch keyboarding, and proofreading techniques. Also includes technique, speed, and accuracy.

**OED 110B Typing Refresher: Formatting /1 cr. hr./1 period (.7 lec., .3 lab)**

□Prerequisite: OED 110A.

Continuation of OED 110A. Includes simulation and exercises in the following: procedures manual, staff meetings, filling a staff vacancy, research project, and newsletter. Also includes technique, speed, and accuracy.

**OED 110C Typing Refresher: Special Applications /1 cr. hr./1 period (.7 lec., .3 lab)**

□Prerequisite: OED 110B.

Continuation of OED 110B. Includes simulation and exercises in the following: applying for a job, correspondence, convention arrangements, and ordering supplies. Also includes technique, speed, and accuracy.

**OED 111 Typing I /3 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: None.

Theory and practice of touch typing. Includes keyboarding, skill development, correspondence, reports, tables, and forms. Also includes technique, speed, and accuracy.

**OED 111A Typing I: Keyboarding /1 cr. hr./1.7 periods (1 lec., .7 lab)**

□Prerequisite: None.

Theory and practice of touch typing. Includes keyboarding, skill development, alphabet, and numbers. Also includes technique, speed, and accuracy.

**OED 111B Typing I: Basic Correspondence and Centering (Five-Week Module) /1 cr. hr./1.7 periods (1 lec., .7 lab)**

□Prerequisite: OED 111A.

Continuation of OED 111A. Includes keyboarding, symbols, correspondence, reports, and tables. Also includes technique, speed, and accuracy.

**OED 111C Typing I: Correspondence and Manuscripts (Five-Week Module) /1 cr. hr./1.6 periods (1 lec., .6 lab)**

□Prerequisite: OED 111B.

Continuation of OED 111B. Includes correspondence, reports, forms, and skill refinement. Also includes technique, speed, and accuracy.

**OED 112 Typing II /3 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: OED 111.

Continuation of OED 111. Includes skill development, correspondence, reports, tables, forms, specialized correspondence, word processing applications, and in-basket exercises. Also includes technique, speed, and accuracy.

**OED 112A Typing II: Skill Development/Production Review /1 cr. hr./1.7 periods (1 lec., .7 lab)**

□Prerequisite: OED 111 or equivalent proficiency.

Continuation of OED 111. Includes correspondence, reports, and tables. Also includes technique, speed, and accuracy.

**OED 112B Typing II: Specialized Formatting /1 cr. hr./1.7 periods (1 lec., .7 lab)**

□Prerequisite: OED 112A or equivalent proficiency.

Continuation of OED 112A. Includes specialized correspondence, forms and tables, and word processing applications. Also includes technique, speed, and accuracy.

**OED 112C Typing II: Simulated Office Projects /1 cr. hr./1.6 periods (1 lec., .6 lab)**

□Prerequisite: OED 112B or equivalent proficiency.

Continuation of OED 112B. Includes in-basket exercises. Also includes technique, speed, and accuracy.

**OED 121 Calculating Machines /2 cr. hrs./3 periods (2 lec., 1 lab)**

□Prerequisite: BUS 151.

Operation of electronic calculator. Includes mathematics review, touch system for ten-key office machines, calculator operations, percent applications, and problems in sales, retailing, insurance, banking, business, industry, and real estate. Also includes the international system of units.

**OED 123 Beginning WordPerfect /1 cr. hr./1.5 periods (1 lec., .5 lab)**

□Prerequisite: OED 011 or equivalent proficiency.

Applications of WordPerfect computer software for the beginner. In-



cludes a basic overview of the personal computer, creating and formatting documents, entering and editing text, file management, and spell-checking documents.

**OED 124 Intermediate WordPerfect /1 cr. hr./1.5 periods (1 lec., .5 lab)**

□Prerequisite: OED 123.

Continuation of OED 123. Includes merging, sorting, file management, footnotes and endnotes, columns, macros, outlines, tables, and miscellaneous editing and formatting.

**OED 141 Legal Terms /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Language used in a legal setting. Includes pronunciation, spelling, and definitions.

**OED 142 Legal Secretarial Procedures I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: OED 211.

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.

**OED 143 Legal Secretarial Procedures II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: OED 142 or consent of instructor.

Continuation of OED 142. Includes domestic relations, probate, corporations, arbitration, real estate, criminal law, the code of ethics, and human relations.

**OED 151 Business English /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: Assessment at the WRT 100 level.

English fundamentals essential for modern business communication. Includes foundational skills, parts of speech, punctuation, capitalization, sentence structure, spelling, and vocabulary.

**OED 161 Medical Office Procedures /4 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisites: OED 112 or concurrent enrollment and OED 162.

Duties typical of an assistant in a medical office. Includes keeping patient records, preparing and handling of insurance forms and medical reports, and interacting with patients.

**OED 162 Medical Terms I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Language used in a medical setting. Includes pronunciation, spelling, and definitions.

**OED 199 Co-op Related Class in OED /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**OED 199 Co-op Work in OED /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

**OED 201 Shorthand III /3 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: OED 102 or two years of high school shorthand or dictation speed of 70 words per minute.

Continuation of OED 102. Includes shorthand skill development, English skills, and mailable transcription techniques. Also includes speed development.

**OED 202 Shorthand IV /3 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: OED 201.

Continuation of OED 201. Includes additional development of shorthand and English skills, and transcription techniques. Also includes speed development, proofreading, and editing skills.

**OED 211 Typing III /3 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: OED 112 or two years of typing or typing speed of 40 wpm. OED 151 recommended.

Continuation of OED 112. Includes correspondence, production, long reports, and integrated office projects for insurance, banking, travel, government, energy, electronics, legal and medical areas. Also includes technique, speed, and accuracy.

**OED 211A Typing III: Correspondence/Production Review /1 cr. hr./1.7 periods (1 lec., .7 lab)**

□Prerequisite: OED 112 or equivalent proficiency.

Continuation of OED 112. Includes correspondence, production, long reports, and an integrated office project for insurance. Also includes technique, speed, and accuracy.

**OED 211B Typing III: Integrated Office Projects /1 cr. hr./1.7 periods (1 lec., .7 lab)**

□Prerequisite: OED 211A or equivalent proficiency.

Continuation of OED 211A. Includes integrated office projects for banking, travel, government, and energy areas. Also includes technique, speed, and accuracy.

**OED 211C Typing III: Mailable Production /1 cr. hr./1.6 periods (1 lec., .6 lab)**

□Prerequisite: OED 211B or equivalent proficiency.

Continuation of OED 211B. Includes integrated office projects for electronics, legal and medical areas, and mailable production. Also includes technique, speed, and accuracy.

**OED 219 Word Processing Software /2 cr. hrs./3 periods (2 lec., 1 lab)**

□Prerequisites: OED 112, or typing speed of 45 wpm and ability to type letters, manuscripts, and tables.

Word processing software. Includes creating, editing, spell checking, and merging documents. Also includes macros, columns, sorting, manuscripts, tables, equations, fonts, and graphics. May be taken four times for a maximum of eight credit hours.



**OED 222 Desktop Publishing For Business and Industry /2 cr. hrs./ 3 periods (2 lec., 1 lab)**

□Prerequisite: OED 219.

Desktop publishing for business and industry. Includes the use of a variety of popular desktop publishing software to create typeset quality business documents, such as newsletters, fliers, manuscripts, forms, and reports.

**OED 224 Beginning Machine Transcription /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisites: OED 112, or typing speed of 45 wpm and ability to type letters, manuscripts, and tables. OED 151 recommended.

Beginning machine transcription. Includes development of vocabulary, punctuation, grammar, spelling, proofreading, and typing skills through transcription of business documents.

**OED 226 Advanced Machine Transcription /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: OED 224.

Continuation of OED 224. Includes transcribing techniques, skill and speed development, and transcription from dictation.

**OED 242 Legal Secretarial Procedures III /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: OED 143 or consent of instructor.

Continuation of OED 143. Includes fundamental principles for both general and specialized areas of legal practice.

**OED 243 Legal Secretarial Procedures IV /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: OED 242 or consent of instructor.

Continuation of OED 242. Includes file management, legal writing and research, administrative agencies, and business organizations.

**OED 251 Business Communications /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: OED 151.

Principles of effective writing and listening skills. Includes the foundations of business communications, the writing of letters, memos, messages, resumes, applications, reports and proposals, oral communications, and intercultural concepts in business.

**OED 252 Bilingual Commercial Correspondence /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: Speaking and writing proficiency in Spanish and English. 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.

**OED 262 Medical Terms II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: OED 162.

Continuation of OED 162. Includes the body systems, radiology, nuclear medicine, and pharmacology.

**OED 263 Medical Transcription /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: OED 162, or knowledge of medical terminology and typing speed of 40 wpm.

Development of medical transcription skills. Includes speed and accuracy in typing, skills in using transcribing equipment, expansion of medical terminology, transcribing medical reports, and correspondence.

**OED 271 Office Procedures /4 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: OED 112.

Functions and procedures used in a wide range of office activities in both the national and international business environment. Includes analysis of the office education profession, information processing, transmittal services, planning travel and conferences, preparing business and statistical data, financial and legal tasks, and placement and advancement in employment.

**OED 298 Special Topics in Office Education: /5-3 cr. hrs./5-3 periods (5-3 lec.)**

□Prerequisite: Consent of instructor.

Selected topics in office education which reflect current issues, trends, and technologies.

**OED 299 Co-op Related Class in OED /1 cr. hr./1 period (1 lec.)**

See Cooperative Education section for description.

**OED 299 Co-op Work in OED /1-8 cr. hrs./5-40 periods (5-40 lab)**

See Cooperative Education section for description.

## PHARMACY TECHNOLOGY

### **PHT 170 Introduction to Pharmacy Technology /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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: None.

Mathematical computations needed in the practice of pharmacy technology.

### **PHT 172 Drug Therapy I /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: 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: 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: 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: 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.)**

□Prerequisites: PHT 170 and PHT 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: 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: 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: 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.

**PHILOSOPHY**

**PHI 101 Introduction to Philosophy I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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. May be taken as humanities option.

**PHI 102 Introduction to Philosophy II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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. May be taken as humanities option.

**PHI 120 An Introduction to Logic /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 130 Introductory Studies in Ethics and Social Philosophy /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: None.

The nature and meaning of religion. Includes the existence of God, discussions of what God is, and the knowledge and meaning of religious ethics. (Same as REL 140.)

**PHYSICS**

**PHY 060 Problem Solving in Physics /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Strategies and techniques used to solve problems encountered in physics courses, including a review of mathematical skills, error analysis, graphing and analysis and solution of word problems. Recommended for students currently enrolled in physics courses.

**PHY 101 Technical Physics I /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: MTH 060 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: MTH 070 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: 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: MTH 130 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 (4 lec., 3 lab)**

□Prerequisite: High school algebra.

A non-calculus introduction to general physics for programs requiring a one-year, non-calculus-based physics course. Includes mechanics and heat.

**PHY 122 Introductory Physics II /5 cr. hrs./7 periods (4 lec., 3 lab)**

□Prerequisite: PHY 121.

Continuation of PHY 121. Includes waves, sound, light, electricity, magnetism, relativity, atomic and nuclear physics.

**PHY 131 Introductory Physics with Calculus I /5 cr. hrs./7 periods (4 lec., 3 lab)**

□Prerequisites: MTH 180 and high school physics or equivalent.

A calculus-based introduction to general physics for programs requiring a two-semester, calculus-based physics course. Includes mechanics, fluids and thermodynamics.

**PHY 132 Introductory Physics with Calculus II /5 cr. hrs./7 periods (4 lec., 3 lab)**

□Prerequisites: PHY 131 and MTH 185 or concurrent enrollment.

Continuation of PHY 131. Includes waves, sound, light, electricity, magnetism, atomic and nuclear physics.

**PHY 210 Introductory Mechanics /5 cr. hrs./7 periods (4 lec., 3 lab)**

□Prerequisites: MTH 180, and high school physics or equivalent.

A calculus-based introduction to mechanics. Designed for physics, mathematics, electrical engineering and computer science majors.

Includes kinematics, dynamics, energy, momentum and rotational kinematics and dynamics.

**PHY 216 Introductory Electricity and Magnetism /5 cr. hrs./7 periods (4 lec., 3 lab)**

□Prerequisites: PHY 210 and MTH 185.

A calculus-based introduction to electricity and magnetism. Designed for physics, mathematics, and electrical engineering majors. Includes electric and magnetic field theory, Gauss's Law, circuit theory, potential theory, Ampere's Law, Faraday's Law and Maxwell's equations.

**PHY 221 Introduction to Waves and Heat /5 cr. hrs./7 periods (4 lec., 3 lab)**

□Prerequisites: PHY 210 and MTH 185.

Principles of wave motion and heat. Includes fluids, heat and thermodynamics, wave motion, simple harmonic motion, and physical and geometric optics.

**PHY 230 Introduction to Modern Physics /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisites: PHY 210 and 216 or PHY 131 and 132, and MTH 180 and 185.

Introduction to atomic and nuclear physics. Includes relativity, atomic and nuclear physics, radioactivity, quantum physics and elementary particles.

## POLITICAL SCIENCE

**POS 050 Immigration Law and Practices /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Basic principles and procedures of immigration law. The legal and political status of immigrants from Mexico, the process of immigration and counseling for the immigrant.

**POS 100 Introduction to Politics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Basic concepts of political science. The nature of politics, its significance in daily life, and how political systems change.

**POS 110 American National Government and Politics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Survey of the institutions of American government and the evolution of our political system. Includes the Constitution, roles of political parties, interest groups, public opinion and voting behavior. Special attention to the positions of economic, ethnic and religious minorities in American society. For PCC degree, credit is allowed for either POS 110 or POS 112, but not for both.

**POS 112 National and State Constitutions /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Examination of the nature of national and state constitutions. Historical background, organization and functions of the national, state and local governments based on the constitutions of the United States and Arizona. Satisfies the requirements for teacher certification. For PCC degree, credit is allowed for either POS 110 or POS 112, but not for both.

**POS 120 Introduction to International Relations /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

General examination of international relations, including the elements of national power; the economic, social and psychological determinants of international political behavior; formation of foreign policy; international law; and international and regional organizations.

**POS 130 American State and Local Governments and Politics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Survey of state and local governments and politics. Includes state constitutions, political parties, interest groups, elections, and major institutions of state governments. Emphasis on Arizona's political culture, the state's politically relevant economic and ethnic groups, and its current political trends.

**POS 140 Introduction to Comparative Politics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Examination of the basic concepts and methods of comparative political analysis and their application to the political systems of Western Europe, the Soviet Union, Eastern Europe, and developing areas.

**POS 149 Independent Study in Political Science /2-4 cr. hrs./2-4 periods (2-4 lec.)**

□Prerequisite: None.

Independent readings or special projects to be arranged with the instructor.

**POS 160 Introduction to Political Ideas /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Basic issues in political thought with focus on modern applications of the historical problems of democracy, liberty, equality, authority, obligation, and ideology.

**POS 190 Political Revolution and Violence /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Examination of the causes of political revolution and violence, using historical, psychological and sociological data to explain how violent changes in political power come about.

**POS 230 Minority Groups and the Political Process /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Investigation of the position of various minority groups in the American political system, including their general political attitudes and voting behavior, patterns of political organization, party activity, and their role in the formation of public policy.

**POS 250 Political Science Internship /3 cr. hrs./15 periods (15 lab)**

□Prerequisites: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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. Assists in preparing the student for the American Production and Inventory Control Society (APICS) Production Activity Control certification examination.

**PIM 111 Capacity Management for Manufacturing /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Techniques used in capacity management in manufacturing operations. Includes concepts of short, medium, and long range capacity management and control, and its relationship to the total field of production and inventory control.

**PIM 115 Material Requirements Planning for Manufacturing /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Techniques and concepts used in Material Requirements Planning (MRP) for manufacturing planning and control systems. Includes concepts of MRP and its relationship to the total field of production and inventory control, inputs and outputs to the system, and system selection and design.

**PIM 120 Just-In-Time for Manufacturing /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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 150 Physical Distribution Management /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Same as TTM 204 and MKT 150. (See MKT 150 for course description.)

**PIM 200 Production Planning /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Foundation course for the production inventory management program. Emphasis on business planning, product forecasting, master production scheduling, and techniques in materials management. Prepares student for the American Production and Inventory Control Society (APICS) Master Planning certification examination.

**PIM 203 Purchasing for Production/Inventory Management /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: None.

Techniques used for the management of inventory levels within a manufacturing environment. Emphasis on reorder point and reorder/quantity systems, economic order quantity, physical inventory control and aggregate inventory management. Prepares student for the APICS Inventory Management certification examination.

**PIM 210 Production Control /3 cr. hrs./3 periods (3 lec.)**

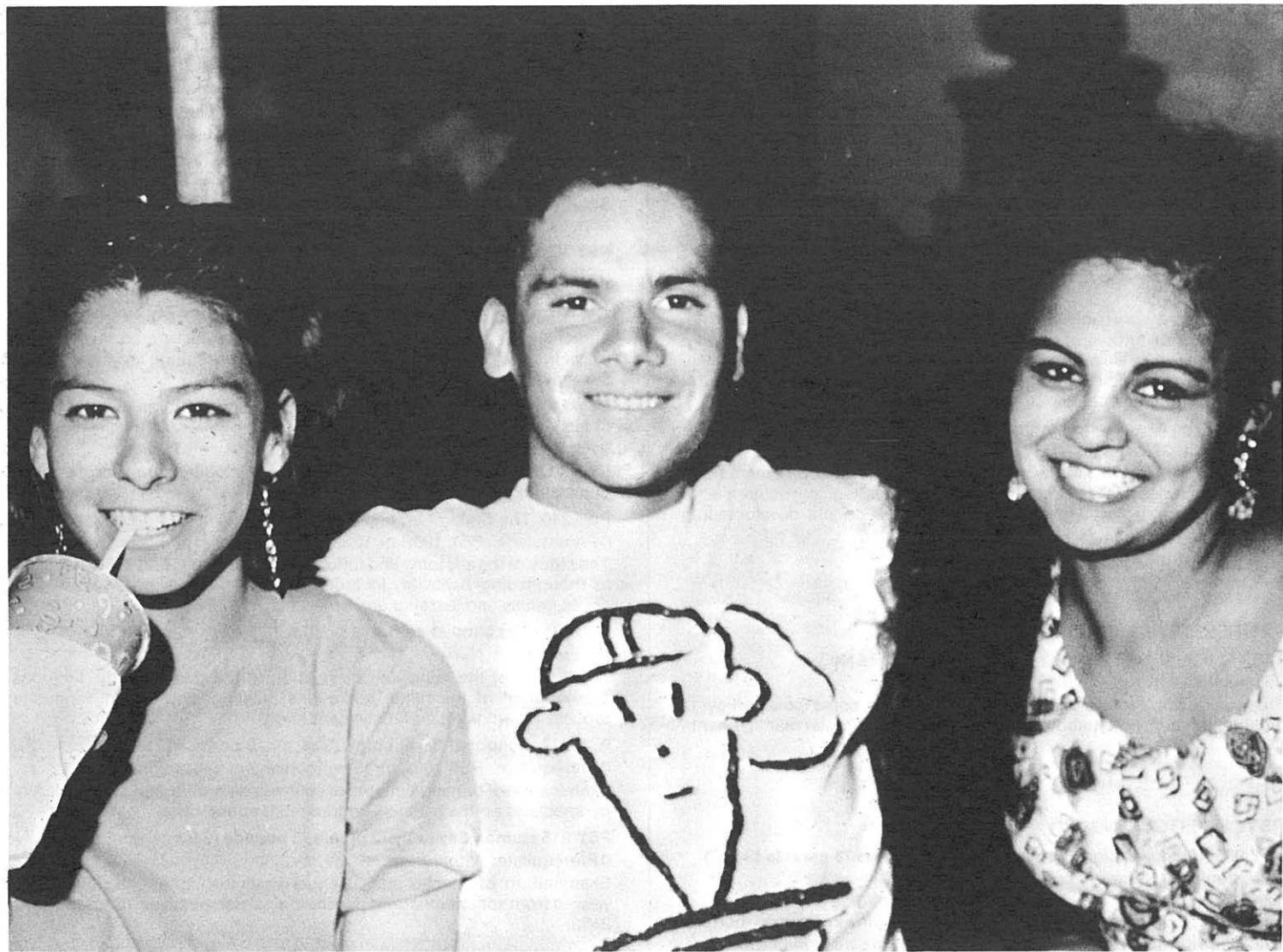
□Prerequisite: None.

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). Prepares student for APICS Capacity Management certification examination and Production Activity Control certification examination.

**PIM 215 Material Requirements Planning (MRP) /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Beginning and advanced methods of time-phased Material Requirements Planning (MRP). Includes bills of material, data-requirements, system inputs and outputs, processing logic, lot sizing techniques, time-phased inventory requirements and the planner's interface with the MRP system. Prepares student for APICS Material Requirements Planning certification examination.



## PROFESSIONAL DEVELOPMENT

### PRD 100 Principles of Bilingual Education /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Same as EDU 100.

### PRD 110 Essential Elements of Instruction /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Techniques of classroom material organization, selection of objectives to be taught, reviewing theories of learning, and monitoring and adjusting material taught. Includes teaching techniques developed by Madelyn Hunter and Associates at the University of California at Los Angeles.

### PRD 150 Teaching Critical and Creative Thinking /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: 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.

### PRD 161 The Arizona Community College /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: 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.

## PROFESSIONAL FIRE SCIENCE

### PFS 191 Fire Chief Training /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: 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: 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: 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: 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: 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 Behavior Modification /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: PSY 100A or 101 or consent of instructor.

Introduction to the principles of behavior modification. Emphasis on application in practical situations.

### PSY 210 The Brain /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: 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: 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: 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: 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: 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: 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: PSY 100A or 101.

Adjustment to death and loss. Current social and attitudinal considerations are reviewed.

**PSY 230 Psychological Measurements and Statistics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: PSY 100A, 100B and MTH 130.

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: 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: 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: 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: 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: 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 290 Research Methods /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: PSY 230.

Introduction to scientific methodologies used in psychological research. Students will gain experience in using a range of psychological research methods. Designed for students planning to major or minor in psychology.

**PSY 294 Special Topics in Psychology: /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: 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: PSY 100A or 101 or consent of instructor.

Exploration of special interest areas. Content to be determined by student and facilitator/instructor.

**PSY 298 Social Psychology Practicum /1-6 cr. hrs./3-18 periods (3-18 lab)**

□Prerequisite: PSY 100A or 101 or consent of instructor.

Familiarization with specific areas of social psychology through our view of pertinent research, directed observation and personal participation in relevant experimental or natural settings.

**PUBLIC ADMINISTRATION**

**PAD 105 Introduction to Public Administration /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: None.

Informal and exploratory approaches to the analysis of empirical data in a managerial decision making context.

**PUBLIC BUILDING MAINTENANCE****PBM 055 Building Maintenance /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

All phases of the care and cleaning of buildings. Includes fixtures, furnishings and various types of building interiors.

**QUALITY CONTROL TECHNOLOGY****QCT 101 Quality Control I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: MTH 070 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: 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.)**

□Prerequisites: REA 073, MTH 060, and OED 011.

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: 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)**

□Prerequisites: MAC 285, DFT 101, MTH 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 123 Electronic Fabrication and Processing /2 cr. hrs./3 periods (1 lec., 2 lab)**

Same as ETR 123 and MRE 123. (See ETR 123 for course description.)

**QCT 160 Geometric Dimensioning and Tolerancing /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: DFT 256.

Principles of geometric dimensioning and tolerancing. Includes an introduction to geometric dimensioning and tolerancing, tolerance of form and position, true position of non-cylindrical features, coaxial features, and extended principles, datums, concentricity, and symmetry.

**QCT 230 Machine Shop Inspector Skills /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: 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: 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: MTH 210.

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: 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)**

□Prerequisites: 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)**

□Prerequisites: 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)**

□Prerequisites: 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)**

□Prerequisites: 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: 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: 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: 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)**

□Prerequisites: 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)**

□Prerequisites: 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)**

□Prerequisites: 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)**

□Prerequisites: RAD 184, 185, 186, 187.

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)**

□Prerequisites: 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.)**

□Prerequisites: RAD 188 and concurrent enrollment in RAD 191.

Presentations on radiographic procedures. Includes patient care, radiation protection, equipment operation, and image production.

**READING****REA 040 Basic Reading /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: 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.

**REA 071 Spelling /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Improvement of spelling skills through application of spelling principles.

**REA 073 Understanding What You Read /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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.



**REA 077 Study Skills /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Development of skills in listening, remembering, note taking, outlining, applying study methods and interpreting pictorial aids.

**REA 078 Test-Taking Techniques /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Techniques of preparing for and taking various types of tests as found in a college setting.

**REA 100 Reading Series /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: College reading assessment test scores.

Students recommended for Reading should register for REA 100. Specific placement in one of the six courses below is determined by diagnostic testing and teacher evaluation after enrollment.

**REA 100 Reading Fundamentals**

**REA 101 Reading Improvement**

**REA 110 Reading Techniques**

**REA 111 Developmental Reading I**

**REA 112 Developmental Reading II**

**REA 120 Critical Reading**

Group and individual instruction in vocabulary, comprehension, study skills and reading speed are included in each of the six courses. Students may register in each of the REA 100 Series courses up to four times for credit. Non-native speakers of English who are not fluent in English should enroll in the English as a Second Language courses.

**REA 125 Speed Reading /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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: RLS 101.

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: RLS 101.

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: 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.)

## RECORD AND INFORMATION MANAGEMENT

### **RIM 121 Introduction to Medical Record Science /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Overview of organization and analysis of the health record, health record systems and the relationship of the medical record department to the health institution.

### **RIM 131 Records Management: Development of a Program /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

General survey of all types of record control within an organization, from creation to final disposition. Includes guidelines for the establishment, implementation and maintenance of records control programs.

### **RIM 132 Records Management: Filing Systems/3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Principles and procedures of basic filing systems. Includes methods of storing and retrieving information and plans for retention, transfer, and disposal of records.

### **RIM 132A Records Management: Filing Systems A /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: 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: RIM 132B.

Filing procedures used in subject, numeric and/or geographic filing.

### **RIM 221 Medical/Health Record Coding /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: OED 262, BIO 204, RIM 121 or equivalent.

Overview of coding classification systems, indices, the prospective payment system and how DRG's are assigned.

### **RIM 231A Records Management: Forms Management /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: 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: 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: RIM 131.

A practical approach to office organization and administrative management. Emphasizes management of administrative services, physical resources, human resources, systems and procedures.

## RECREATION

### **REC 101 Introduction to Recreation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introduction to the field of recreation and leisure services. Includes an overview of philosophy, theory, programs, organization, and leisure service delivery systems.

### **REC 102 Recreation Leadership and Group Dynamics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Examination of the nature of leadership and group dynamics. Includes developing competencies in the application of group process and leadership principles in the recreation setting.

### **REC 119 Recreational Games /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Principles of leadership in recreational activities. Includes traditional and non-traditional activities, equipment, supplies and facilities, instructional strategies, and activity analysis.

**REC 120 Introduction to Therapeutic Recreation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: REC 101.

Recreation services for special populations. Includes history of therapeutic recreation, services, location of programs, disability groups and their needs, role of the recreation specialist and terminology.

**REC 121 Recreation Needs for Special Populations /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: REC 101.

Special population groups and their behavioral learning hierarchy. Includes terminology, personnel standards, application of goals and knowledge and construction of a therapeutic recreation program.

**REC 201 Principles of Recreation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: REC 101.

Therapeutic recreation activities and group dynamics. Includes skills, techniques and future resources necessary to provide creative and effective leadership in recreational settings and program areas.

**REC 202 Recreation Program Organization /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: REC 101.

Recreation policies and procedures in an organization. Includes direction of recreation program, processes and formats of services, organization, administration and in-service training programs.

**REC 220 Program Planning in Therapeutic Recreation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: REC 120.

Therapeutic recreation program administration and implementation. Includes recreation principles, policies and procedures in an organization, and implementation of programs.

**REC 221 Principles and Procedures of Therapeutic Recreation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: REC 202.

Therapeutic recreation concepts and services. Includes history, activity goals, special populations, and institutional and community-based agencies providing leisure delivery systems.

**REC 225 Fieldwork /4-8 cr. hrs./20-40 periods (20-40 lab)**

□Prerequisite: Completion of coursework in program.

Field experience providing the opportunity to apply coursework in a planned and supervised recreational setting. May be repeated one time for a maximum of eight credits.

**RELIGION**

**REL 119 Comparative Religions: Western /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

An introduction to the historical development, teachings, (or doctrines), festivals, rituals and themes in Judaism, Christianity and Islam.

**REL 120 Old Testament /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Major books of the Old Testament with emphasis on their religious, moral, historical and literary significance.

**REL 121 New Testament /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

The major books of the New Testament with emphasis on their religious, moral, historical and literary significance.

**REL 125 Islam /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

History and literature of Islam. Includes texts of the Qur'an, life of the Prophet Muhammad, and the poetry and practices of the Sufi poets.

**REL 130 Comparative Religions: Oriental /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Exploration of Hinduism, Buddhism, Zoroastrianism, Confucianism, Taoism, Shintoism and Zen Buddhism through readings, discussions and movies. Christianity is compared through discussions.

**REL 140 Philosophy of Religion /3 cr. hrs./3 periods (3 lec.)**

Same as PHI 140.

**RESPIRATORY THERAPY**

**RTH 171 Introduction to Respiratory Care /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: 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.)**

□Prerequisites: RTH 171 and 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.)**

□Prerequisites: 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 182 Respiratory Physiology /4 cr. hrs./4 periods (4 lec.)**

□Prerequisites: BIO 160 and 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: 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)**

□Prerequisites: RTH 173, 182, and 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: 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.)**

□Prerequisites: RTH 173, 182 and 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)**

□Prerequisites: 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.)**

□Prerequisites: 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)**

□Prerequisites: RTH 173, 182 and 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)**

□Prerequisites: 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: 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 FOOD MANAGEMENT****RCF 100 Basic Foodservice Skills /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: 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: 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: 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: 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: RCF 103 or concurrent enrollment.

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: 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: 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: 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.)**

□Prerequisites: 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: 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.

**RCF 201 Catering and Banquet Sales and Management /3 cr. hrs./ 3 periods (3 lec.)**

□Prerequisites: RCF 101 and/or one year's experience working in the hospitality-tourism industry.

Techniques of food preparation and service as applied to catering and banquet operations and management.

## ROBOTICS

**ROB 270 Robotics and Automated Systems: Mechanical /4 cr. hrs./ 5 periods (3 lec., 2 lab)**

Same as MAC 270.

**ROB 271 Programmable Logic Controllers /4 cr. hrs./5 periods (3 lec., 2 lab)**

Same as MAC 271.

## RUSSIAN

**RUS 110 Elementary Russian I /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: None.

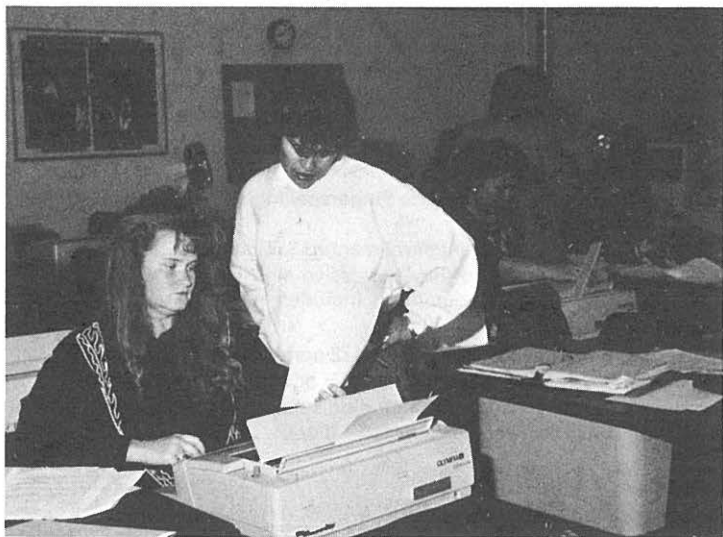
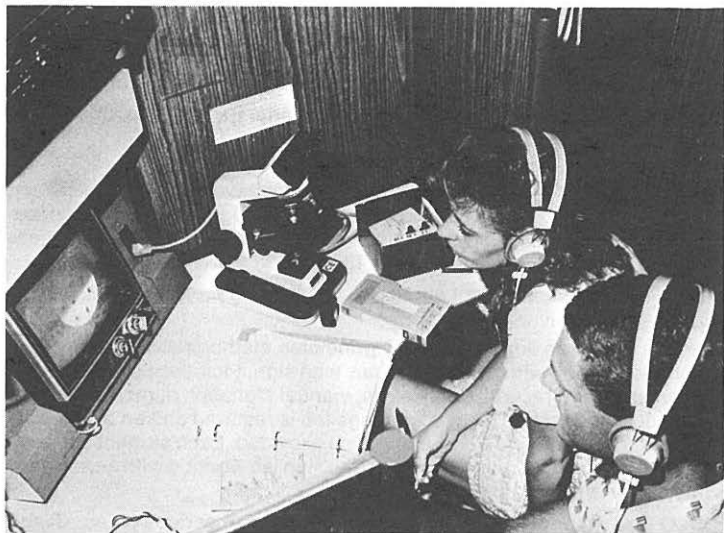
Introduction to the Russian language. Designed to provide proficiency in basic communication (listening, speaking, reading and writing). Emphasis on Russian cultural traditions.

**RUS 111 Elementary Russian II /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: 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 090 Driving Training /3 cr. hrs./4 periods (2 lec., 2 lab)**

□Prerequisite: None.

Fundamentals of safe driving. Includes Arizona law and defensive driving techniques. Students spend their laboratory periods under the supervision of a licensed instructor.

**SED 101 Lift Truck Operations /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisite: 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.

**SHEET METAL****SML 101 Sheet Metal and Pattern Layout I /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: 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: 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: 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: 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: SLG 050.

Conversational sign language skills. Includes intermediate vocabulary, deaf culture, and other signing modes of communicating with the deaf.

**SLG 100 The Community and the Exceptional Person /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Examination of handicapping conditions, including major physical and mental handicaps and the effect of handicapping conditions on educational and social development. Also includes field trips, agency visitations and guest speakers. (Same as ITP 100.)

**SLG 101 American Sign Language I /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: None.

Level I American Sign Language: principles, methods and techniques for communicating with deaf individuals who sign. Includes development of expressive and receptive sign skills, manual alphabet, numbers and sign vocabulary. Practice in sign language lab is required and an overview of syntax, grammar and culture of ASL is provided. Each student spends a minimum of three hours per week in the sign lab working with an assigned instructor and/or tutor.

**SLG 102 American Sign Language II /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: SLG 101.

Level II American Sign Language: knowledge and language skills for communicating with deaf individuals who sign. Includes sign vocabulary, numbers, fingerspelling and culture. Emphasis is placed on enhancement of receptive sign skills and further development of expressive sign skills. Application of rudimentary syntactical and grammatical structure is stressed along with expansion of sign vocabulary. Each student spends a minimum of three hours per week in the sign lab working with an assigned instructor and/or tutor.

**SLG 105 Expressive/Receptive Fingerspelling and Numbers /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: Concurrent enrollment in SLG 101 or 102.

Refinement of receptive and expressive sign language skills with the manual alphabet and numbers. Includes methodology, theory and application. (Same as ITP 105.)

**SLG 106 Fingerspelling II /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: Completion of SLG 105 or consent of instructor.

Advanced skill development including speed, dexterity, clarity and loan signs in the receptive and expressive modes.

**SLG 120 History of Deafness /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Status of deaf individuals in Western cultures from early civilizations to the present. Includes treatment, education and 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: 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: 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: SLG 102.

Level three American Sign Language. Includes idioms, sign language linguistics, body language and non-manual sign language communication. Emphasis is placed on practical application of ASL signing skills, vocabulary expansion, cultural knowledge and cross cultural communication. Each student spends a minimum of three hours per week in the sign lab working with an assigned instructor and/or tutor. (Same as ITP 201.)

**SLG 202 American Sign Language IV /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: SLG 201.

Level four American Sign Language. Continued expansion of sign vocabulary, sharpening of fingerspelling and number skills is stressed. Emphasis is placed on conversational techniques and skills in ASL in a cross-cultural framework. Review and instruction of linguistical knowledge of ASL is continued. Each student spends a minimum of three hours per week in the sign lab working with an assigned instructor and/or tutor. (Same as ITP 202.)

**SOCIAL SERVICES****SSE 115 Drugs in American Society /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

General introduction to the current drug situation in the United States. Includes philosophical exploration of drug use, interpretation within the social context, physical and psychological effects of drugs and review of current drug programs and research.

**SSE 116 Introduction to Alcohol Abuse /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introduction to past and present use and abuse of alcohol, including identification and treatment of the abuser and alcoholic. Emphasis on treatment alternatives and resources available to abusers, alcoholics and their family members.

**SSE 127 Political and Legal Aspects of Drug Use /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Overview of the political and legal aspects of drug use and abuse, both current and historical. Emphasis on the influence of political pressure, economics, civil liberties, court decisions and current thinking affecting drug use.

**SSE 133 Introduction to Social Welfare /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introduction to the social welfare system: what it is, has been and may become nationally and locally. Emphasis on local community agencies and resources, welfare policies and case histories.

**SSE 134 Casework Methods I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Theory and practice of casework within the context of the Southwest. Includes interviewing, case history and review and development of helping relationships. Case examples from various social service settings are examined.

**SSE 135 Group Work /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Examination of group dynamics. Includes development of skills in group development and functioning, such as leadership, decision making and problem solving. Emphasis on experiential learning. Case examples are observed and discussed.

**SSE 138 Domestic Violence: Causes and Cures /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

A survey of historical and contemporary causes of domestic violence. Five abused populations will be examined: spouse, sibling, adult child-to-parent, children and victims of dating violence. Diagnosis, prevention and treatment of domestic violence will be presented. Identification of and need for treatment programs are examined.

**SSE 140 Gerontology: Casework Practice /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Practice casework skills with special emphasis on serving the elderly. Case management emphasizing intake, referral, mental status, care

planning and communication within a professional team setting. Additional focus will be on the wellness of elders living in the community.

**SSE 141 Aging-Health & Physiology /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Fundamental health and physiology of the elderly. Enables the student to recognize health problems and make appropriate referrals. Includes disabilities, nutrition, medication/drugs, chronicity, sensory loss and other aspects of the normal aging process.

**SSE 199 Co-op Related Class in SSE /1 cr. hr./1 period (1 lec.)**

□Prerequisites: SSE 133 and 134.

Introduction to cooperative education: social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

**SSE 199 Co-op Work in SSE /3 cr. hrs./15 periods (15 lab)**

□Prerequisites: SSE 133 and 134.

A supervised cooperative work program for students in an occupation related to their program of study.

**SSE 199 Co-op Work in Gerontology /3 cr. hrs./15 periods (15 lab)**

□Prerequisites: SSE 140; concurrent enrollment in SSE 199 Co-op Related Class in SSE.

Supervised placement in a gerontologic social service setting.

**SSE 216 Community Organization and Development /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: SSE 133.

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 218 Treatment of the Drug Abuser /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Principles and techniques of treating the drug abuser. Includes the following methods of treatment: therapeutic communities, day care programs, methadone maintenance, detoxification and psychotherapy.

**SSE 234 Casework Methods II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: SSE 134.

Advanced techniques in interviewing, case recording and evaluation of client situations. Students participate in interview sessions.

**SSE 236 Crisis Intervention, Theory and Techniques /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: SSE 134.

Basic principles and practice of crisis intervention. Includes techniques of intervention, referrals and diagnosis utilized in resolving crisis situations encountered in social services.

**SSE 237 Group Technique Applications /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: SSE 135.

Continuation of SSE 135. Further experience and skill development in analyzing, working in and facilitating groups using major group approaches. Students use groups in the community as case examples.

**SSE 290 Social Services Field Experience /3 cr. hrs./15 periods (15 lab)**

□Prerequisites: SSE 134 and consent of instructor.

Supervised placement in community social services agencies so that students gain experience in the delivery of social services. In class seminars, students discuss pertinent theory and issues raised through the field experience. May be taken two times for a maximum of six credit hours.

**SSE 298 Topics in Community Involvement /3 cr. hrs./3 periods (3 lec.)**

Same as SOC 298.

**SSE 299 Co-op Related Class in SSE /1 cr. hr./1 period (1 lec.)**

□Prerequisites: SSE 199 Co-op Work in SSE.

Preparation of job related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

**SSE 299 Co-op Work in SSE /3 cr. hrs./15 periods (15 lab)**

□Prerequisites: SSE 199 Co-op Work in SSE.

A supervised work program for students in an occupation related to their program of study.

**SSE 299 Co-op Work in Gerontology /3 cr. hrs./15 periods (15 lab)**

□Prerequisite: SSE 199 Co-op Work in Gerontology.

A continuation of SSE 199. In depth working-relations with the elderly within a supervised placement.

## SOCIOLOGY

**SOC 101 Introduction to Sociology /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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 115 Human Sexuality /3 cr. hrs./3 periods (3 lec.)**

Same as PSY 115.

**SOC 127 Marriage and the Family /3 cr. hrs./3 periods (3 lec.)**

Same as HEC 127.

**SOC 120 Current United States Social Problems /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 166 Social Gerontology I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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: None.

Same as PSY 215.

**SOC 289 Individual Studies in Sociology /3-6 cr. hrs/3-6 periods (3-6 lec.)**

□Prerequisite: Consent of instructor.

Exploration of special interest areas. Content to be determined by conference between student and instructor.

**SOC 298 Topics in Community Involvement /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: Consent of instructor.

Direct, constructive student involvement in community problems. Students work individually or in small teams through guidance and periodic consultations with faculty advisors. Special activities also will 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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: 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 *Llueve Tlaloc*, the bilingual literary magazine.

**SPA 206 Creative Literature II / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 *Llueve Tlaloc*, the bilingual literary magazine.

**SPA 210 Intermediate Spanish I / 4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: 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: 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.)**

□Prerequisites: 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.)**

□Prerequisites: SPA 102 and 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 Language /1-4 cr. hrs./1-4 periods (1-4 lec.)**

□ Prerequisite: Consent of instructor.

Independent Spanish readings or other projects under the supervision of an instructor. May be taken four times for a maximum of 16 credit hours.

## **SPEECH COMMUNICATION**

**SPE 102 Introduction to Oral Communication /3 cr. hrs./3 periods (3 lec.)**

□ Prerequisite: None.

Introduction to basic concepts and skills of oral communication in interpersonal and public address situations. Includes communication barriers, research techniques and norms of speech delivery.

**SPE 105 Voice and Diction /2 cr. hrs./2 periods (2 lec.)**

□ Prerequisite: None.

Training in basic voice production. Includes speech and personality, the physiological system, and general speech standards.

**SPE 110 Public Speaking /3 cr. hrs./3 periods (3 lec.)**

□ Prerequisite: None.

Training in public speaking. Includes reading and speech assignments focusing on research, organization, logic, analysis and delivery as techniques of audience adaptation.

**SPE 120 Business and Professional Communication /3 cr. hrs./3 periods (3 lec.)**

□ Prerequisite: None.

Training in communication situations and problems within the organizational complex. Includes oral reports, interviewing, problem solving, conference groups, listening and persuasion.

**SPE 124 Argumentation and Debate /3 cr. hrs./3 periods (3 lec.)**

□ Prerequisite: 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: None.

Individualized instruction and practice in speech competition skills. Includes debate, oral interpretation, and persuasive, extemporaneous and impromptu speaking. Each student must participate in at least one

intercollegiate speech tournament. 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: None.

Study and training in group participation and leadership, the nature, use and function of group discussion, problem-solving groups, norms of group interaction and group relations.

**SPE 136 Oral Interpretation of Literature /3 cr. hrs./3 periods (3 lec.)**

□ Prerequisite: None.

Training in the oral presentation of literature. Includes analysis techniques, use of voice and body, role of the interpreter, characterization, literary conventions and oral interpretation modes.

**SPE 149 Independent Study in Speech /1-4 cr. hrs./1-4 periods (1-4 lec.)**

□ Prerequisite: Six credit hours in speech.

Under individual guidance of an instructor, students research some aspect of communication not available through regular course offerings such as nonverbal communication, communication theory, mass media, rhetorical criticism, etc.

## **TECHNICAL ILLUSTRATION**

**TIL 100 Applied Computer Graphics /3 cr. hrs./5 periods (2 lec., 3 lab)**

Same as ADA 100.

**TIL 102 Technical Illustration I /4 cr. hrs./6 periods (3 lec., 3 lab)**

□ Prerequisites: DFT 101, 150, and TIL 100.

Drawing techniques and use of specialized instruments in producing technical illustrations.

**TIL 103 Visual Arts Production /3 cr. hrs./5 periods (2 lec., 3 lab)**

□ Prerequisite: ADA 211 or concurrent enrollment.

Technical art for sales presentations and technical manuals. Includes flip charts, overhead transparency production, camera-ready copy for printing and 35 mm slide production.

## **TOHONO O'ODHAM**

**THO 050 Conversational Tohono O'Odham I /4 cr. hrs./4 periods (4 lec.)**

□ Prerequisite: 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: THO 050 or equivalent.

Designed for persons able to ask and respond to simple questions relevant to self and to the environment.

**TOTAL QUALITY MANAGEMENT****TQM 100 Introduction to Total Quality Management /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: MTH 070 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: 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: 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: 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: 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: 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: Consent of instructor.

Customized credit course for current quality management topics in manufacturing, services and the health related industries.

**TRAFFIC MANAGEMENT****TTM 101 Fundamentals of Transportation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Domestic freight and passenger transportation systems, and the role played by the users, carriers and government. Includes the most significant changes and historical trends in transportation, present systems, supply and demand, shipper problems, regulatory systems and transportation policy. Provides the minimum transportation background necessary for general business activity in the transportation industry.

**TTM 102 Economics of Transportation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Development of the economic and philosophic bases of transportation as

a regulated industry. Includes a critical analysis of the impact of regulatory decisions on managerial options.

**TTM 104 Rates and Tariffs /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

In-depth study of transportation costs and freight rates. Includes the following topics relating to rates and tariffs: economic and legal aspects, regulation, application, terminology and structures.

**TTM 201 Principles of Air Transportation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introduction to the commercial airline industry, its managerial practices and regulatory policies. Includes historical developments, industry structure, economics, marketing, finance, aircraft selection, scheduling, labor relations, route regulations, pricing, international aviation, and regulatory policies and procedures.

**TTM 202 Principles of Motor Transportation /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Managerial and economic aspects of motor transportation as conducted under the auspices of state and federal regulations. Includes highways and highway financing, labor, management and operations, administration of claims, insurance and rates, federal regulations and passenger operations.

**TTM 204 Physical Distribution Management /3 cr. hrs./3 periods (3 lec.)**

Same as MKT 150 and PIM 150. (See MKT 150 for course description.)

## TRAINING FOR SPECIAL EDUCATION

**TSE 105 Techniques for Working with Developmentally-Disabled People / 2 cr. hrs./3 periods (1 lec., 2 lab)**

□Prerequisite: 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: 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: 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 130 Techniques for Teaching Multiple Handicapped /3 cr. hrs./ 3 periods (3 lec.)**

□Prerequisite: None.

Teaching techniques and related practices designed to minimize the disabilities of persons with multiple handicaps. 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: None.

Major theories of personality development and methods of changing inappropriate behavior. Major theories include Clinical Behavior Modification and Adlerian Psychology.

**TSE 142 Special Speech and Language Techniques /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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 155 Issues in Special Education /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Exploration of current issues and trends in special education which impact the education of special needs students.

**TSE 238 Characteristics of Learning Disabilities /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 the Mentally Handicapped Student / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Prescribed techniques, materials and procedures for teaching the mentally handicapped. Designed for para-professionals who assist teachers of mentally handicapped students.

**TSE 245 The Young Handicapped Child / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

The cause, characteristics, and intervention techniques associated with pre-school handicapped children (ages 0-6). Emphasis on the identification and educational programming of the handicapped child, and on the prevention and prognosis of handicapping conditions in young children.

**TSE 250 Classroom Communication Skills / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Development and application of communication skills for improved interpersonal relations in the classroom. Includes interpersonal communication processes and patterns, evaluating interpersonal communication skills and application of techniques for promoting effective interpersonal communication skills.

**TSE 255 Behavior Disorders in the Classroom / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Overview of techniques and procedures for teaching behavior-disordered students. Includes evaluation strategies and intervention models for managing behaviors.

**TSE 265 Adaptive Technology in Special Education / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 Principles of the Travel/Tourism Industry / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Overview of the industry, including modes, motives and effects of travel/tourism and examination of specific duties performed by a variety of specialists.

**TVL 102 Travel Agent Methods and Procedures / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: TVL 101 or concurrent enrollment.

Examination of the duties of a travel agent. Includes booking procedures for hotels, cruises, tours and all modes of transportation. Also includes the use of ARC Travel Agent Handbook, Official Airline Guide (OAG), other airline guides and practical experiences in ticketing procedures.

**TVL 103 Geography for Travel Agents / 3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Examination of the geography and major tourist destinations of the 50 states, Canada, Mexico, the Caribbean and other international locations. Includes capitals, major airports, distance and time zones, major attractions and passport/currency regulations.

**TVL 105 Airline Reservation System I / 4 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: None.

Principles and techniques of an airline computer reservation system. Includes motivational and customer service training, sales techniques, using an online computerized reservation system to create, change and cancel an itinerary, quote fares and travel restrictions and accept passengers for travel. Also includes application of domestic and international travel.

**TVL 110 Airline Reservation System II / 4 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: TVL 105.

Continuation of TVL 105. Includes using an online computerized reservation system to ticket, build passenger records, order meals, rent cars, check baggage, accept pets for travel, and utilization of the frequent flier program.

**TVL 115 Airline Reservation System III / 4 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: TVL 110.

Continuation of TVL 110. Includes travel agency booking, phone system, paging procedures, manual fallback reservation procedures, and using an online computerized reservation system to access prepaid ticket advice, flight and passenger information, cloning and non-revenue travel.

**TVL 120 Airline Reservation System IV / 1 cr. hr./3 periods (1 lec., 2 lab)**

□Prerequisite: TVL 115.

Continuation of TVL 115. Includes sales techniques practicum and application of an online computerized reservation system.

**TVL 199 Co-op Related Class in TVL / 1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: 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 201 Travel Industry Applications /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: TVL 102.

Continuation of the duties of a travel agent. Includes sales actions, financing, recordkeeping, credit, airline requirements and development of ethical relations with the traveling public.

**TVL 202 Travel Industry Computer Applications /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: TVL 201 or concurrent enrollment.

Practical applications of computers in the travel industry. Includes practice in resolving current problems within the travel/tourism business, airline computer reservation systems, and automatic ticketing.

**TVL 211 Tour Group Development, Sales and Management /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: 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 299 Co-op Related Class in TVL /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: 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 110 Combination Welding /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Techniques and related information in arc and oxyacetylene welding. Arc welding component includes safety, power sources, welding currents,

electrodes and flat position welding. Oxyacetylene welding component includes safety, proper handling of cylinders and gases, regulators, torches, filler rods, and flat and vertical position welding.

**WLD 115 Blueprint Reading /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Interpretation of blueprints as applied to the welding trade. Includes welding symbols and their significance.

**WLD 118 Structural Steel Estimating /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: WLD 115, and MTH 060 or concurrent enrollment.

Steel construction 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 150 Oxyacetylene Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisite: None.

Setup and operation of oxyacetylene welding equipment. Includes flat, horizontal, vertical, and overhead welding techniques on standard alloys of steel; and brazing and soldering techniques on ferrous and nonferrous metals and their alloys.

**WLD 160 Arc Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisite: None.

Principles and techniques of joining metals by electric arc with the use of the electrode. Includes current electrodes and other equipment, joint preparation and basic procedures for welding in all positions with all types of electrodes.

**WLD 161 Plate Certification Welding /2 cr. hrs./4 periods (1 lec., 3 lab)**

□Prerequisites: 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 170 Ornamental Iron /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisites: WLD 110, or 150 and 160, and MTH 060.

Introduction to artistic ornamental iron fabrication. Includes joint design and assembly, structural shapes, accessories and installation, grinding and finishing, and basic scroll design.

**WLD 180 Metal Fabrication I /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisite: WLD 170.

Application of basic metal fabrication. Includes arched, double and roll gates; stair railing; metal doors; and codes, licensing, and liabilities.

**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)**

□Prerequisites: WLD 150, 160 and SML 101.

Principles and techniques of pipe welding. Includes flame cutting pipe, beveling pipe, welding various pipe joints, tack welding miter joints and flange welding. Also includes preparation for plate and pipe certification.

**WLD 260 Inert Gas Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisite: WLD 110, or 150 and 160.

Principles and techniques of tungsten inert gas (TIG) welding (heli-arc) and metal inert gas (MIG) welding. Includes proper control settings, proper manipulation of TIG and MIG torch, and welding in all positions on ferrous and nonferrous metals.

**WLD 261 Gas Metal Arc Welding /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisites: WLD 150 and 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)**

□Prerequisites: WLD 150 and 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 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: 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: None.

Training in the fundamental skills, including grammar, usage, organization and development. May be taken in preparation for WRT 100, 101 or 150, or for personal improvement.

**WRT 070A Developmental Writing: Basic Skills /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: ESL 084 or satisfactory score on the writing assessment test.

Basic skills in the use of sentences, paragraphs, grammar, punctuation and spelling. Equivalent to WRT 070. Includes idiomatic expressions and problems common to non-native speakers of English. Utilizes methodologies appropriate for international students. Designed to prepare international students for WRT 106.



**WRT 077 Paragraphs /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: WRT 070 or satisfactory score on writing assessment test. Review of sentence structure, mechanics and usage, paragraph development and short essay organization. Designed to prepare students for WRT 101.

**WRT 100A Sentence Development /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: WRT 100A.

Improvement of skills in writing various types of paragraphs. Includes practice in developing appropriate topic sentences, supporting ideas, clear transitions and coherence.

**WRT 100C Essay Development /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: WRT 100 or satisfactory score on writing assessment test. Introduction to the 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: 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: 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: 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: WRT 101.

Continuation of WRT 101. Practice in writing longer and more analytical compositions, including a research paper or annotated papers. Readings as a basis for writing may include fiction, poetry, drama or nonfiction.

**WRT 106 Writing Fundamentals for International Students /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: WRT 075 or satisfactory score on the writing assessment test.

Review of sentence structure, paragraph development and organization of short essays. Equivalent to WRT 100. Includes reading and analysis of prose models and work on other English fundamentals as required. Emphasis on revising for clarity, coherence and organization. Utilizes methodologies appropriate for international students. Designed to prepare international students for WRT 107.

**WRT 107 Writing I for International Students /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: WRT 106 or satisfactory score on the writing assessment test.

The first semester freshman composition course, designed for international students. (Equivalent to WRT 101.) Introduction to the principles of good writing with emphasis on the technique and practice of narration, description, explanation and argumentation. Includes the writing process, paragraph and essay writing and reading and analysis of prose models. Utilizes methodologies appropriate for international students. Designed to prepare international students for WRT 108.

**WRT 108 Writing II for International Students /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: WRT 107.

Continuation of WRT 107. The second-semester freshman composition course, designed for international students. (Equivalent to WRT 102.) Practice in writing longer, more analytical compositions, including a research paper or annotated papers. Reading as a basis for writing may include nonfiction, fiction, drama and poetry. Emphasis on critical thinking. Utilizes methodologies appropriate for international students.

**WRT 109 Analyzing Syntax /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: None.

Techniques of poetry writing. May be taken three times for a total of nine credit hours.

**WRT 126 Short Story Writing /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Techniques of writing short fiction. May be taken three times for a total of nine credit hours.

**WRT 150 Practical Communications /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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 course be taken for credit for two consecutive semesters.

**WRT 180 The Story of English /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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 205 Poetry Writing /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: WRT 101 and 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 total of nine credit hours.

**WRT 206 Short Story Writing /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: WRT 101 and 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 total of nine credit hours.

**WRT 207 Sophomore Composition /3 cr. hrs./3 periods (3 lec.)**

□Prerequisites: WRT 101 and 102 with grade of C or better.

A second-year course offering extensive practice in exposition and critical analyses. Narrative may be included.

**WRT 215 Advanced Poetry Writing /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: Consent of instructor.

Advanced techniques of fiction writing. Includes writing, critiquing and revising original fiction and preparing manuscripts for publication. This course may be taken four times for a maximum of 12 credit hours.

**WRT 254 Technical Communications II /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: 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: 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)**

□Prerequisites: WRT 101 and 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: 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: 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 total of six credit hours.

**YOUTH CARE**

**YCA 163 Introduction to Youth Care /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: 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: 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: YCA 163.

Building positive relationships with youth in alternative care settings.

**YCA 263B Problem-Solving Methods /1 cr. hr./1 period (1 lec.)**

□Prerequisite: YCA 163.

Problem-solving methods applicable to youth care situations.

**YCA 263C Observing and Recording Methods /1 cr. hr./1 period (1 lec.)**

□Prerequisite: 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: 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: 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: 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: 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: 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.)

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| CRP 112 | Concrete Formwork: Bridge Pier Column /1 cr. hr./<br>1 period (1 lec.)               |
| CRP 113 | Concrete Formwork: Flatwork /1 cr. hr./1 period (1 lec.)                             |
| CRP 114 | Concrete Formwork: Culverts, Headwall and Wingwalls /<br>1 cr. hr./1 period (1 lec.) |
| CRP 115 | Concrete Formwork: Concrete Wall Blockouts /1 cr. hr./<br>1 period (1 lec.)          |
| CRP 116 | Concrete Formwork: Gang Forms /1 cr. hr./1 period<br>(1 lec.)                        |
| CRP 117 | Concrete Formwork: Retaining Wall Footing Form /<br>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./<br>1 period (1 lec.)         |
| CRP 120 | Framing: Floor Joist /1 cr. hr./1 period (1 lec.)                                    |
| CRP 121 | Framing: Gable Roof /1 cr. hr./1 period (1 lec.)                                     |
| CRP 122 | Framing: Hip Roof /1 cr. hr./1 period (1 lec.)                                       |
| CRP 123 | Framing: Intersecting Roof /1 cr. hr./1 period (1 lec.)                              |
| CRP 124 | Framing: Wood Stairs /1 cr. hr./1 period (1 lec.)                                    |
| CRP 125 | Framing: Framing Square /1 cr. hr./1 period (1 lec.)                                 |
| CRP 126 | Framing: Advanced Framing Square Application /1 cr. hr./<br>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<br>(1 lec.)                  |
| CRP 131 | Interior Finish: Standard Door Installation /1 cr. hr./<br>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<br>(1 lec.)                  |
| CRP 137 | Interior Systems: Dry Wall Application /1 cr. hr./1 period<br>(1 lec.)               |
| CRP 138 | Interior Systems: Dry Wall Estimation of Material /<br>1 cr. hr./1 period (1 lec.)   |
| CRP 139 | Interior Systems: Suspended Lay-in Ceiling /1 cr. hr./<br>1 period (1 lec.)          |

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| CRP 150 | Carpentry History: Tools and Materials /5 cr. hrs./<br>6 periods (4 lec., 2 lab)     |
| CRP 151 | Carpentry: Foundations and Forms /5 cr. hrs./6 periods<br>(4 lec., 2 lab)            |
| CRP 152 | Carpentry: Exterior Finish /5 cr. hr./6 periods (4 lec., 2 lab)                      |
| CRP 153 | Reinforced Concrete and Heavy Construction /5 cr. hrs./<br>6 periods (4 lec., 2 lab) |
| CRP 154 | Carpentry: Interior Finish /5 cr. hrs./6 periods (4 lec.,<br>2 lab)                  |
| CRP 155 | Carpentry: Roof Framing /5 cr. hrs./6 periods (4 lec.,<br>2 lab)                     |
| CRP 156 | Carpentry: Stair Building /5 cr. hrs./6 periods (4 lec.,<br>2 lab)                   |
| CRP 157 | Blueprint Reading and Estimating /5 cr. hrs./6 periods<br>(4 lec., 2 lab)            |

#### **CUSTODIAL DEVELOPMENT**

|         |   |
|---------|---|
| CUA 101 | Custodial Development I: Chemicals and Equipment Used<br>in Cleaning /1 cr. hr./1 period (1 lec.)     |
| CUA 102 | Custodial Development I: Area Cleaning Techniques /<br>1 cr. hr./1 period (1 lec.)                    |
| CUA 103 | Custodial Development I: Safety and Floor Care /1 cr. hr./<br>1 period (1 lec.)                       |
| CUA 104 | Custodial Development I: Floor Coverings /1 cr. hr./<br>1 period (1 lec.)                             |
| CUA 105 | Custodial Development I: Floor Cleaning Techniques /<br>1 cr. hr./1 period (1 lec.)                   |
| CUA 106 | Custodial Development I: Carpet Cleaning Techniques /<br>1 cr. hr./1 period (1 lec.)                  |
| CUA 201 | Custodial Development II: Furniture Cleaning Techniques /<br>1 cr. hr./1 period (1 lec.)              |
| CUA 202 | Custodial Development II: Special Area Cleaning<br>Techniques /1 cr. hr./1 period (1 lec.)            |
| CUA 203 | Custodial Development II: Employee Relations /1 cr. hr./<br>1 period (1 lec.)                         |
| CUA 204 | Custodial Development II: Custodial Scheduling /1 cr. hr./<br>1 period (1 lec.)                       |
| CUA 205 | Custodial Development II: Supervisory Skills /1 cr. hr./<br>1 period (1 lec.)                         |
| CUA 206 | Custodial Development II: Housekeeping Standards and<br>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.)           |

### 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.)      |
| 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)

**FABRICATION**

- FAB 101 Mechanical Calibration Inspection Techniques /4 cr. hrs./6 periods (2 lec., 4 lab)

**MACHINE TOOL**

- 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 126 Tool and Cutter Grinding II /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 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 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 201 Direct Digital Controllers /3 cr. hrs./5 periods (2 lec., 3 lab)
- MNT 238 Electrical Transformers I /4 cr. hrs./6 periods (3 lec., 3 lab)
- 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)

**MICROELECTRONICS**

- MRE 104 Introduction to Microelectronics /3 cr. hrs./3 periods (3 lec.)

## INDUSTRIAL CONTINUING EDUCATION TRAINING

- 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 105 Silkscreening on Circuit Boards /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)

### 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)

# Governance & Faculty



## State Board of Directors for Community Colleges of Arizona

|   |      |
|---|------|
| Chairman: Dr. John R. Potts, Navajo County      | 1993 |
| Vice Chairman: Gary L. Watson, Mohave County    | 1994 |
| Secretary: Fred A. Dunsmore, Cochise County     | 1995 |
| Treasurer: Mary Kuzell-Babbitt, Coconino County | 1996 |

### Members:

|   |      |
|---|------|
| Apache County, Dr. Robert J. McKenzie                       | 1998 |
| Gila County, Josephine Quesada-Alvarez                      | 1996 |
| Graham County, Gherald L. Hoopes, Sr.                       | 1995 |
| Greenlee County, Peggy Crotts                               | 1992 |
| La Paz County, Grace Francis                                | 1991 |
| Maricopa County, James A. Ullman                            | 1997 |
| Pima County, Robert L. Gugino                               | 1998 |
| Pinal County, Rita A. Nader                                 | 1992 |
| Santa Cruz County, George H. Uribe                          | 1993 |
| Yavapai County, Dr. Joseph Russo                            | 1997 |
| Yuma County, Dr. Richard Whitaker                           | 1994 |
| State Superintendent of Public Instruction: C. Diane Bishop |      |
| State Director of Vocational Education: Richard Condit      |      |
| State Board of Regents member: Eddie Basha                  |      |

## Pima County Community College District Board of Governors

|                        |                       |
|------------------------|-----------------------|
| Dr. Theodore H. Koff   | District 1, Jan. 1997 |
| Katharina Richter      | District 2, Jan. 1997 |
| Steven T. Darak        | District 3, Jan. 1995 |
| John R. Even           | District 4, Jan. 1993 |
| Marie Christine Molina | District 5, Jan. 1995 |

## District Administration

### Office of the Chancellor

**Johnas F. Hockaday, Chancellor**  
 B.S.—Atlantic Christian University  
 M.A.—East Carolina University  
 Ph.D.—Duke University

### Krista Neis, Assistant to the Chancellor for Community Relations

B.A.—University of Arizona

**Joseph E. Nevin, Executive Director,  
Pima Community College Foundation**  
 B.S.—University of Montana

### 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

**Carol A. Gorsuch, Vice Chancellor**  
 B.A.—University of Arizona  
 M.A.—University of Arizona

### Robert K. Baker, Assistant Vice Chancellor for Information Services

B.A.—California State University, Northridge  
 M.A.—University of California, Los Angeles  
 M.L.S.—University of California, Los Angeles

### John Gabusi, Assistant Vice Chancellor for Economic Development

B.A.—University of Arizona

### Jean Dowdy, Assistant Vice Chancellor for Human Resources

B.A.—Gustavus Adolphus College

### Ignacio A. Garcia, Assistant Vice Chancellor for Academic Affairs

A.A.—College of the Sequoias  
 B.A.—Fresno State College  
 J.D.—Loyola University

**Lee H. Grishman, Assistant Vice Chancellor  
for Student Services**

B.A.—Brigham Young University  
M.A.—Yale University  
A.M.—Columbia University  
Ed.D.—Columbia University

**R. Clifford Leftwich, Special Assistant to the Vice Chancellor  
for Public Policy and Special Projects**

B.A.—Indiana University  
M.P.A.—Harvard University

**Henry Oyama, Special Assistant to the Vice Chancellor  
for Multidisciplinary Educational Services**

B.A.—University of Arizona  
M.Ed.—University of Arizona

**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

**Eva Yañez, Director of Minority Education**

B.S.—University of Arizona  
M.A.—University of Arizona

## West Campus

**Wesley E. Soderquist, Provost**

B.S.—Illinois Institute of Technology  
M.B.A.—University of Chicago  
Ed.D.—Loyola University

**J. Graham Smart, Dean of Instruction**

B.S.—Appalachian State University  
M.A.—Appalachian State University

**Denis Viri, Acting District Director  
of Admissions/Registrar**

A.A.—College of San Mateo  
B.A.—San Francisco State University  
M.Ed.—University of Arizona  
Ph.D.—University of Arizona

**Elizabeth Gonzalez, Dean  
of Student Affairs**

B.A.—University of Arizona  
M.Ed.—University of Arizona  
Ed.D.—University of Arizona

**Carl C. Wachsman, Associate Dean,  
Arts Division**

B.S.—Dickinson State College  
M.A.—Arizona State University

**Mike B. Curry, Acting Associate Dean  
Business, Computer and Human Sciences Division**

B.S.—Wheeling College  
M.M.—Utah State College

**Lucy A. Brajevich, Associate Dean,  
Health Related Professions**

B.S.—Northern Arizona University  
M.Ed.—University of Arizona

**Kenneth E. McColester, Associate Dean,  
Mathematics and Sciences Division**

B.S.—Rollins College  
M.S.—North Carolina State University  
Ph.D.—University of Arizona

**Michael S. Engs, Associate Dean  
of Student Affairs**

B.A.—College of William and Mary  
M.Ed.—University of Arizona

**Joan Gilbert, Director,  
Nursing Program**

B.S.N.—Skidmore College  
M.A.—New York University

**Larry Toledo, Director,  
Athletics/Community Recreation Program**

B.A.—California Western University  
M.Ed.—University of Arizona

## Downtown Campus

**Miguel Palacios, Provost**

B.A.—University of Arizona  
M.A.—University of Arizona  
Ph.D.—University of Arizona



**Kenneth B. White, Dean  
of Instruction**

B.A.—California State University, Chico  
M.A.—Florida State University  
Ph.D.—University of Arizona

**Barbara Ganz, Dean  
of Student Affairs**

B.A.—Arizona State University  
M.A.—Arizona State University

**Kathleen S. White, Associate Dean  
of Arts and Sciences**

B.A.—University of Utah  
M.A.—University of Utah  
M.A.—University of Arizona  
Ph.D.—University of Arizona

**Ralph L. Wahrer, Associate Dean  
of Occupational Education**

B.A.—Iowa Wesleyan College  
M.A.—University of Iowa  
Ph.D.—University of Iowa

**Francisco Z. Fernandez, Associate Dean of Student Affairs**

B.A.—University of Arizona  
M.Ed.—University of Arizona

## Community Campus

**Jana Kooi, Provost**

B.A.—Calvin College  
M.A.—Western Michigan University

**Carl R. Webb, Dean  
of Instruction**

B.S.—U.S. Naval Academy  
M.A.—University of California at Los Angeles

**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 Affairs**

A.A.—Pima Community College  
B.S.—University of Arizona  
M.S.—University of Arizona

**Ben P. Jacobs, Director  
Instructional Telecommunications**

B.F.A.—University of Arizona  
M.Ed.—University of Arizona

**Sally Wantland, Director  
of Community Services**

B.S.—Indiana State University

## East Campus

**Mary Lou Ferrer Schmidt, Provost**

B.A.—Washington State University  
M.Ed.—Washington State University  
Ed.D.—Seattle University

**Stanley P. Witt, Dean of Instruction**

B.A.—University of Arizona  
M.A.—University of Arizona  
Ph.D.—University of Arizona

**Alfred B. Montes, Dean of Student Affairs**

B.A.—Arizona State University  
M.A.—Arizona State University

**Thomas E. Hines, Associate Dean  
of Instruction**

B.A.—Thiel College  
M.S.—Miami University  
Ph.D.—University of Northern Colorado

**Director (Vacant)**

**Arizona State Environmental Technology Training Center**

## Education Center-South

**Edward Acuña, Vice Provost**

B.S.—University of Arizona  
M.Ed.—University of Arizona

**Angela Zerdavis, Dean  
of Educational Services**

Certificate—Beijing Normal University  
B.A.—University of Illinois  
M.A.—California State University  
Ed.D.—Brigham Young University

**Mary Hammann, Dean  
of the Skill Center**

# Pima Community College Faculty

## **Javier Alcaraz, Spanish-French (1978)**

B.A.—Montezuma Pontifical College  
M.A.—Universidad Jaime Balmes  
M.Ed.—St. Mary's College

## **Minnie Almader, Counselor (1990)**

B.S.—University of Arizona  
M.Ed.—University of Arizona  
Ed.S.—University of Nevada

## **Delfina Alvarez, Counselor (1971)**

B.A.—University of Arizona  
M.Ed.—University of Arizona

## **Barbara M. Anderson, Office Education (1970)**

A.A.—Cochise College  
B.S.—University of Arizona  
M.Ed.—University of Arizona

## **Jo Anne Anderson, Office Education (1977)**

B.A.—Arizona State University  
M.Ed.—University of Arizona

## **Emily Andujo, Dental Hygiene Education (1991)**

A.A.—California State University, Los Angeles  
B.S.—California State University, Los Angeles  
M.S.—California State University, Los Angeles

## **Cynthia P. Arcala, Nursing (1988)**

B.S.N.—Philippine Women's University  
M.S.—University of Michigan

## **Cynthia A. Arem, Counselor (1975)**

B.A.—City University of New York  
M.S.—City University of New York  
Ph.D.—University of Arizona

## **Barbara C. Armenta, Mathematics (1991)**

A.A.—Pima Community College  
B.A.—University of Pennsylvania  
M.Ed.—University of Arizona

## **G. Elisabet 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 Barnes, Counselor (1974)**

B.A.—Cedar Crest College  
M.A.—Seton Hall University  
M.Ed.—University of Arizona

## **Stewart Barr, Humanities and Philosophy (1986)**

B.A.—University of Arizona  
M.A.—University of Arizona

## **Marie Barrentine, Nursing (1990)**

B.S.N.—State University of New York at Plattsburgh  
M.R.C.—Arkansas State University  
M.S.N.—University of Colorado Health Science Center

## **Tori Basford, Computer Science (1978)**

BSEE—University of Texas  
MSEE—New York University  
Ph.D.—Columbia University

## **Dan Beeson, Electronics (1985)**

B.S.—Southeast Missouri State University

## **Robert P. Beitz, Counselor (1979)**

A.S.—Mercer County Community College  
B.A.—University of Arizona  
M.Ed.—University of Arizona

## **Philip Bellomo, Ceramics (1975)**

B.F.A.—University of Arizona  
M.F.A.—University of Arizona

## **Theria M. Beverly, Reading (1975)**

B.A.—Clark College  
M.Ed.—University of Arizona  
Ed.D.—University of Sarasota

## **Kathy Blicharz, Computer Science (1982)**

A.A.S.—Pima Community College

## **Lynn G. Bonner, Speech (1971)**

B.A.—Western Michigan University  
M.A.—Western Michigan University  
M.A.—Northern Arizona University

## **Sam Borah, Mathematics (1987)**

B.S.—Hardin-Simmons University  
M.A.—Appalachian State Teachers College

**Aristeo Brito, Jr., Spanish (1970)**

B.A.—Sul Ross State College  
M.A.—University of Arizona  
Ph.D.—University of Arizona

**Fé Carol Brittain, Languages (1977)**

B.A.—Florida State University  
M.A.—Middlebury College  
Ph.D.—University of Arizona

**Dillard Broderick, Computer Science (1974)**

B.S.—Brigham Young University  
M.S.—Brigham Young University  
Ph.D.—Arizona State University

**Richard Brodesky, Writing (1978)**

B.A.—Brandeis University  
M.A.—Harvard University  
Ph.D.—Harvard University

**Louise F. Bronson, Psychology and Sociology (1969)**

B.A.—University of Rochester  
M.A.—University of Florida  
Ph.D.—University of Arizona

**Otis F. Bronson, Writing, Humanities and Art (1969)**

B.S.—University of Florida  
M.A.—University of Florida

**Cynthia Brown, Nursing (1980)**

B.S.N.—Catholic University  
M.S.—University of Arizona

**Gigi Brown, Design (1990)**

B.S.—University of Arizona

**David K. Bruce, Administration of Justice (1975)**

B.S.—Central Missouri State University  
M.S.—California State University of San Jose

**Nancy Buchanan, Librarian (1974)**

B.A.—University of Arizona  
M.L.S.—University of Arizona  
M.A.—University of Arizona

**Ellyn Bulikowski, Nursing (1991)**

B.S.N.—University of Massachusetts  
M.S.N.—Emory University

**Nicholas C. Busch, Biology (1969)**

B.A.—Sonoma State College

**Fred Bustamante, Humanities (1990)**

B.A.—University of Arizona  
M.A.—University of Arizona

**Ellen C. Caldwell, Mathematics (1983)**

B.A.—Randolph Macon Woman's College  
M.S.—University of Arizona

**Colin E. Campbell, Biology (1970)**

B.S.—University of Arizona  
Ph.D.—University of Arizona

**Jefferson Carter, Writing (1977)**

B.A.—Pomona College  
M.A.—University of Arizona  
Ph.D.—University of Arizona

**P. Michael Carter, Respiratory Therapy (1977)**

B.A.—University of Arizona  
Registered Respiratory Therapist (RRT)

**Guadalupe Castillo, History (1991)**

B.A.—University of Arizona  
M.A.—University of Arizona

**Neil D. Catone, Electronics (1983)**

BSEE—University of Hawaii  
M.A.—Northern Arizona University

**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  
M.A.—Arizona State University

**Kenneth R. Chiaro, Political Science and History (1975)**

B.A.—University of Arizona  
M.A.—University of Arizona  
Ph.D.—University of Arizona

**Carolyn C. Christian, Office Education (1976)**

B.S.—Bowling Green State University  
M.A.—Ball State University

**Christine P. Clifford, Biology (1975)**

B.A.—Bowling Green State University  
M.S.—University of Colorado

**John Clifford, Automotive (1974)**

B.Ed.—Colorado State University

**Robert C. Coleman, Computer Science (1985)**

B.S.—University of Arizona  
M.P.A.—University of Arizona

**Martha Connolly, Reading (1990)**

B.S.—University of Dayton  
M.Ed.—University of Arizona

**Alan Coons, Mathematics (1983)**

B.S.—Northern Arizona University  
M.S.—Northern Arizona University  
M.B.A.—University of Arizona

**Joseph D. Cortez, Mathematics (1975)**

B.S.—University of Arizona  
Ed.D.—University of Denver

**Ronald D. Crabtree, Humanities (1970)**

B.A.—Washington University  
M.A.—Washington University

**Barbara Crowley, Dental Assisting Education (1975)**

B.A.—University of Arizona  
M.Ed.—University of Arizona

**Michael B. Curry, Mathematics (1970)**

B.S.—Wheeling College  
M.M.—Utah State University

**Arnold Davidson, Writing (1978)**

B.A.—Emporia State University  
M.A.—Emporia State University  
Ed.S.—University of South Dakota  
Ph.D.—Florida State University

**Daniel Davidson, Physics (1971)**

B.S.—University of Rochester  
Ph.D.—University of Arizona

**June F. Davidson, Counselor (1981)**

B.S.—University of Rochester  
M.Ed.—University of Arizona  
Ph.D.—University of Arizona

**Patricia J. Davis, Writing and Literature (1971)**

B.A.—University of Texas  
M.A.—University of Wisconsin  
Ph.D.—University of Wisconsin

**Francisco Delgado, Landscape Technology (1991)**

B.S.—Chihuahua, Mexico  
M.S.—University of Arizona

**Frank L. Deits, Electronics (1982)**

**Robert C. Douglas, Dental Laboratory Technology (1975)**  
Certified Dental Technician

**Allan E. Doyle, Accounting and Business (1977)**

B.A.—John Hopkins University  
M.B.A.—New York University  
M.A.—University of Arizona  
Certified Public Accountant

**Edward M. Duperret, Counselor (1970)**

B.A.—Seton Hall University  
M.A.—New York University  
M.Ed.—University of Arizona

**Susan Jo Eavey, Nursing (1985)**

B.S.N.—Lake Superior State College  
M.S.N.—University of Arizona

**Roggie Edberg, Counselor (1989)**

B.A.—Mills College  
M.Ed.—University of Arizona

**Mary E. Elasowich, Nursing (1975)**

R.N.—St. Vincent's Hospital School of Nursing  
B.A.—University of Massachusetts  
B.S.N.—University of Phoenix  
M.A.—Assumption College

**Michael Enis, Welding (1970)**

Welder's Certificate, Engineers Testing Laboratory  
A.A.—Pima Community College

**Ruben C. Estrada, Management and Marketing (1979)**

B.S.—University of Arizona  
M.B.A.—University of Arizona

**Donald W. Evans, Drama (1990)**

B.A.—Southern Illinois University  
M.F.A.—University of Arizona

**Philip Evans, Counselor (1990)**

B.A.—University of Arizona  
B.A.—University of Arizona  
M.Ed.—University of Arizona

**Brad Fiero, Biology (1990)**

B.S.—Colorado State University  
M.S.—Oregon State University  
D.Arts—Idaho State University

**Maria Luisa Figueroa, Spanish and ESL (1979)**

B.A.—University of Arizona  
M.A.—Southern Illinois University  
M.A.—University of Arizona

**Margaret Files, Writing (1987)**

B.A.—University of Illinois  
M.A.—University of Illinois

**Georgeanne Fimbres, Home Economics (1971)**

B.A.—University of Arizona

M.A.—University of Arizona

**Susan S. Finch, Computer Science (1969)**

B.S.—University of California at Los Angeles

M.B.A.—University of Arizona

**Teresa Fiske, Computer Science (1990)**

B.S.—Colorado State University

B.S.—University of Arizona

**Rita Flattley, Faculty Resources and Educational Development (1991)**

A.A.—Pima Community College

B.A.—University of Arizona

M.Ed.—University of Arizona

**Joyce Flieger, Dental Hygiene Education (1991)**

B.S.—University of Southern California

M.A.—University of Michigan

**D. Joan Forbes, Radiologic Technology (1974)**

RT (ARRT)—St. Cloud Hospital

B.S.—Creighton University

Registered Radiologic Technologist (ARRT)

**Sally J. Ford, Fitness and Sport Sciences (1989)**

B.A.—McKendree College

M.S.—Eastern University

**Richard H. Fridena, Social Services (1981)**

B.A.—University of Arizona

M.S.W.—Arizona State University

**Margaret Fried, Nursing (1982)**

B.S.N.—College of St. Teresa

M.A.—University of Washington

**Richard Frontain, Writing (1976)**

B.A.—Iona College

M.Ed.—University of Arizona

**Sotero V. Fuentevilla, Accounting (1970)**

B.A.—University of Havana

M.S.—University of Havana

**M. Beverley Furlow, Writing (1978)**

A.B.—University of Chattanooga

M.S.—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

**Rosemary Garcia, Sociology, Business,  
and Administration of Justice (1972)**

B.A.—University of California

M.A.—University of California

J.D.—Loyola University

**Ken Gardiner, Advertising Art (1976)**

B.A.—California State College

**Richard Garner, Electronics (1982)**

A.A.S.—Pima Community College

**Barbara M. Garrett, Counselor (1975)**

B.A.—Sonoma State College

M.A.—California State University, San Francisco

**Daniel P. Giaquinto, Radiologic Technology (1970)**

Diploma—Rochester General Hospital

Registered Radiologic Technologist (ARRT)

Registered Radiotherapy Technologist (ARRT)

B.S.—Northern Arizona University

**James R. Goff, Physics and Astronomy (1971)**

B.A.—Nebraska Wesleyan University

M.S.—Case Western Reserve University

**Bonnie Golden, Counselor (1987)**

A.A.—Southwest College

B.S.—University of Illinois

M.Ed.—University of Arizona

**C. Barclay Goldsmith, Drama and Writing (1970)**

B.A.—Stanford University

M.F.A.—Carnegie-Mellon University

**Raquel Rubio-Goldsmith, History (1970)**

M.M.L.—National University of Mexico

**Allan S. Goodman, Physics (1973)**

B.S.—Polytechnic Institute of Brooklyn

M.Ed.—University of Arizona

M.S.—University of Arizona

Ph.D.—University of Arizona

**Robert Gordon, Mathematics (1971)**

B.S.—University of New Mexico

M.A.—University of Arizona

**Donald A. Graham, Writing and Humanities (1971)**

B.A.—Yale University

M.A.—University of California

M. Phil.—Yale University

**Gretchen Graham, Librarian (1990)**  
B.A.—University of Nevada, Las Vegas  
B.A.—Eastern Washington University  
M.Lib.—University of Washington

**Lisa Grenier, Mathematics (1979)**  
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)**  
B.A.—Prescott College  
Federal Aviation Administration Certifications AP, I.A., D.M.E.  
Aviation Technician, Northrup Institute of Technology

**Guadalupe Gutierrez, Nursing (1989)**  
B.S.—University of Arizona

**Ysidro L. Gutierrez, Drafting (1970)**  
B.S.—Northern Arizona University

**Clare T. Hamlet, Computer Science (1971)**  
B.A.—University of Arizona  
M.Ed.—University of Arizona

**Benjamin Hankey, Music (1978)**  
A.A.—Iowa Lakes Community College  
B.M.—University of Iowa  
M.M.—University of Arizona

**Roxanne Harley, Counselor (1980)**  
B.A.—Grand Valley State University  
M.Ed.—University of Arizona

**Paul W. Harlos, Counselor (1989)**  
B.S.—University of Wisconsin, LaCrosse  
M.Ed.—University of Arizona

**Betty Harris, Art (1977)**  
B.S.—Pratt University  
M.F.A.—University of Arizona

**Clinton Harrold, Business (1987)**  
B.A.—University of Arizona  
Certified Public Accountant

**Louise S. Haugh, Reading (1970)**  
B.A.—University of Kentucky  
M.Ed.—University of Arizona  
Ed.D.—Brigham Young University

**Donald Hayes, Astronomy (1991)**  
B.A.—Pomona  
M.A.—University of California  
Ph.D.—University of California

**Lester G. Hays, Computer Science (1968)**  
B.S.—Washington University  
M.Ed.—University of Arizona

**Mickey Hoffman, Mathematics (1991)**  
B.A.—University of Arizona  
B.A.—University of Arizona  
M.A.—University of Arizona

**Margaret A. Holleman, Library Services (1976)**  
A.A.—St. Petersburg Junior College  
B.A.—University of South Florida  
M.A.—Arizona State University  
M.L.S.—University of Arizona

**Mark S. Homan, Social Services (1978)**  
B.A.—University of Arizona  
M.S.W.—Arizona State University

**James Homewood, Mathematics (1988)**  
B.A.—University of Oregon  
B.S.—Portland State University  
M.S.—Portland State University

**Pamela Horch, Dental Assisting Education (1989)**  
B.S.—Northern Arizona University

**Ann W. Houck, Computer Science (1982)**  
A.A.S.—Pima Community College

**Patricia Hruby, Physics and Astronomy (1969)**  
B.S.—College of Mt. St. Vincent  
M.S.T.—Cornell University

**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

**Madeleine Irell, Reading (1979)**  
B.A.—University of Arizona  
M.Ed.—University of Arizona



**Roger D. Irwin, Sociology, Psychology and Religion (1970)**

B.A.—University of Wichita  
M.S.—Kansas State College  
Ph.D.—Paideia  
Ed.D.—Brigham Young University  
F.S.A. Scot.—Society of Antiquaries of Scotland

**Kathryn 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

**Robert D. Jameson, Computer Science (1978)**

B.B.A.—University of Miami  
M.B.A.—University of Miami

**John Jarchow, Drafting (1978)**

B.Arch.—University of Arizona  
Registered Architect

**Susan Jensen, Mathematics (1992)**

B. Math.—University of Minnesota  
M.Ed.—University of Minnesota

**Joseph Jimenez, Administration of Justice (1989)**

B.S.—Fresno State University  
M.S.—Fresno State University

**Karl B. Johnson, Librarian (1977)**

B.A.—University of Arizona  
M.A.—University of Denver  
Ph.D.—Arizona State University

**Paul C. Johnson, Biology (1975)**

B.A.—University of Iowa  
M.S.—University of Iowa

**Philip E. Johnson, Management and Professional Development (1970)**

B.S.—University of Maine  
M.S.—Penn State University  
M.Ed.—University of Maine  
Ph.D.—University of Arizona

**T. Wendell Johnson, Chemistry (1978)**

B.S.—Oklahoma State University  
M.S.T.—University of Arizona

**Mary Ann Jones, Biology (1991)**

B.A.—University of Arizona  
M.S.—Texas Tech University

**Mary Ann Jordan, Pharmacy Technology (1990)**

B.S.—University of Colorado

**Sharon Jordan-Sita, Counseling (1992)**

A.A.—Pima Community College  
B.A.—Prescott College  
M.A.—Vermont College of Norwich University

**Sandra Keith, Librarian (1982)**

A.A.—Pima Community College  
B.A.—University of Arizona  
M.L.S.—University of Arizona

**Margaret Kenski, Political Science (1969)**

B.S.—Georgetown University  
Ph.D.—Georgetown University

**Julia King, Counselor (1989)**

B.S.—Purdue University  
M.Ed.—University of Arizona

**M. Brian King, Drafting (1983)**

B.Arch.—University of Arizona  
Registered Architect

**James R. Kluger, History (1975)**

B.A.—St. Ambrose College  
M.A.—University of Arizona  
Ph.D.—University of Arizona

**Cecilia V. Knauss, Literature and Writing (1976)**

B.A.—Silliman University  
M.A.—Silliman University

**James L. Knight, Writing (1991)**

A.A.—Corning Community College  
B.A.—Amherst College  
M.Ed.—University of Massachusetts

**Victor H. Krebs, German and Humanities (1970)**

B.A.—University of Arizona  
M.A.—University of Arizona

**Alan K. Krieg, Automotive (1971)**

B.S.—University of Arizona

**Alan E. Kruse, Chemistry (1974)**

B.S.—Massachusetts Institute of Technology  
M.S.—Iowa State University

**Joseph Labuda, Library (1990)**

B.A.—University of New York, Plattsburgh  
M.L.S.—University of Arizona

**Charles A. Land, Mathematics (1978)**

B.S.—Morehouse College  
M.Ed.—University of Arizona

**Charlotte Langford, Writing (1990)**

B.A.—University of New Mexico  
M.A.—University of Arizona

**Kathryn Larch, Humanities (1989)**

B.A.—University of Arizona  
M.A.—University of Arizona

**Michael Leeming, Business (1990)**

A.A.S.—Westchester Community College  
B.E.E.—Union College  
M.S.—University of Vermont  
Ph.D.—University of Arizona

**Moses A. Leon, Administration of Justice (1970)**

A.A.—San Jose City College  
B.A.—San Jose State College  
M.S.—California State University, San Jose

**Jean M. Lindeberg, Biology (1974)**

B.S.—Montana State University  
M.S.—University of Arizona

**JoAnn B. Little, Writing and Humanities (1976)**

B.A.—University of Arizona  
M.Ed.—University of Arizona

**Charles S. Lochner, Jr., Chemistry (1969)**

B.S.—New Jersey State College  
M.S.T.—University of Arizona  
M.S.—Colorado State University

**Cynthia Danielson-Lowe, Fitness & Sport Sciences (1990)**

B.S.—Salem College  
M.S.—Cortland State University

**James A. Lowell, Biology (1969)**

B.S.—University of Arizona  
M.S.—University of Arizona  
Ph.D.—University of Arizona

**Linda Lynn, Economics, Business (1989)**

B.S.—University of Arizona  
M.A.—Indiana University  
M.B.A.—University of Arizona

**Paul Malanga, Writing (1987)**

B.A.—University of Arizona  
M.A.—University of Arizona

**Adolfo Marquez, Welding (1976)**

Welder's Certificate, Engineers Testing Laboratory  
A.A.—Pima Community College

**Daniel J. Martin, Jr., Geology (1969)**

B.S.—Colorado State University  
M.Ed.—University of Florida  
M.A.—University of California

**William Martin, Mathematics (1984)**

B.A.—Western Michigan University  
M.S.—Western Michigan University

**Evelyn Martinez, Counselor (1989)**

B.A.—University of Arizona  
M.Ed.—George Mason University

**Darla J. Masterson, Art (1970)**

B.F.A.—University of Arizona  
M.A.—University of Arizona  
M.F.A.—Indiana University

**Shelley Maxfield, Biology (1982)**

B.S.—Central State University  
M.S.—University of Arizona

**David May, Mathematics (1971)**

B.S.—University of Arizona  
M.A.—University of Arizona

**Mark J. McCabe, Counselor (1984)**

B.A.—Michigan State University  
M.Ed.—University of Arizona

**John McClain, Environmental Technology (1983)**

B.S.—Northern Michigan University  
M.S.—University of Arizona

**Larry W. McHolland, Humanities and Philosophy (1971)**

B.A.—University of Arizona  
M.A.—University of Arizona

**Gary E. Mechler, Astronomy (1984)**

B.S.—University of Pittsburgh  
M.S.—Case Western Reserve University  
Ph.D.—Case Western Reserve University

**Mary M. Memedova, Political Science (1975)**

B.A.—Wayne State University  
M.A.—Wayne State University

**Lillian Meriwether, Sign Language (1990)**

B.S.—East Texas State University  
M.S.—University of Arizona

**John B. Mertes, Graphics Technology (1990)**

B.A.—Arizona State University  
M.A.—Arizona State University

**Louise A. Meyer, Writing and Literature (1970)**

B.S.—St. Louis University  
M.A.—University of Minnesota

**James M. Mielke, Fitness and Sport Sciences (1978)**

B.S.—University of Arizona  
M.Ed.—University of Arizona

**Tommie Miller, Social Services (1989)**

B.A.—Ohio State University  
M.S.W.—Arizona State University  
M.A.—University of Cincinnati  
M.Ed.—University of Cincinnati

**Myrna Mitchell, Mathematics (1976)**

B.S.—Anderson College  
M.S.—University of Arizona  
Ph.D.—University of Arizona

**Pat Monroe, Counselor (1991)**

B.S.W.—University of Wisconsin  
M.S.W.—University of Kansas

**Grace H. Montez, Office Education (1971)**

B.S.—University of Arizona  
M.Ed.—University of Arizona

**Ronald F. Moody, Electronics (1980)**

A.A.—Pima Community College  
A.A.S.—Pima Community College  
B.S.—Northern Arizona University  
M.A.—Northern Arizona University  
NARTE, Engineering Certification, Senior Member

**Becky J. Moore, Assistant Catalog Librarian (1972)**

B.A.—University of Arizona  
M.Ed.—University of Arizona

**Joseph T. Mucenski, Machine Tool Technology (1986)**

A.A.S.—Nassau Community College  
A.A.S.—Pima Community College  
B.S.—New York Institute of Technology

**Mary E. Mullin, Office Education (1970)**

B.Ed.—Plymouth State College  
M.Ed.—Boston University

**Maureen A. Murphy, Fitness and Sport Sciences (1971)**

B.S.—University of Wisconsin  
M.Ed.—University of Arizona

**Timothy C. Murphy, Educational Development (1974)**

B.S.E.—Western Illinois University  
M.S.E.—Eastern Illinois University

**Ann Simmons-Myers, Art (1991)**

B.A.—Ohio State University  
M.F.A.—University of Arizona

**Richard E. Newton, Accounting (1975)**

B.S.—University of Wisconsin  
M.S.—University of Arizona

**Robert Nixon, Marketing and Management (1981)**

B.S.—University of Pittsburgh  
M.S.—Ohio State - Air Force Institute  
M.B.A.—University of Phoenix

**Keray F. Nouri, International Student Advisor (1978)**

A.A.—Suffolk County Community College  
B.A.—State University of New York  
M.A.—Arizona State University

**Joy Pritchard O'Donnell, Legal Assistant Studies (1990)**

A.A.—Pima Community College  
B.A.—Prescott College

**Mary Kay Olsen, Anthropology (1989)**

B.A.—Bryn Mawr College  
M.A.—University of California, San Diego  
Ph.D.—University of California, San Diego

**Ernest A. Oppenheimer, Psychology (1968)**

B.A.—Amherst College  
M.B.A.—New York University  
Ph.D.—Columbia University

**Jacqueline Joy Oshun, Writing (1989)**

B.A.—Howard University  
M.A.—American University

**Ali Ouarzeddini, Mathematics (1992)**

B.S.—Clarkson University  
M.S.—University of Arizona

**William Pagnotta, Computer Science (1982)**

A.G.S.—Pima Community College

**Claire Campbell Park, Art (1978)**

B.A.—Scripps College  
M.A.—University of California at Los Angeles  
M.F.A.—University of California at Los Angeles

**Lou Ann Pate, Mathematics (1982)**

B.A.—University of Michigan  
M.Ed.—University of Arizona

**Richard A. Patze, Jr., Respiratory Therapy (1982)**

BSBA—University of Arizona

**Mauro G. Peralta, Electronics (1971)**

B.S.—Northern Arizona University

**Eileen Perry, Music (1981)**

B.M.—University of Arizona

M.M.—University of Arizona

**Kurt L. Peterson, Computer Science (1988)**

B.S./B.A.—Oregon State University

M.B.A.—University of Arizona

M.S.—University of Arizona

**Norbert Pittner, Mathematics (1969)**

B.A.—University of California

M.A.—San Francisco State College

**Anthony Pitucco, Physics (1973)**

B.S.—University of Arizona

M.Ed.—University of Arizona

M.S.—University of Arizona

Ph.D.—University of Arizona

**David G. Poedel, Emergency Medical Technology (1975)**

A.A.—Pima Community College

B.S.—University of Arizona

EMT—Paramedic, Arizona Department of Health Services

M.Ed.—University of Arizona

**Nancy A. Powell, Legal Assistant Studies (1987)**

B.S.—University of Arizona

J.D.—University of Arizona

**Ernest U. Quiroga, American Indian Studies (1991)**

B.A.—University of California

M.A.—University of Arizona

**Steven Rankin, Writing and Literature (1970)**

B.A.—Washington University

M.A.—University of Arizona

M.A.T.—Washington University

**William Reynolds, Emergency Medical Technology (1978)**

A.A.—Pima Community College

**Vincent J. Riggs, Spanish (1988)**

B.A.—Colorado State College

M.A.—University of Arizona

**Marianne Ritter, Spanish (1992)**

B.A.—University of Arizona

M.A.—New York University

M.A.—University of Arizona

**Frank Rizzuto, Chemistry (1976)**

B.S.—University of Utah

Ph.D.—University of Utah

**Donald Roberts, Business (1982)**

B.A.—University of Nebraska

M.S.—George Washington University

**Irma J. Rodriguez, Office Education (1982)**

B.A.—University of Arizona

M.Ed.—University of Arizona

**Stephen Romaniello, Advertising Art (1990)**

B.F.A.—University of Arizona

**Ernest P. Rubi, Reading (1970)**

B.S.—Arizona State University

**JoAnn Rust, Fitness and Sport Sciences (1981)**

B.S.—University of Utah

M.S.—University of Arizona

**Mehdi Sadatmousavi, Mathematics (1988)**

B.S.—University of Arizona

M.S.—University of Arizona

**Edward Sadler, Nursing (1991)**

B.S.—Memphis State University

B.S.N.—University of Tennessee

M.S.—Texas Woman's University College of Nursing

**Catherine Sanchez, Chemistry (1990)**

B.S.—Northern Arizona University

M.A.—Northern Arizona University

**Arlene W. Scadron, Journalism (1986)**

B.A.—University of California, Berkeley

M.A.—University of California, Berkeley

M.A.—University of Arizona

Ph.D.—University of California, Berkeley

**Steven Schneider, Psychology (1972)**

B.A.—University of Arizona

M.Ed.—University of Arizona

M.B.A.—University of Arizona

**Duke Schoonmaker, Environmental Science (1992)**

B.S.—Northern Arizona University

M.S.—Northern Arizona University

**S. Daniel Schwartz, Sociology and Anthropology (1976)**

A.A.—Mercer County Community College

B.A.—California State University at Los Angeles

M.A.—California State University at Los Angeles

M.P.H.—University of California, Berkeley

**Leland Scott, Counselor (1969)**

A.B.—University of Southern California  
B.D.—Garrett Theological Seminary  
Ph.D.—Yale Graduate School

**Margaret Sexton-Isaac, Nursing (1991)**

B.S.N.—Georgetown University  
M.A.—Columbia University  
Ed.D.—Northern Arizona University

**Douglas Shakel, Geology (1978)**

B.S.—California Institute of Technology  
M.S.—University of Arizona

**Donna Shay, Nursing (1991)**

B.S.N.—University of Arizona  
M.S.N.—University of Arizona

**Hazel Y. Shee, Office Education (1971)**

B.S.—University of Arizona  
M.Ed.—University of Arizona

**Anne Shelden, Mathematics (1990)**

B.A.—Goddard College  
M.A.—University of Arizona

**James E. Sherman, Engineering (1971)**

B.S.—Wisconsin Institute of Technology  
M.S.—University of Arizona

**Michael T. Sita, Literature and Writing (1969)**

B.S.—California State Polytechnic College  
M.A.—Loyola University  
Ph.D.—Arizona State University

**Ernest L. Smith, Counselor (1976)**

B.S.—University of Pittsburgh  
M.Ed.—University of Illinois  
M.Ed.—University of Arizona

**Julia Solomon, Nursing (1991)**

B.A.—University of Massachusetts  
B.S.N.—University of North Carolina  
M.S.—University of Arizona

**Larry J. Solomon, Music (1973)**

B.A.—Allegheny College  
M.M.—University of Illinois  
Ph.D.—West Virginia University

**Raymond E. Sparks, Business/Marketing (1975)**

B.S.—Northwestern State University  
M.S.—Northwestern State University

**Thomas M. Speer, Writing (1992)**

B.A.—California State University  
M.A.—San Francisco State University

**Carol Spencer, Reading (1986)**

B.A.—University of Arizona  
M.A.—University of Arizona

**Joseph V. Spitler, Jr., Mathematics (1984)**

B.S.—Virginia Military Institute  
M.S.—University of Arizona  
M.A.—Pepperdine University

**Camille Stallings, Hospitality Education (1990)**

B.S.—University of Illinois

**David Stephen, Anthropology (1975)**

A.A.—Long Beach City College  
B.A.—California State University  
M.A.—University of Arizona

**Arlene D. Stevens, ESL (1971)**

A.A.—Queensborough Community College  
B.A.—Hunter College  
M.A.—University of Arizona

**Pete Stogsdill, Aviation Technology (1991)**

A.A.—Pima Community College

**Joseph L. Swaffar, Economics (1973)**

B.A.—University of Missouri  
M.A.—University of California

**Harold Symms, Music (1975)**

B.A.—Arizona State University  
M.M.—Arizona State University

**Louis Taber, Electronics (1985)**

B.S.E.E.—University of Arizona  
M.S.—San Jose State University

**Nard N. Taiz, Writing (1970)**

B.A.—University of Arizona  
M.A.—University of Arizona

**Donna Tang, Multidisciplinary Educational Services (1974)**

B.A.—Boston University  
M.L.S.—University of Arizona  
M.S.—University of Arizona

**Agustin Taylor, Spanish (1987)**

B.A.—University of Southern Illinois

**Stella Tetar, Fitness and Sport Sciences (1970)**

A.A.—Kendall College  
B.S.—Northwestern University  
M.Ed.—University of Arizona

**Mary A. Tindall, Advisor, Student Development (1972)**

B.S.—University of Arizona  
M.Ed.—University of Arizona  
M.S.N.—University of Arizona

**Charlotte Ann Tousley, Writing (1992)**

B.S.—Northwestern University  
M.A.—San Francisco State University

**Francine B. Trotter, Business, Marketing (1977)**

B.S.—University of Arizona  
M.S.—University of Arizona

**Patricia J. Tuntland, Psychology (1971)**

B.A.—Concordia College  
M.A.—University of Arizona

**Virginia R. Turner, Home Economics (1971)**

B.S.—Bennett College  
M.Ed.—Wayne State University

**Ronald T. Tyler, ESL and Writing (1976)**

B.A.—University of California  
M.A.—University of Arizona  
M.A.—University of California  
Ph.D.—University of Nevada

**Yone F. Van Olphen, ESL, Reading, and Writing (1970)**

B.A.—San Jose State College  
M.A.—Arizona State University

**Manuel Velez, Writing (1970)**

B.A.—University of Arizona  
M.A.—University of Arizona

**Marie Vergata, Counselor (1981)**

B.S.—Adelphi University  
M.Ed.—University of Arizona  
Ed.D.—University of Arizona

**Laurence J. Victor, Psychology (1974)**

B.S.—Rensselaer Polytechnic Institute  
M.S.—University of Chicago  
Ph.D.—Yale University  
Ph.D.—University of Minnesota

**Nadia Villalobos, Office Education (1970)**

B.A.—University of Arizona  
M.Ed.—University of Arizona

**Nancy B. Wall, Writing (1970)**

B.A.—Colorado State University  
M.A.—University of Arizona

**Stephen A. Wallace, Humanities (1977)**

B.S.—Georgetown University  
M.A.—University of Arizona

**Susan R. Wallace, Advising Coordinator (1991)**

B.A.—University of Arizona  
M.Ed.—University of Arizona

**Eugene J. Wanat, Jr., Ophthalmic Dispensing (1979)**

A.A.S.—Ecti County Technical College  
National Academy of Ophthalmics  
B.S.—State University College at Buffalo

**Pearlye Warner, Data Entry (1978)**

A.G.S.—Pima Community College

**Arleigh B. Watkins, Early Childhood Education (1971)**

P.S.C.—Toronto Teacher's College  
B.A.—University of Arizona  
M.Ed.—University of Arizona

**Sou-Pen Wei, Computer Sciences (1989)**

B.A.—National Taiwan University  
M.S.—National Taiwan University  
M.S.—University of Arizona  
Ph.D.—University of Arizona

**George R. Welch, Art (1971)**

B.S.—Central State University  
M.S.—Bank Street College of Education

**Sharon L. Welch, Accounting, Business, Office Education (1970)**

B.S.—University of Arizona  
M.Ed.—University of Arizona  
Certified Professional Secretary

**Paul J. Welsh, Mathematics (1976)**

B.S.—John Carroll University  
M.S.—University of Notre Dame  
Ph.D.—University of Notre Dame

**Bruce Weng, Sociology (1978)**

B.S.—Central Michigan University  
M.A.—Central Michigan University  
M.S.S.W.—University of Wisconsin  
M.S.—University of Arizona

**Roger Werbylo, Mathematics (1989)**

B.S.—University of Arizona  
M.G.D.—University of Arizona



**James P. Wesselmann, Engineering and Mathematics (1972)**

B.S.—University of Arizona

M.A.—University of Arizona

M.Ed.—University of Arizona

**Alice White, Librarian (1976)**

B.A.—George Williams College

M.L.S.—Texas Woman's University

**Shirley P. Wicklund, Librarian (1970)**

B.A.—Moorhead State College

M.S.—Florida State University

**Carol Williams, Office Education (1983)**

B.S.—Indiana University

M.Ed.—University of Arizona

**David L. Wing, Media Communication (1984)**

B.F.A.—University of Arizona

M.F.A.—University of Arizona

**Renee Wroten, Radiologic Technology (1991)**

B.S.—Northern Arizona University

M.A.—Northern Arizona University

**Deborah P. Yoklic, Mathematics (1983)**

B.A.—Brandeis University

M.A.—University of Arizona

**Donna Yoder, Office Education (1978)**

B.A.—Goshen College

M.A.—University of Northern Colorado

**Mary A. Zimmer, Nursing (1976)**

B.S.—College of St. Catherine's

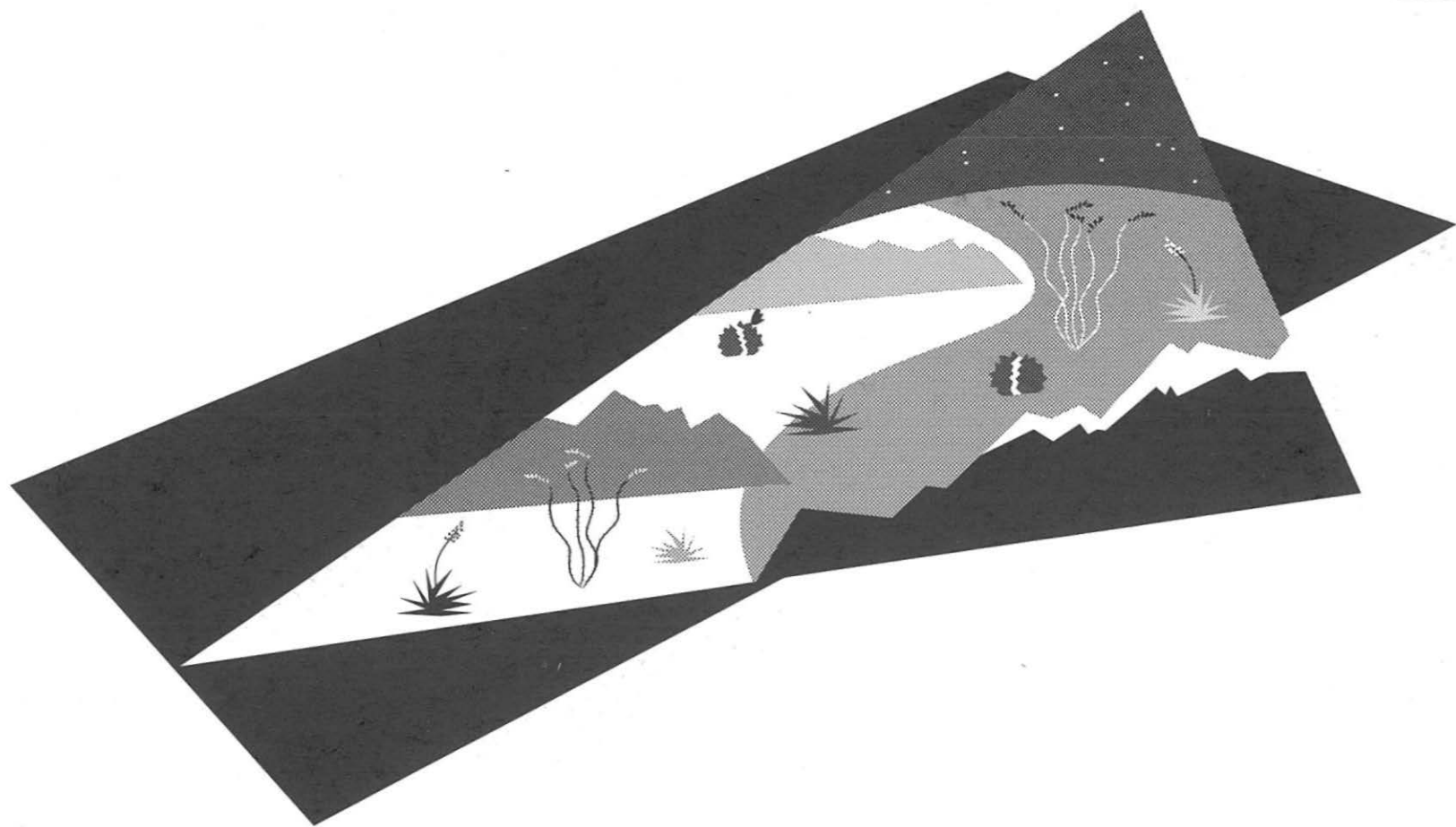
**Tamas D. Zsitvay, Political Science and Public Administration (1970)**

B.A.—Arizona State University

M.A.—Arizona State University

Ph.D.—University of Arizona

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#### **Affirmative Action and Equal Educational/Employment Opportunity**

The Board of Governors of Pima County Community College District has affirmed that the College is an equal educational opportunity institution. In support of this commitment, the Board of Governors has authorized and directed the Chancellor to implement regulations and procedures to facilitate opportunity for equal access to, retention in, and completion of College educational programs. The College has policies (see "Board Policies") relative to nondiscrimination on the basis of sex, race, religion, color, national origin, age, Vietnam Era veterans' status and/or disability, or handicapping condition. Such policies apply to all educational programs, services, activities, and facilities, and include, but are not limited to, student admissions, applications, access to programs/classes/services, financial aid, and employment. Such discrimination is prohibited by Titles VI and VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Sections 503 (793) and 504 (794) of the Rehabilitation Act of 1973, the Vietnam Veterans Readjustment Acts of 1972 and 1974 as amended in 1988, the Age Discrimination Act of 1967 as amended in 1978 and 1986, and other federal and state statutes, executive orders, and regulations.

For further information regarding the implementation of the requirements of the above-mentioned laws, statutes, and regulations, or for information about the College's affirmative action/equal employment opportunity policies/procedures/programs contact the Equal Employment Opportunity/ Affirmative Action Office, District Service Center, 200 N. Stone Avenue, Tucson, Arizona 85702.

**Curriculum**

|                            |                         |
|----------------------------|-------------------------|
| Iris Weisman               | Curriculum Direction    |
| Margie Longacre            | Curriculum Coordination |
| Rosa Armenta, Devita Smith | Curriculum Production   |
| Mark Jablow, Adrian Jones  | Programming             |

**Editorial**

|                      |                  |
|----------------------|------------------|
| Phyllis E. Brumfield | Executive Editor |
| Michele L. Williams  | Editor           |

**Production**

|                            |                              |
|----------------------------|------------------------------|
| David Tang                 | Art and Production Direction |
|                            | Photography                  |
| Shannon McBride            | Art Direction                |
|                            | Illustration                 |
|                            | Layout                       |
| Julie Adamcik              | Layout/Production            |
| Suzanne Cheske             | Typography                   |
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