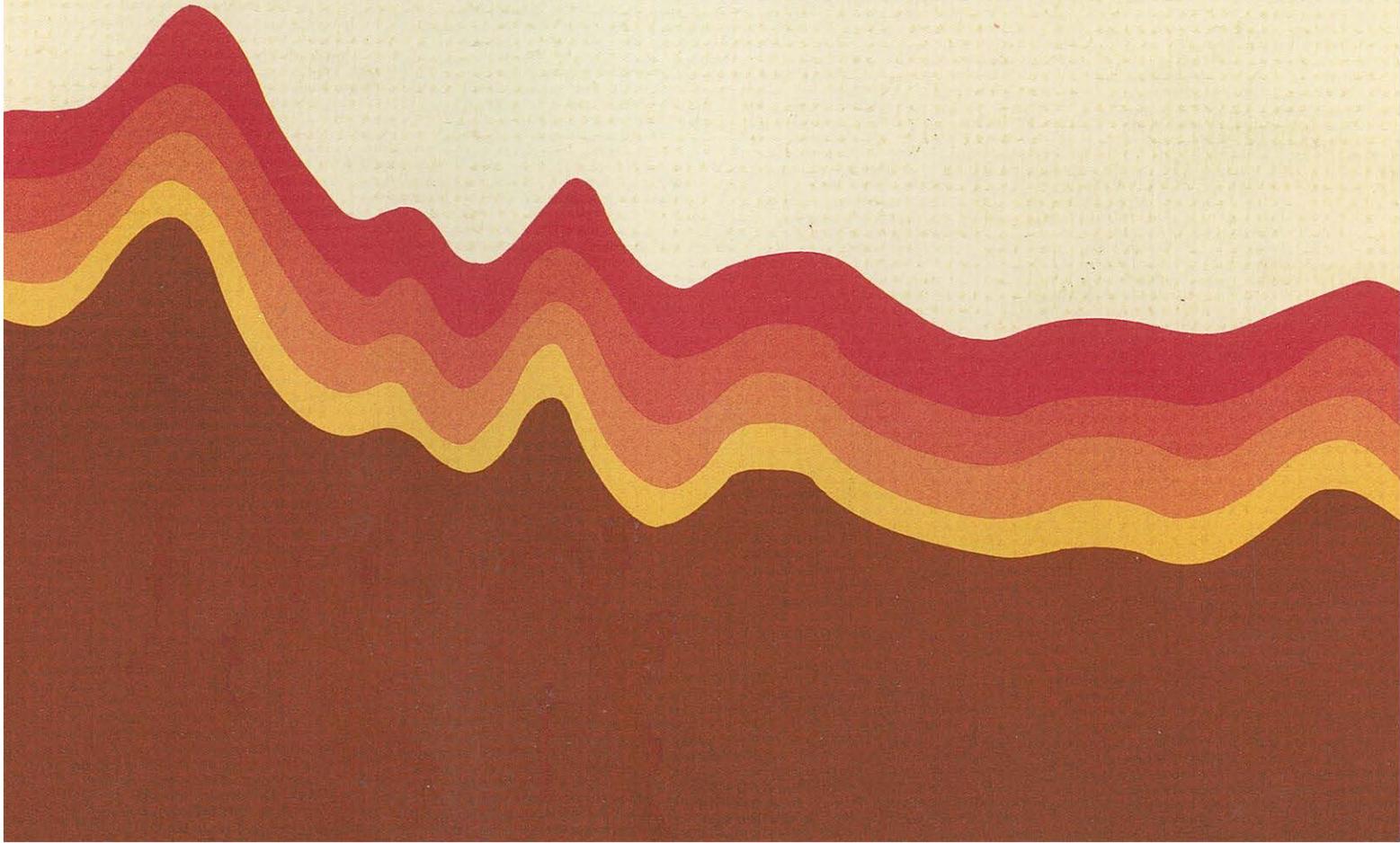


PimaCommunityCollegeCatalog

PimaCountyCommunityCollegeDistrict



78/79



**To Serve the Community
Pima County Community College District
1978-79**

COLLEGE AND DISTRICT OFFICES

2202 W. Anklam Road
Tucson, Arizona 85709
(602) 884-6666

WEST CAMPUS

2202 W. Anklam Road
Tucson, Arizona 85709
(602) 884-6666

DOWNTOWN CAMPUS

50 W. Speedway Boulevard
Tucson, Arizona 85705
(602) 884-6788

COMMUNITY CAMPUS (Office)

1225 N. 10th Avenue
Tucson, Arizona, 85705
(602) 884-6940

EAST EDUCATION CENTER

7830 E. Broadway
Tucson, Arizona 85710
(602) 884-6580

COMMUNITY SERVICES

219 W. Mabel Street
Tucson, Arizona 85705
(602) 884-6720

TUCSON CAREER SKILL CENTER

55 N. 6th Avenue
Tucson, Arizona 85701
(602) 623-8456

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.

Pima County Community College District complies with all applicable state, federal and local regulations. The college does not discriminate against qualified individuals on the basis of sex, race, creed, color, national origin or handicap in the education programs or other activities.

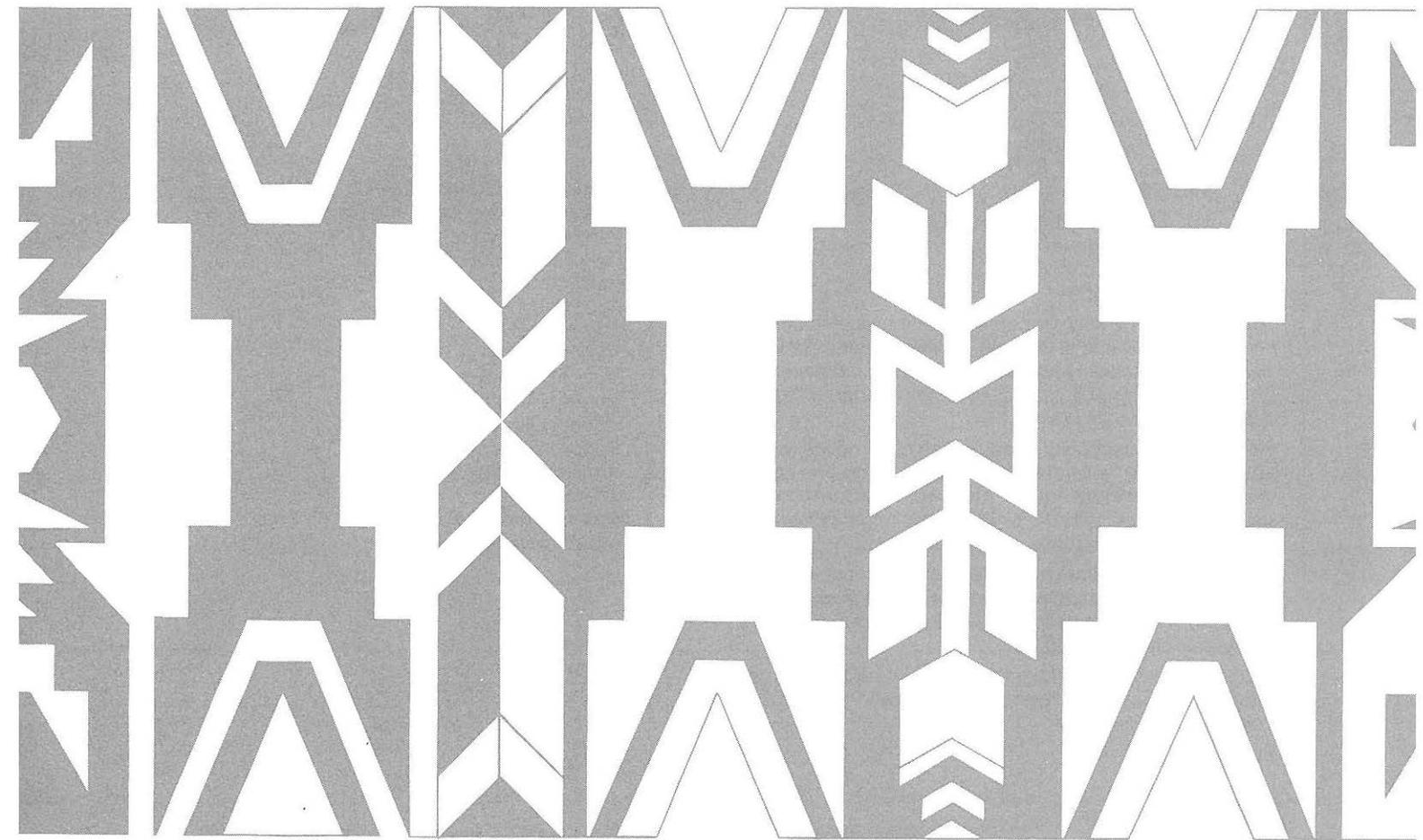
The Title IX compliance officer for Pima Community College is Dr. Rosemary Garcia, whose office is located on the West Campus, in the Administration/Library Building. Her telephone number is 884-6815.

Students are expected to act reasonably and to observe all federal, state and local laws and all Governing Board policies and regulations.

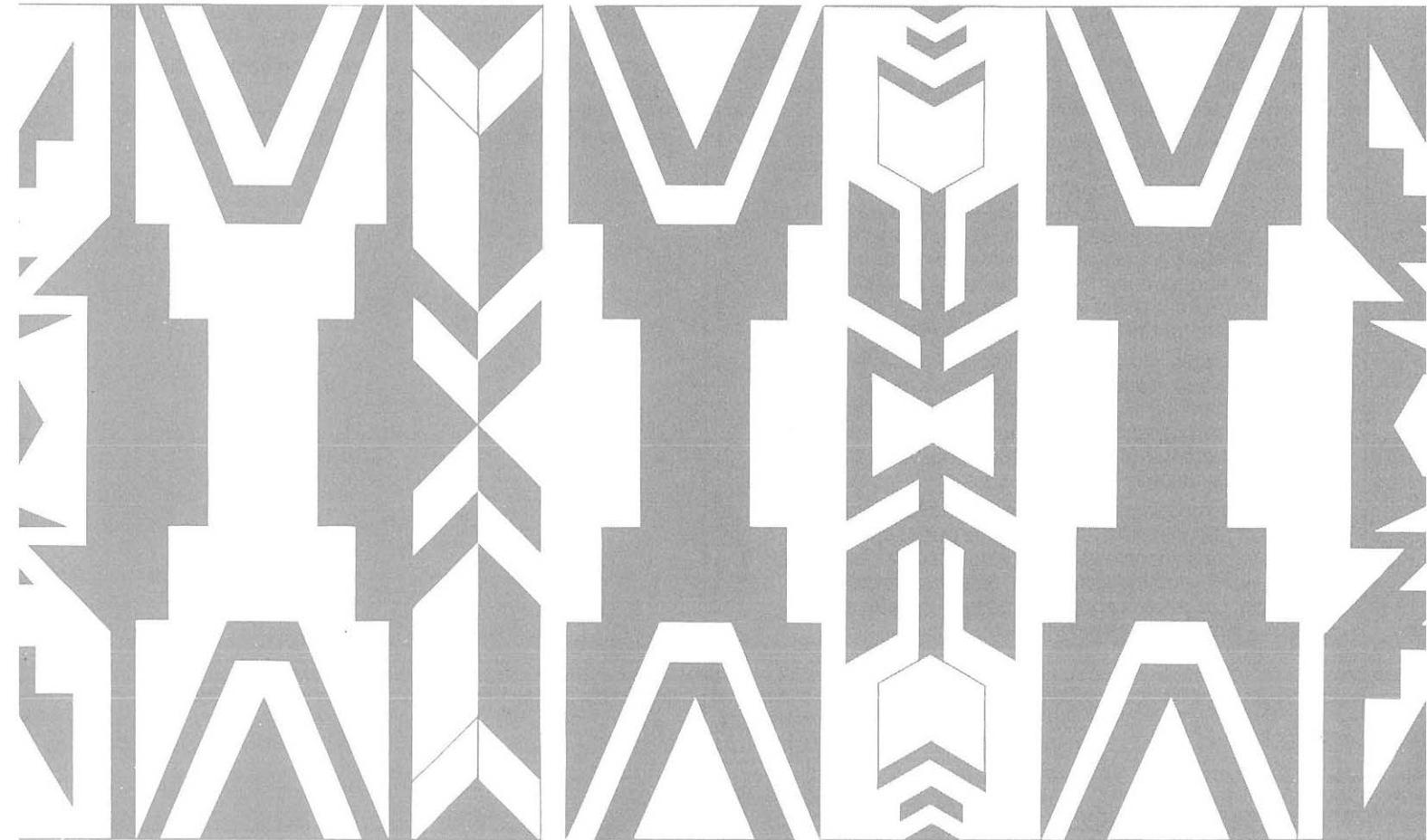
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To serve the community



Pima County Community College District

The multi-campus college district serves a population of 470,000 residing within the 9,240 square miles of Pima County through two campuses, an education center, 50 off-campus instructional locations, a community services program and a career skill center.

One campus is located on Anklam Road in west Tucson, and the other in the downtown Tucson area near Stone and Speedway. An East Education Center was opened at East Broadway and Pantano Road, to better serve the eastern portion of the city. The Community Campus offers credit courses at off-campus centers throughout Tucson and Pima County; principally during evening hours. Some of these courses also are offered in Santa Cruz County which currently does not have a community college. Community Services offers credit-free classes throughout the community. Pima Community College, in addition, is responsible for the Tucson Career Skill Center.

The West Campus opened in the fall of 1970 and is a fully comprehensive community college campus providing a curriculum of general education, college transfer and occupational education courses, and facilities which include a student center, a fine arts building and a complete library or Learning Resource Center. It is the only campus with a gymnasium and an athletic program.

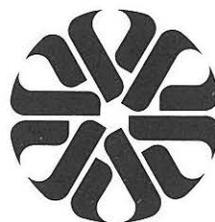
The Downtown Campus opened in the fall of 1974 and has a comprehensive study program including general education, college transfer and occupational education. General education and college transfer courses cover areas such as mathematics, English, reading, writing, sociology, history, business and psychology. Occupational programs include secretarial studies, automotive technology, air conditioning, sheet metal, machine tool technology, welding, data entry, advertising art, graphic technology and health careers.

In most instances, students can complete their entire program of study at either the West Campus or the Downtown Campus. However, students may take only a portion of their programs at one campus and the remainder at the other campus, at the education center or at an off-campus location.

The Community Campus, established in 1975, utilizes the facilities of the community including the public school system, various agencies and neighborhood centers in the Tucson vicinity and in Ajo, Marana, Sells and Nogales. A wide variety of general education, college transfer and general interest courses are offered.

The East Education Center, which opened in the fall of 1976, offers introductory courses in a wide range of subject areas, some advanced general educational courses and selected courses in occupational programs. Advising and bookstore services are available.

Community Services concentrates on the college's credit-free activities and programs at approximately 30 community locations. These include family life education, credit-free women's programs, senior citizens education, special projects, general interest classes, seminars and workshops.

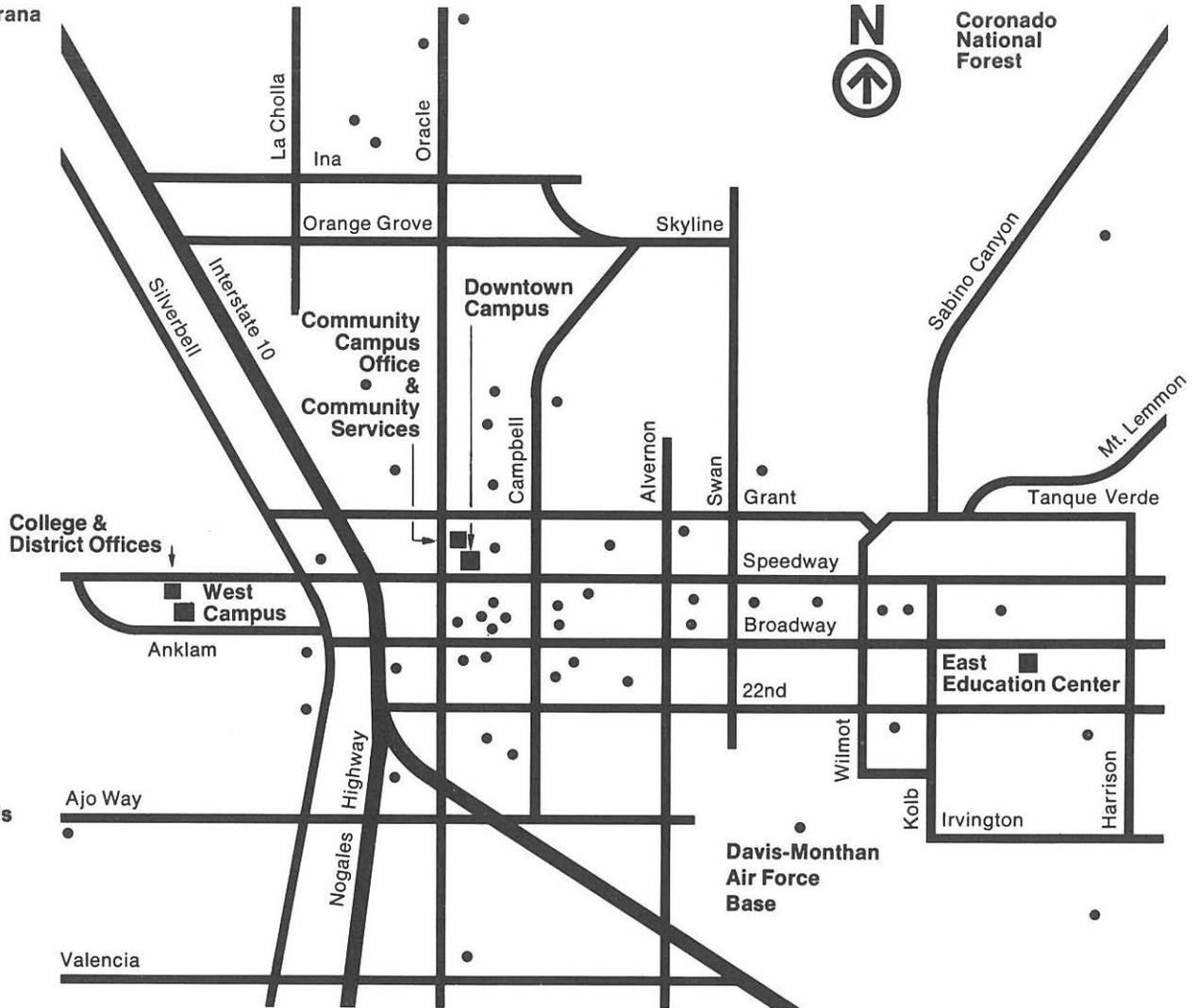


The Pima Community College logo was designed by Mr. Gill C. Kenny, Coordinator of District Graphics, in 1969.

It is composed of a cluster of stylized representations of the letter "P".

The orientation of the award-winning design is simplified by the placement of one of the stylized letters at the top.

● Marana



Coronado National Forest



College & District Offices ↓

West Campus

Community Campus Office & Community Services

Downtown Campus

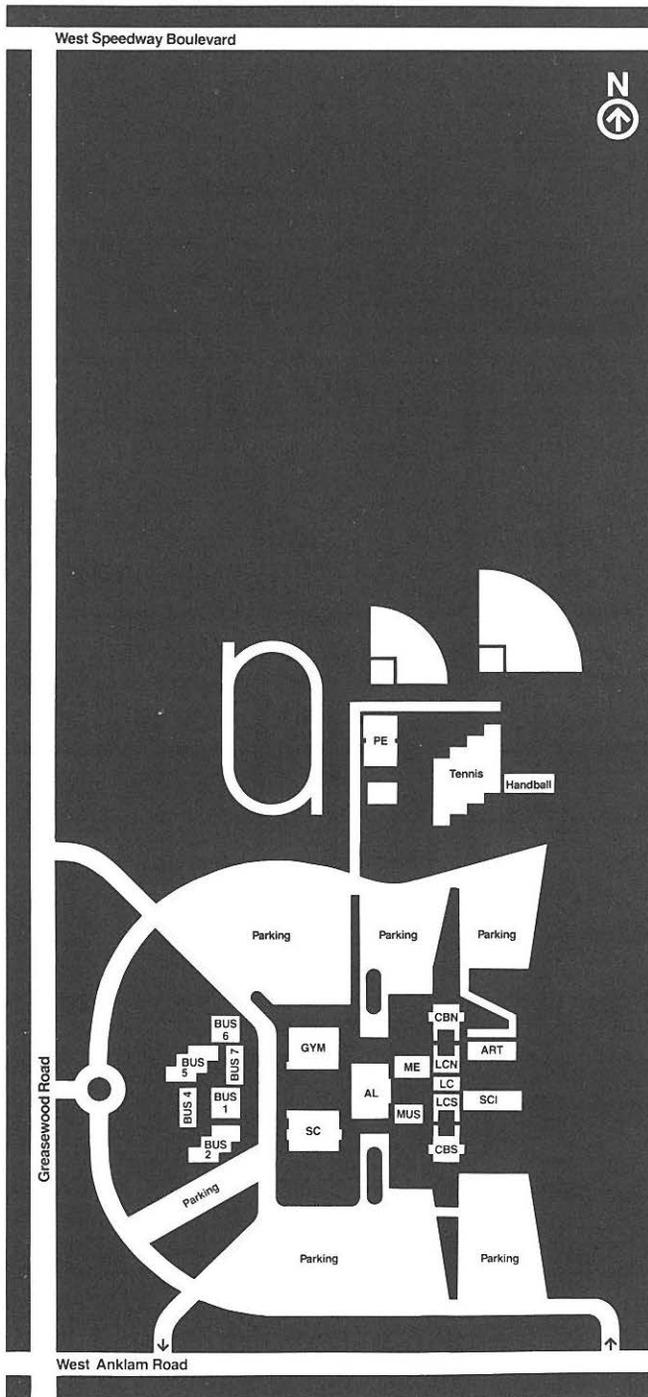
Davis-Monthan Air Force Base

East Education Center

● Ajo
● Sells

- Green Valley
- Continental
- Tubac
- Nogales

● Community Campus Class Locations



West Campus

The West Campus is located in the foothills of the Tucson Mountains, three miles west of Tucson's central business district. The 273-acre site is bounded by Anklam Road on the south, Speedway Boulevard on the north, Greasewood Road on the west and La Cholla Boulevard on the east. Facilities include 11 permanent buildings and six relocatable or portable buildings. District offices currently are housed at the West Campus.

SC—Student Center

- Admissions and Registrar
- Art Exhibition Area
- Cafeteria
- Cashier
- Financial Aid
- Health Office
- Placement Service
- Student Information and Activities
- Student Organizations
- Veterans Office

GYM—Gymnasium

PE—Physical Education Annex

AL—Library/Administration

- District Administration Offices
- Library and Library Support
- West Campus Administration Offices

MUS—Music

ME—Math/Electronics

LCN—Alternative Learning Center—North

LCS—Alternative Learning Center—South

LC—Lecture Center

CBS—Classroom Building—South

CBN—Classroom Building—North

SCI—Sciences

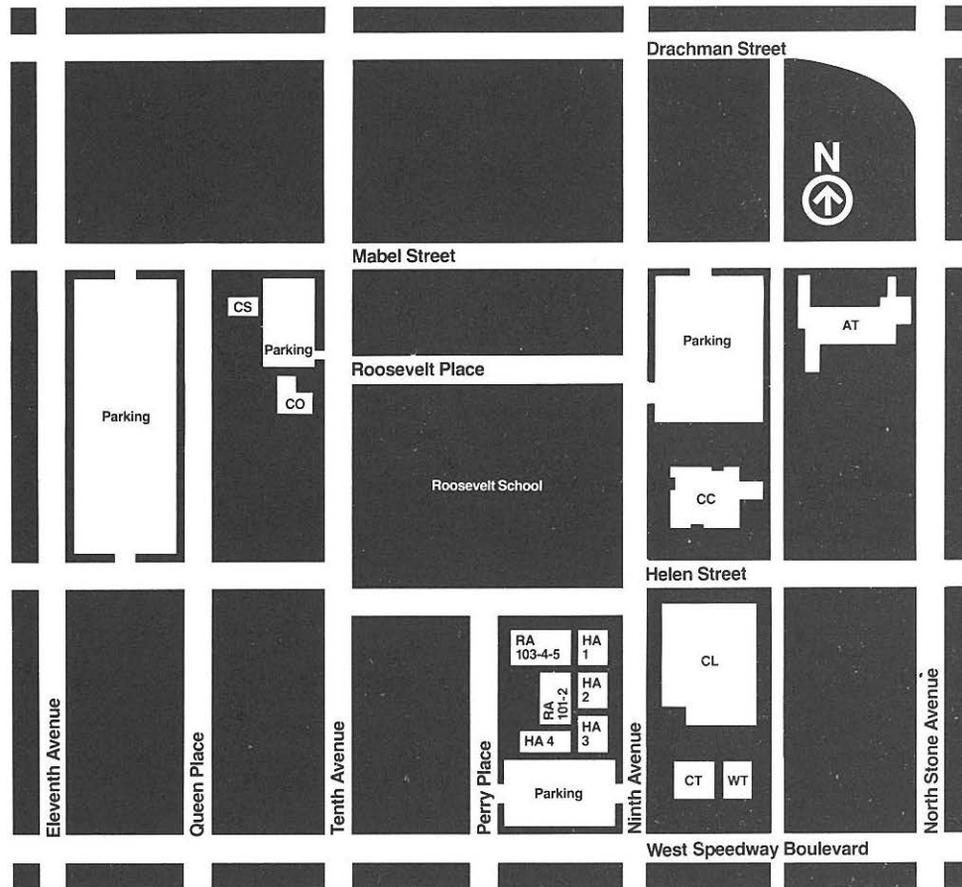
ART—Arts

Area R—Relocatable Buildings

- BUS 1—Business Relocatables
- BUS 2—Business Relocatables
- BUS 4—Business Relocatables
- BUS 5—Business Relocatables
- BUS 6—Business Relocatables
- BUS 7—Business Relocatables



Downtown Campus



Downtown Campus

The Downtown Campus is located on a 13-acre site in the vicinity of Stone Avenue and Speedway Boulevard in Tucson and currently consists of 12 buildings housing classrooms, laboratories and support services designed to meet the needs of its students.

AT—Automotive Technology

- Automotive Technology Faculty Offices
- Classrooms
- Laboratories

CC—Campus Center

• 1st Floor

- Bookstore
- Food Services
- Educational Support Services
- Counseling and Advisement
- Financial Aid Services
- Veterans Advising
- Student Activities

• 2nd Floor

- Alternative Learning Center (ALC)
- Library (LRC)
- Meeting Rooms

CL—Classroom Building

- Administrative Offices
- Air Conditioning
- Allied Health Science
- Classrooms
- Faculty Offices
- Laboratories
- Machine Tool Technology
- Office Education
- Registration and Admission
- Sheet Metal

CT—Classroom Technology Building

- Advertising Art
- Classrooms
- Educational Development Office
- Graphic Technology
- Multipurpose Laboratory

HA-1—Extended Day Programs

HA-2—Restrooms

RA—Classrooms

- Data Entry Laboratory
- Classrooms

WT—Welding Technology

- Laboratories
- Welding Faculty Offices

CO—Community Campus Office

CS—Community Services

East Education Center

The East Education Center is located at the corner of Broadway and Pantano Road on Tucson's east side. Occupying one of the buildings in the Eastside Executive Park, the Center houses classrooms, laboratories and support services.

EEC—East Education Center

- Classrooms
- Laboratories
- Administrative Offices
- Advising and Counseling
- Allied Health Science
- Alternative Learning Center (ALC)
- Faculty Offices
- Library (LRC)
- Registration and Admissions
- Educational Development
- Educational Support Services
- Financial Aid Services
- Student Activities
- Veterans Advising
- Bookstore

**1978/79
Pima County Community College / Academic Calendar**

Fall Semester (1978)

Advising/Registration Period Begins*	July 17–Aug. 10
Early Drop/Add	Aug. 16
Advising/Registration Continues	Aug. 22–24
Fall Classes Start	Aug. 28
Late Registration and Drop/Add	Aug. 28–Sept. 1
Labor Day Holiday	Sept. 4
Applications Due for Students Completing Programs and Degrees	Oct. 31
Veterans Day Holiday	Nov. 10
Thanksgiving Day Holiday	Nov. 23–25
Spring Registration Begins*	
Continuing Students (by appointment)	Nov. 20–22, 27–Dec. 5
All Students Who Have Not Registered	Dec. 6–8
Drop/Add	Dec. 13
Evaluation/Assessment/Exam Week	Dec. 18–22
Final Grades Due	Dec. 22
Fall Semester Ends	Dec. 22

Spring Semester (1979)

Advising/Registration Continues	Jan. 10–12
Spring Classes Start	Jan. 18
Late Registration and Drop/Add	Jan. 18–24
Rodeo Days Holiday (tentative)	Feb. 22–24
Applications Due for Students Completing Programs and Degrees	Feb. 28
Spring Vacation	Mar. 19–25
Evaluation/Assessment/Exam Week	May 14–18
Graduation	May 17
Final Grades Due	May 18
Spring Semester Ends	May 18

Summer Session (1979)

First Five-Week Session (“A” Session)

Registration	June 6–7
Classes Begin	June 11
Independence Day	July 4
Classes End	July 13

Second Five-Week Session (“B” Session)

Registration	July 11–12
Classes Begin	July 16
Classes End	Aug. 17

Eight-Week Session (“C” Session)

Registration	June 6–7
Classes Begin	June 11
Independence Day	July 4
Classes End	Aug. 3

* Additional days may be allocated for registration.

1978

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1979

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July

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August

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Pima Community College Philosophy

The proper functioning of a democratic society and the well-being of individuals depend on the opportunity for individuals to develop their abilities in accordance with their own chosen goals. To achieve this end, Pima Community College believes education should be designed as a continuous process, developing an awareness of individuals, both of themselves and their environment, and thus, preparing them to function more effectively in a highly complex society.

All individuals in the college community are encouraged to take pride in their own heritage and, at the same time, to develop an awareness and appreciation of differences which stem from diverse backgrounds.

An institution committed to these ends attempts to create an atmosphere rich in a multiplicity of subject matter, materials and educational approaches. In accepting the principle of continuous and open evaluation of all activities, the college encourages all participants to make free, intelligent, and responsive choices from a wide range of alternatives.

Pima Community College's Institutional Goals

- To provide educational opportunities that facilitate human personal development;
- Develop an environment that promotes independent thinking and effective communication;
- Prepare students for entry into and appreciation of actual careers;
- Develop an instructional program that accommodates individual differences, such as, but not limited to, learning rates, aptitudes, prior knowledge, etc.;
- Engender in each student a concern for excellence and a desire for continuous learning;
- Develop an institution whose total environment is dedicated to learning and open to those who desire to learn;
- Utilize the total community as a laboratory for learning;
- Contribute to the educational, social and cultural development of Pima County;
- Institute an organizational concept of defining outcomes, differentiating processes, and evaluating results for all undertakings;
- And provide for continuous college evaluation.

Functions of a Community College

Arizona law defines a community college as "an educational institution which provides a program not exceeding two years training in the arts, sciences and humanities beyond the twelfth grade of the public or private high school curriculum or vocational education, including terminal courses of a technical or vocational nature and courses beyond the basic education courses for adults."

Bringing its philosophical approach to bear on the state's definition of its mission, Pima Community College declares its functions to include:

- General education designed to increase the individual's awareness of man's knowledge and his capacity for intelligent and responsible participation in society.
- Educational programs of varying length to prepare students for useful and satisfying vocations with emphasis on community needs.
- Two years of lower division collegiate work to enable students to progress smoothly into upper division work at universities accepting transferable credits.
- Continuing education courses to satisfy the vocational and avocational aspirations of young people and adults interested in attending evening classes.
- A professional staff responsive to the needs of individuals for assistance in career guidance, academic work and personal educational counseling.
- Community services related to specific needs including cultural, recreational and general interest programs.

Accreditation

Pima Community College, which officially opened in September of 1970, received full accreditation from the North Central Association of Colleges and Secondary Schools, a national accrediting agency, during the spring of 1975.

This means the college, its programs, faculty and facilities have full recognition, and that transferable credits are accepted by four-year institutions throughout the country as well as those within the state.

In addition, special accreditation has been received or applied for in the following programs: Dental Assisting Technology, Dental Laboratory Technology, Nursing Associate Degree, Ophthalmic Dispensing Technology, Radiologic Technology and Respiratory Therapy.

College membership includes the American Association of Community and Junior Colleges and the Council of North Central Community Colleges.

History

The preliminary work of private citizen planning was started in 1964 and culminated with an election approving the formation of the Pima County Junior College District two years later.

Soon after voters gave their consent to the college district, a five-member Governing Board was appointed by the county school superintendent's office to proceed with plans for the college.

Among the actions taken by the original Board, with the assistance of the citizen committees, were the selection of architects, definition of educational objectives, creation of a financial plan and budget, selection of Dr. Oliver H. Laine as the first president and also selection of the 273-acre Anklam Road campus site.

An election was set for the fall of 1967 for a \$5.9 million general obligation bond issue to construct college facilities, and to publicly elect a Governing Board.

Construction of the West Campus college facilities began in May, 1969. It was also during 1969 that Dr. Kenneth E. Harper succeeded Dr. Laine, first as provost and later as president of the college. Pima College opened to 3,728 students and offered 260 courses in September, 1970, with most facilities housed in temporary quarters and a portion located at a partially completed campus.

All college programs were moved to the completed 11 permanent building campus in January, 1971. The year also saw the philosophy of taking a student from "where he is to where he might want to go" put into effect; the college's transfer courses being accepted by the three Arizona universities; and an introduction of the bilingual program.

In 1971-72, Pima received a Recognized Candidate Status as a step toward full accreditation; several classes were moved off-campus and into the community; the West campus was completed and dedicated; various campus events were opened to the public; the number of vocational-occupational programs was increased; and the first summer session was offered. A West campus renovation and construction project, which included the erection of seven portable buildings, also got underway to meet demands of fast growing enrollments.

On July 1, 1972, Dr. Irwin L. Spector became the third president of the Pima County Community College District.

1972–73 was a year in which a move was made to strengthen the college's administration process through reorganization of the administration structure; fiscal procedures were revised; off-campus programs were expanded three-fold; the number of course offerings increased to 430; enrollments increased to 7,616; a downtown campus site was selected to help ease the overcrowding of facilities; an intercollegiate athletics program was given approval; steps were taken to create closer ties between the college and the community; and the college was re-named Pima Community College.

Major growth and planning occurred in 1973–74; enrollments went over the 12,000 mark; a study of facility needs and enrollment trends resulted in the Board approving a district plan for the establishment of a campus in downtown Tucson; the number of courses was increased and so were services to students and the community. Pima was one of only 11 community colleges selected for an \$850,000 federal grant to be used for advanced institutional development toward increasing student success. An intercollegiate athletics program also got underway.

Tense economic conditions in the fall of 1974 brought the defeat of a proposed \$9.5 million bond issue, but remodeling work continued at the West Campus in an attempt to gain some needed space for still growing enrollments. The Downtown Campus was opened and immediately filled to near capacity. The total enrollment for both campuses and in the off-campus program reached 17,773 by the spring of 1975. The number of courses was increased to about 900.

Pima Community College was awarded full accreditation by the North Central Association of Colleges and Secondary Schools in 1975. In 1975–76, enrollment at the West Campus reached 11,000 day and evening students. Additional land was acquired around the Downtown Campus enlarging it to a 13-acre site while enrollment reached 5,500 students. The development of an East Education Center was begun to help better serve students on Tucson's east side. Pima Community College also was designated a National Bicentennial College by the American Revolution Bicentennial Administration in Washington, D.C.

By 1976, the multi-campus district included the West Campus, the Downtown Campus, the Community Campus (off-campus credit programs) with more than 50 classroom locations throughout Pima County, the East Education Center, the Community Services credit-free program and the Tucson Career Skill Center.

A two-year, \$5 million construction project was begun during 1976-77 with the construction of a classroom/technologies building and a student center/library at the Downtown Campus, and installation of additional indoor and outdoor physical education facilities at the West Campus.

Pima continues to be the largest community college in Arizona with a 21,000 student enrollment. By the fall of 1978, it is anticipated the number will grow to over 22,200, with 10,500 on the West Campus, 5,500 at the Downtown Campus, 3,300 at the East Education Center and 8,200 attending Community Campus classes. There is some duplication of numbers as many students take classes at more than one site. The number of courses offered in the district is about 1,000.

Admission

Pima Community College is open to students on a regular basis if they satisfy one of the following categories:

1. A graduate from an accredited high school, or
2. Have a G.E.D. Certificate of high school equivalency, or
3. Transferring from an accredited college, or
4. A non-high school graduate who is 18 years of age or older, or
5. A non-high school graduate between the ages of 16 and 18 who had not been enrolled in a high school during the previous regular semester. Students in this category must provide a written acknowledgement of withdrawal from the principal of the last school attended along with a letter of approval from their parents or legal guardians.
6. An able and ambitious student currently attending an area high school may enroll on a concurrent basis by presenting written approval of the student's principal and parents or legal guardians.

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.

Entrance Examinations: Pima does not require any college-wide entrance examination, but certain programs may require entrance examinations and prerequisites.

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 Domicile Requirements

The Arizona State Board for Community Colleges complies with domicile requirements as stated in the Arizona Revised Statutes. Students are expected to abide by these requirements and provide proof of domicile.

“Domicile” means a person’s true, fixed and permanent home and place of habitation. It is the place where one intends to remain, and to which one expects to return when absent without intending to establish a new domicile elsewhere.

No person shall be entitled to classification as an in-state student until domiciled in this state for one year. Except as otherwise stated in the State Board regulation R7-1-23, no person with domicile elsewhere than in this state shall be eligible for classification as an in-state student for tuition purposes. No in-state student shall be entitled to classification as a “county resident” unless physically present in the county for at least 50 days prior to the first day of classes of the semester.

Questions concerning domicile status or requests to change status currently recorded on a student file should be directed to the Office of Admissions at the West Campus, Downtown Campus, East Education Center or the Community Campus office. Requests for change of status must be processed before the registration of each term in order to clarify the fee status for that term.

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 comply fully, 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 policy explains, in detail, the procedures to be used by the institution for compliance with the provisions of the Act. Copies of the policy can be obtained at the Office of Admissions and Registration or the Office of Student Services at any campus. The offices also maintain a Directory of Records which lists all education records maintained on students by this institution.

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

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 regardless of full-time or part-time status. For purposes of tuition and registration fees, these students pay the same tuition and fees as out-of-state students.

FULL-TIME STUDENTS—All International Students seeking admission to Pima Community College as full-time students, i.e., enrolling for 12 credit hours or more, must complete and return to the International Students Admissions Office an application for admission along with a \$10 fee which is non-refundable. In addition, the student must have completed an academic program equivalent to an American secondary school, and also must demonstrate proficiency in the English Language by submitting a score of 450 or better on the Test of English as a Foreign Language (TOEFL). Spanish speaking international students enrolling only in the Bilingual Program and/or ESL courses will not be required to take a TOEFL examination until they request enrollment in academic courses conducted in the English language. 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. Tests are normally given locally at the University of Arizona. Information on TOEFL may be obtained by contacting the Center for English as a Second Language (884-3310).

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

- Submit a bank statement or a college provided financial form which guarantees financial support;
- 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.

PART TIME STUDENTS—International students who wish to attend Pima on a part-time basis must submit an applica-

tion for admission. Graduation from the equivalent of an American secondary school is not of primary importance. However, part-time international students must demonstrate English proficiency as do full-time students if they plan to enroll in courses other than English as a Second Language or courses offered bilingually.

Veterans

Pima Community College is approved for the enrollment of veterans, dependents, and war orphans as provided under Title 38 of the U.S. Code. Students who qualify should contact the Veterans Office at one of the campuses for necessary forms prior to the start of the semester or during the registration period. It is not necessary to wait until the Certificate of Eligibility is received before contacting college officials.

A veteran or eligible person must be enrolled for 12 or more credit hours to receive full-time benefits, 9 to 11 hours for three-fourths benefits, and 6 to 8 hours for half benefits. Those enrolled for less than 6 credits will receive only the \$25 registration fee reimbursement.

If a veteran has received credit through USAFI, service schools, practical service experience, etc., it may be possible to receive equivalent credit at Pima. Contact one of the Admissions Offices for details.

All eligible persons are encouraged to visit the Veterans Office at the West Campus, Downtown Campus, East Education Center and the Community Campus office. The college's veterans program provides pre-counseling in the areas of job placement, financial assistance, and information on referrals to other agencies for further assistance.

A veteran's outreach program also is available. The study skills program provides counseling services for incoming veterans, advice on educational matters, tutoring, G.I. benefits, and information on studies offered at the college.

The following standards of progress apply to all persons receiving VA educational benefits:

All eligible persons will be required to select, with the aid of an advisor/counselor, an approved program of study (listed in the college catalog) prior to registration for classes in order to receive an educational allowance under Title 38, U.S. Code. An evaluation and approval of course selection, as it pertains to the student's stated program objective, will be made.

Eligible persons who have attended another college or university prior to enrollment at Pima will be asked to provide an official transcript of such records so that appropriate credit can be recorded for previous education, if applicable.

Each eligible person will be required to satisfactorily complete at least 60 percent of his or her certified class load for educational benefits, as determined at the end of the drop/add period each semester. Satisfactory completion of a course requires the achievement of a "C" (2.0) or better.

At the end of each semester, eligible persons who have not completed 60 percent of their certified class load will be required to seek counseling assistance to carefully assess the situation. They will be provided with an opportunity to improve their academic progress by re-enrolling in the next term for educational benefits. If, at the end of the succeeding semester, an eligible person does not show "satisfactory progress" for that term, the college will not certify the student for further VA educational benefits.

Veterans or eligible persons who are thus excluded from VA educational benefits must be approved for re-enrollment for educational benefits by the Adjudication Officer at the VA Regional Office in Phoenix, Arizona.

Pima College does not exclude individuals from attending the College because they are not receiving VA educational benefits.

Servicemen

Servicemen's Opportunity College (SOC)

Pima Community College is a participant in the Servicemen's Opportunity College (SOC) program sponsored by the American Association of Community and Junior Colleges and the Department of Defense.

Many active duty service personnel have found it difficult, until now, to complete community college educational programs because of frequent transfers and varying requirements of colleges. Colleges in the SOC program have agreed to accept credits from other SOC colleges, and make special arrangements to assist service personnel in completing their chosen educational programs and obtaining degrees.

Pima Community College will award the appropriate Associate Degree or Certificate to a SOC student who has completed the requirements for graduation whether the student is in attendance at the time requirements are completed or not. Complete details about the program can be obtained from the Community Campus Advisement Office or from the Davis-Monthan Air Force Base Education Office.

Advisement

Personal assistance is given each student in helping him or her select a program of study that meets individual needs and goals. The object of the advising program, offered prior to each semester and during the semester, is to increase the success of each student.

Decisions made during advisement periods are translated into class schedules for each student. Advisement is offered by counselors and faculty advisors at each of the college's campuses.

Arizona Higher Education Course Equivalency Guide

The Higher Educational Coordinating Council (HECC), in conjunction with the Arizona Board of Regents and the State Board of Directors for Community Colleges of Arizona, has developed the Arizona Higher Education Course Equivalency Guide in order to smooth the transfer of students from Arizona's community colleges to the state's senior institutions of higher education. A student or counselor can use the Guide for immediate information on the transferability of any course currently being offered by a community college in the state of Arizona. The guides are available in the offices of the college counselors.

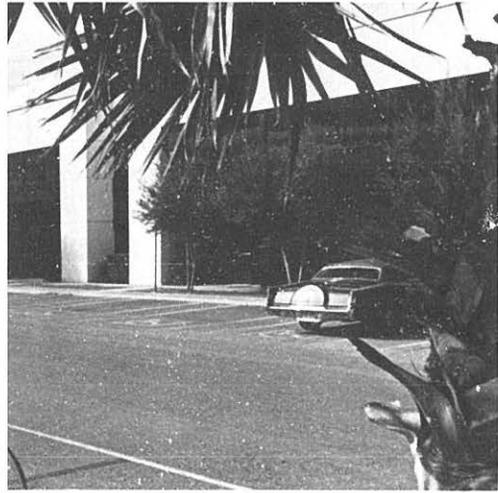
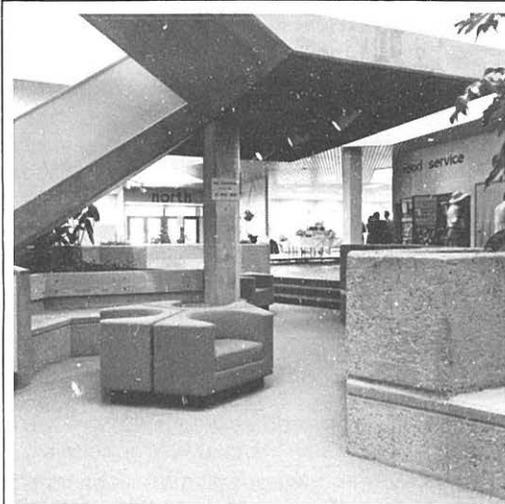
Registration

Students can register for classes after going through the early or summer advisement program as well as during regularly scheduled registration periods.

A schedule of classes, which contains registration and advising instructions, is provided each student and applicant prior to each semester.

Registration is not complete until all fees have been paid. Students who do not have their fees paid or deferred on the day they register run the risk of having all their courses deleted—requiring re-registration.

Students notified of a financial aid award should first report to the Financial Aid Office. New students attending the college under the G.I. Bill should consult the V.A. Certification Office about fee deferments.



Fee Schedule—1978–79

Registration Fee (all students):

10+ hours	\$ 60
7 to 9 hours	45
1 to 6 hours	25

Course Audit Fee Same as registration fee

Tuition (for out-of-county or out-of-state students only who are carrying seven or more credit hours within Pima County):

County Resident	none
Out-of-County, In-State Resident (12+ hours)*	\$465
Per Credit Hour (7 to 11 hours)	40
Out-of-State Resident (12+ hours)	730
Per Credit Hour (7 to 11 hours)	60
Per Credit Hour (1 to 6 hours)	2
Santa Cruz County Residents taking courses at locations in Santa Cruz County	
Per Credit Hour	TBA

Special Tuition Fee:

Course repeat cost assessment, Per Credit Hour	\$ 18
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Summer Session Tuition (1978)

Per Semester Hour	\$18
Registration Fee	2

Laboratory Fees

Nominal non-refundable fees may be assessed for lab courses.

Special Fees

Out-of-State Application (not refundable)	\$10
Official Transcript (first copy free)	1
ROTC Deposit	25
Business Machine Deposit	25
Music Lessons (private)	
Non-Music Majors (1 hour per week)	128
(½ hour per week)	64
G.E.D. Test	10
G.E.D. Test (repeat)	2
Excessive loss or breakage (due to carelessness)	(up to actual replacement cost)
Lost Books (replacement cost)	
Withdrawal charge**	3
Health Science Course Excessive Liability Fee-non-refundable	4
Returned Check (each occurrence)	5

*Arizona students residing in counties which do not have community colleges may be eligible to have tuition paid by the county in which domiciled.

**To be assessed when student withdraws totally from the college prior to the end of the add/drop period.

Refund Policy (Credit Courses)

REGISTRATION FEE REFUND—This fee is not refundable except under the following circumstances:

1. When classes are cancelled by the college, a 100 percent refund will be made.
2. When students process a complete withdrawal from the college prior to the end of the normal drop/add period a refund, less a \$3 withdrawal fee, will be made.
3. When students adjust their schedules by officially dropping one or more classes on or before the end of the normal drop/add period and the amount of their fees is affected, a refund of the applicable fees will be made.

TUITION REFUND—Refunds to out-of-county or out-of-state students who officially withdraw or who are officially dismissed by the college will be made in accordance with the following schedule:

1. If the withdrawal or dismissal occurs *at any time* on or before the seventh (7th) calendar day after the start of the term, a 75 percent refund will be made.
2. If the withdrawal or dismissal occurs between the eighth (8th) and fourteenth (14th) day after the term starts, a 50 percent refund will be made. No refund will be made after the fourteenth (14th) day of the term.
3. If students adjust their schedules by officially dropping one or more classes on or before the end of the normal drop/add period, and the amount of the tuition is affected, a 75 percent refund of the applicable tuition will be made.

For a withdrawal or schedule adjustment to be official, it must be processed through the Registrar's Office. All requests or questions concerning refunds must be made at the Cashier's Office at the West Campus, Downtown Campus, East Education Center or the Community Campus office after appropriate action has been taken by the Registrar's Office.

Refund Policy (Non-Credit Courses)

The Community Services Office handles requests for questions concerning refunds for special interest community service/non credit courses.

No fees will be refunded after the first class meeting.

Grading Policies

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

A—Superior (4 grade points per credit hour)

B—Good (3 grade points per credit hour)

C—Average (2 grade points per credit hour)

P—Pass (C or better without grade differentiation ordinarily indicated by the college grading system.)

I—Incomplete (A record of "Incomplete" as a grade, will be made at the individual'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 "NC." A student receiving a grade of "I" will be provided with a standard form specifying the work necessary for completion of the course.)

NC—No credit (This grade is given students who have not completed enough course work to receive an "I" or who have performed below average work.)

W—Withdrawal (This grade may be requested by the student or by the instructor after the instructor has notified the student, personally or by mail, that this action is intended.)

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

AU—Audit (Persons officially registered may audit courses with the permission of the instructor. No credit will be earned. Requests for audit status must be made before the end of the second week of classes each semester.)

Grade points are computed on the basis of four points for each credit hour of A, three points for B, and two for C. A grade point average (GPA) is found by multiplying the number of credit hours for each course by the number of points for the grade and then by dividing the sum of total points by the total number of credit hours of A, B, and C grades.

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

Repeat of Course for Credit

For the purpose of state aid, State Board regulations "prohibit students from repeating courses more than once except in certain programs where they can take no more than four semesters of work in any 'course.'"

Students who have previously been registered in a course on the official census date (45 calendar days after the first day of classes) may enroll one additional time in the course without payment of any special fee. Usually their re-enrollment purpose is to improve their grade or to increase their proficiency. Both grades will appear on the permanent record and transcript with the highest grade earned being counted toward the grade point average. Only one successful completion will be counted toward degree and certificate requirements.

Certain designated courses may be repeated for additional credit toward degree and certificate completion, if so indicated at the end of the course description in the catalog.

Students who have been enrolled in a course on the official census date the maximum number of times, as permitted by State Board regulations, and who enroll again will be assessed an additional fee called the "course repeat cost assessment." This fee, as approved by the Governing Board of Pima County Community College District, will be to replace the lost state-aid assistance for the applicable credit hours.

Attendance

Attendance in class is part of the commitment to the learning process established between a student and an instructor. Thus, students are expected to regularly *and punctually* attend all classes for which they are enrolled. *All attendance requirements shall be given to the student in writing at the beginning of a course.* Non-attendance may result in the student being withdrawn from the course by the instructor.

Students participating in official college activities are considered to have been engaged in co-curricular educational activities. However, students are responsible for notifying their instructors in advance of an absence for official college activities and for completing all class assignments as required.

Withdrawals

Students may withdraw from a course at any time before the end of the term. However, students who feel they must withdraw from a course should first consult with their instructor or a counselor.

If, after such consultation, withdrawal still is considered necessary, the student should notify each instructor who would be involved in the decision and the Registrar's Office of his intention. Accurate information on the date and reasons for each withdrawal must be kept by the college.

A withdrawal grade may be requested by the student or the instructor after the instructor notifies the student personally or by mail that this action is intended.

Credit by Examination

Credit by examination includes:

1. Advanced Placement 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 or grade

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

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

Credit by examination is offered on the principle that the student has already acquired knowledge of the competencies of the course and an instructor, therefore, is not responsible for helping the student develop them.

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

COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)—

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

1) General Examinations: A maximum of six (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 completed DANTES subject standardized tests while on active military duty 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 OR GRADE—

Students have an opportunity in some courses, to earn credit by successfully completing an examination at the beginning of the semester. This procedure is currently under review by the college.

Transfer of Credits

Appropriate credit will be accepted for transfer from other institutions if it is applicable toward the student's degree objective at Pima Community College. Courses in which a grade of less than "C" was earned will not be accepted except under unusual circumstances. Students who wish to transfer credit to Pima must submit an official transcript of work completed to the Registrar's Office for evaluation.

Students planning to continue their studies at a four-year college or university should follow the first two-year requirements of the institution to which they wish to transfer to help insure an acceptability of credits earned at Pima.

Students enrolled concurrently at the University of Arizona should insure that courses taken at Pima are applicable to their degree program. Approval to enroll concurrently should be obtained from the appropriate university academic dean.



Degrees and Certificates

Pima Community College establishes certain requirements which must be met before a degree, certificate or course credit is granted. These requirements involve curriculum and course specifications.

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. It is important, for this reason, that each student, throughout his or her college career, be knowledgeable of all regulations, keep currently informed, and be responsible for completing these requirements.

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

This catalog does not establish a contractual relationship. It does, however, summarize for students the requirements the 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.

DEGREES—Pima Community College offers both Associate of Arts and Associate of Science degrees in a variety of subject areas. Certain occupational programs, in addition, offer students a choice of an Associate of Science or Associate of Applied Science degree. The degree is specified in the program curriculum.

These degrees generally are granted upon the successful completion of a program, usually two years in length, which has been outlined by the college faculty and approved by the Arizona Community College Board. Details of programs offered are listed in a separate 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 12 semester hours of the total required to qualify for an Associate degree must be earned at Pima Community College.

CERTIFICATES—Various types of certificates are awarded in many short-term study program areas. These are programs not carrying the two-year (60-credit hour) minimum for the Associate degrees. Certificates are granted upon the completion of a prescribed program of study as described in the respective program curriculums of this catalog.

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

Evening/Extended Day Programs

Many Pima Community College courses are offered in the evenings or on weekends. These courses cover many fields of interest, and are offered at many Tucson locations.

Course offerings include classes that are part of degree-oriented programs, and classes that provide occupational training, as well as special-interest classes. Evening program students may choose to work toward an associate degree, complete the first two years of selected bachelor degree programs, or earn a certificate of completion of some established short-term programs. Students may also simply attend classes in an area of personal interest.

For more information, please contact the Evening Programs Offices at:

West Campus	884-6781
Downtown Campus	884-6954
East Education Center	884-6580
Community Campus	884-6940

Summer Session

A three-term program is offered during summers, with course offerings determined by student demand. The summer session consists of two five-week day terms, and one eight-week term.

Costs include \$18 per credit hour for tuition and \$2 for registration. Under Arizona law, summer programs offered by community colleges receive no public support and, therefore, must be self-supporting.

Alternative Learning Centers

The Alternative Learning Centers of Pima Community College offer exciting and unique opportunities for individual learning experiences in a variety of subject areas. The specialized instruction uses modular, multi-media and individualized methods to facilitate learning in an environment that stresses intellectual growth and development consistent with the abilities and the learning style of each unique student. The centers have diversified their activities to meet the needs of students at each college location.

The West Campus ALC, located on the first floor of the lecture center, provides independent study, complete course work in some areas, and supplemental help in particular courses. All students involved in these Alternative Learning Center programs work at their own pace.

Students using the West Campus center can receive instruction in writing, math/science, reading and study skills. The center, in addition, serves as a testing station for placement tests and for some classroom examinations. A range of advising services also is available.

Auxiliary services include aid to handicapped students, assistance for Indian students, and aid in career exploration through a career information computer terminal.

The Downtown Campus ALC, located on the second floor of the Campus Center, provides three major services to students: 1) self-paced, individualized programs in writing, mathematics and reading, with instruction offered at hours convenient to the student; 2) supplemental and tutorial assistance for students enrolled in regular classes in a variety of subject areas; and 3) placement testing in writing, math and reading to assist students in self-assessment, course selection, and career goal evaluation.

It is important to emphasize that all students in the Alternative Learning Centers are encouraged to work independently and to progress at their own pace. Instructors and tutors are available during both the day and evening to work with any registered student.

All Pima Community College students should visit one of the centers soon after their initial registration to obtain additional information concerning the wide range of educational opportunities which many have used to great advantage.

Learning Resources Center (Library)

The main library, located on the third floor of the Library/ Administration Building on the West Campus, is open to all Pima Community College students, faculty and staff members, and residents of Pima and Santa Cruz Counties.

The total collection of intershelved books and audio-visual materials numbers almost 300,000 items. This total in-

cludes books, pamphlets, audio and video cassette tapes, records, maps, slides, art prints, games, filmstrips, films, magazines, newspapers, and microforms. The collection is particularly strong in the areas of art, ethnic studies, music, literature, law enforcement, business and legal reference, and Latin American history.

In addition to materials in the general stacks, the LRC features six separate collections of materials: Spanish-Language, Professional Development, Children's Literature, Paperback Leisure Reading, Film and Video, and Current Best-Sellers. It subscribes to over 1,200 magazines and newspapers. Also available for users are microfiche collections of national college catalogs, national phone directories and ERIC documents.

The LRC contains study tables, equipped carrels and lounge areas to accommodate over 500 students. In addition, classes can view films or videotapes in the film room. The LRC frequently houses traveling art exhibits or displays work done by faculty or students.

The public services staff is available to answer reference questions and assist users in locating and utilizing items in the collection. The staff provides free bibliographies, tours, student and faculty manuals and a self-paced library skills workbook.

The Downtown Campus library has a collection of print and non-print materials for reference and for curriculum support. A collection of current magazines and newspapers is also maintained for informational and leisure reading. None of these materials are circulated. Research assistance, guidance, and referral to other community library resources is available from the library's professional staff. Students registered at the Downtown Campus also are eligible and encouraged to use the West Campus library, whether independently or through the reference services offered by the Downtown Campus library staff.

The East Education Center library has a non-circulating collection of print and non-print materials for reference and in support of the curriculum. A collection of magazines and newspapers also is maintained. Research assistance, guidance and referral to other library resources is available from the library's staff. Students registered at the East Education Center may also use the resources of the Downtown Campus and West Campus libraries either independently or through the reference services offered by the East Education Center library staff.

Community Campus students taking courses at locations throughout the college district are urged to use library sources at either the West or Downtown Campuses or the East Education Center.

Información—General

Pima Community College es una institución dedicada a la educación superior. Se reconoce la necesidad que hay en toda comunidad de que exista una institución donde todos los miembros tengan la posibilidad de educarse, de buscar nuevas metas personales, y que todo individuo pueda contribuir al desarrollo cultural de la comunidad. Esto significa que Pima Community College reconoce, y trata de fomentar el conocimiento común de esos hechos culturales e históricos de los múltiples grupos étnicos de nuestro Suroeste. La multicultid cultural que presenta nuestra comunidad se presta a la creación de un proceso educativo rico en sus raíces, diverso en materia, y amplio en sus métodos.

Los programas educativos que se imparten en Pima Community College en general no tendrán una duración mayor de 2 años. El currículo incluye cursos en las diversas materias que se imparten tanto en español como en inglés, presentando materias en ambos idiomas. Pima Community College proporciona a la comunidad la posibilidad de aprovechar más procesos educativos sin perder el tiempo mientras se aprende inglés, o simplemente, significa que una persona que desea practicar ambos idiomas tiene la posibilidad de hacerlo.

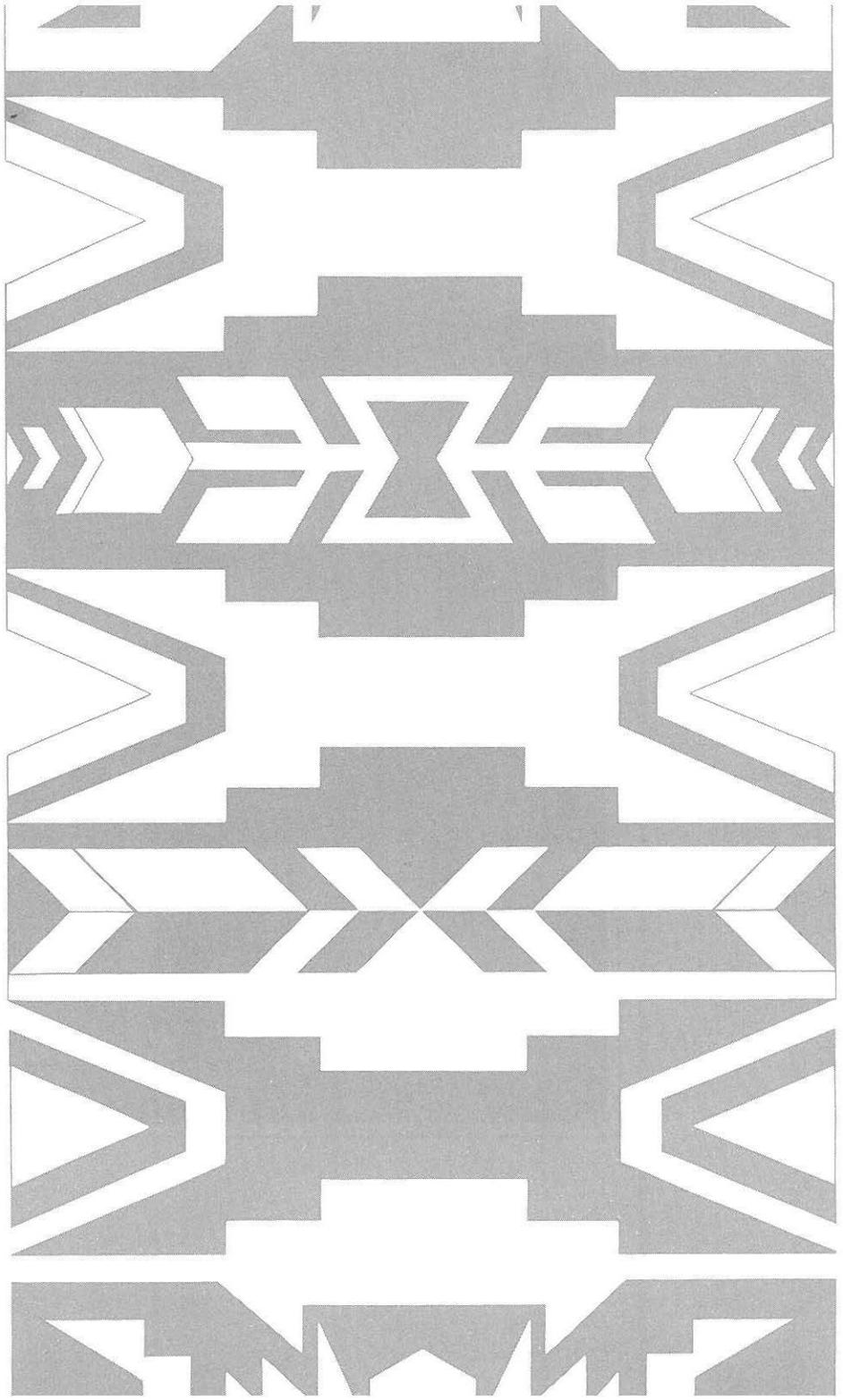
La legislación del Estado de Arizona define el "community college" diciendo que serán instituciones educativas donde se proporcionarán programas en las artes, ciencias y humanidades, y se incluirán cursos vocacionales y técnicos. Al llevar a cabo esta definición, Pima Community College se compromete a prestar los siguientes servicios a la comunidad:

Educación de tipo general que fomente interés en el conocimiento así como interés en la capacidad del hombre para formar una parte inteligente y responsable de su comunidad.

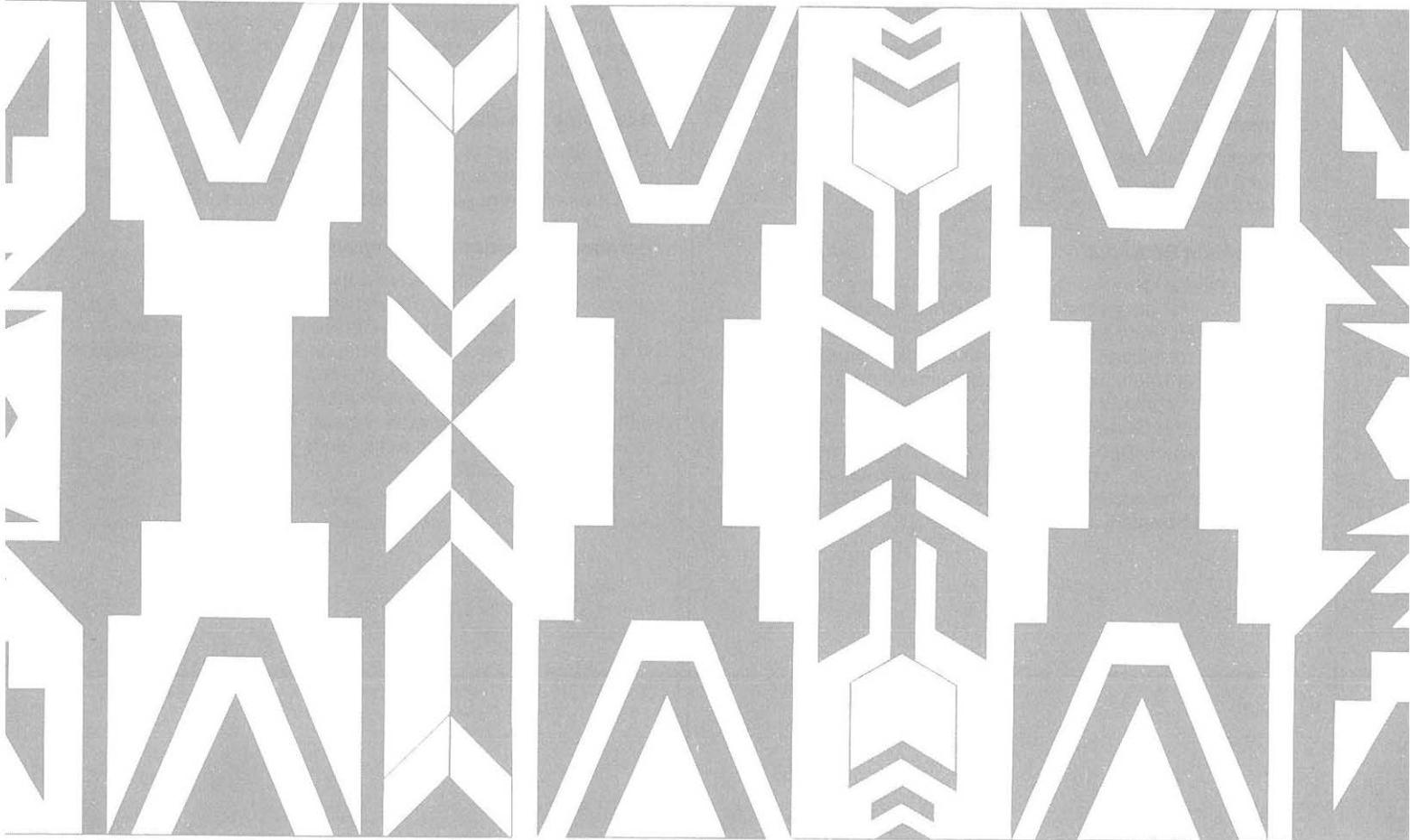
Programas educativos de duración variable que prepare a los estudiantes en carreras útiles y satisfactorias. Dos años de estudios preparatorios que permitan al estudiante ingresar en cursos universitarios superiores. Cursos educativos de toda índole que tienen como fin satisfacer las aspiraciones vocacionales o académicas de la población.

Un personal profesional que trata de servir a la comunidad en forma académica y vocacional. Servicios en cuanto a las necesidades culturales, recreativas, y de interés general. No es necesario el certificado de secundaria para ingresar en Pima Community College. Si usted desea más informes, comuníquese con la Oficina de Admisión.





Student life



Student Services

The Student Services staff is responsible for furnishing students with what they need and request in order to educate themselves—in addition to what is provided by the instructional areas of the college. Student Services, therefore, involves itself in the education of the whole person: individual growth, counseling, group experiences, social life, cultural awareness and appreciation, physical, emotional and financial well-being, experiences in governing society, and earning a living.

Centers are located at the West Campus, Downtown Campus, East Education Center and Community Campus office, and at some off-campus sites used by evening students.

Student Development

Students attending either day or evening sessions can receive an orientation to the college, academic advising, career planning, testing and counseling services from members of the student development staff. These services are available at the West Campus, Downtown Campus, East Education Center, the Community Campus office and at various off-campus locations used by evening students.

Counseling

Counseling services cover academic, personal and/or career problems. Although students are accepted on a walk-in basis, appointments are recommended.

Assessment Services

Individual assessments can be made, with the assistance of materials, for counseling, career and/or educational planning. Materials used by the staff help determine individual capabilities, specific learning disabilities, vocational interests, aptitudes, achievement and/or personal crisis situations. Group times also are made available for the General Education Development test (for high school equivalency) and the Test of English as a Foreign Language, required of foreign students seeking admission to the college. Many tests are available in both English and Spanish.

Career Centers

Students are acquainted with job knowledge skills, personal traits needed to successfully complete specific programs of study leading to careers and vocations, and also life management skills. Career and life management materials are available for individual and/or small group use. The center, in addition, provides a means for following up vocational interests which may have been assessed through testing or personal development courses.

Career Centers located in the Student Center on the West Campus, and at the Downtown Campus include descriptions of tasks people are expected to perform when working in a particular career, the training needed for the career, salaries and future outlook for employment and special job requirements. This information is available in film strips, slides, tapes, computerized and written materials.

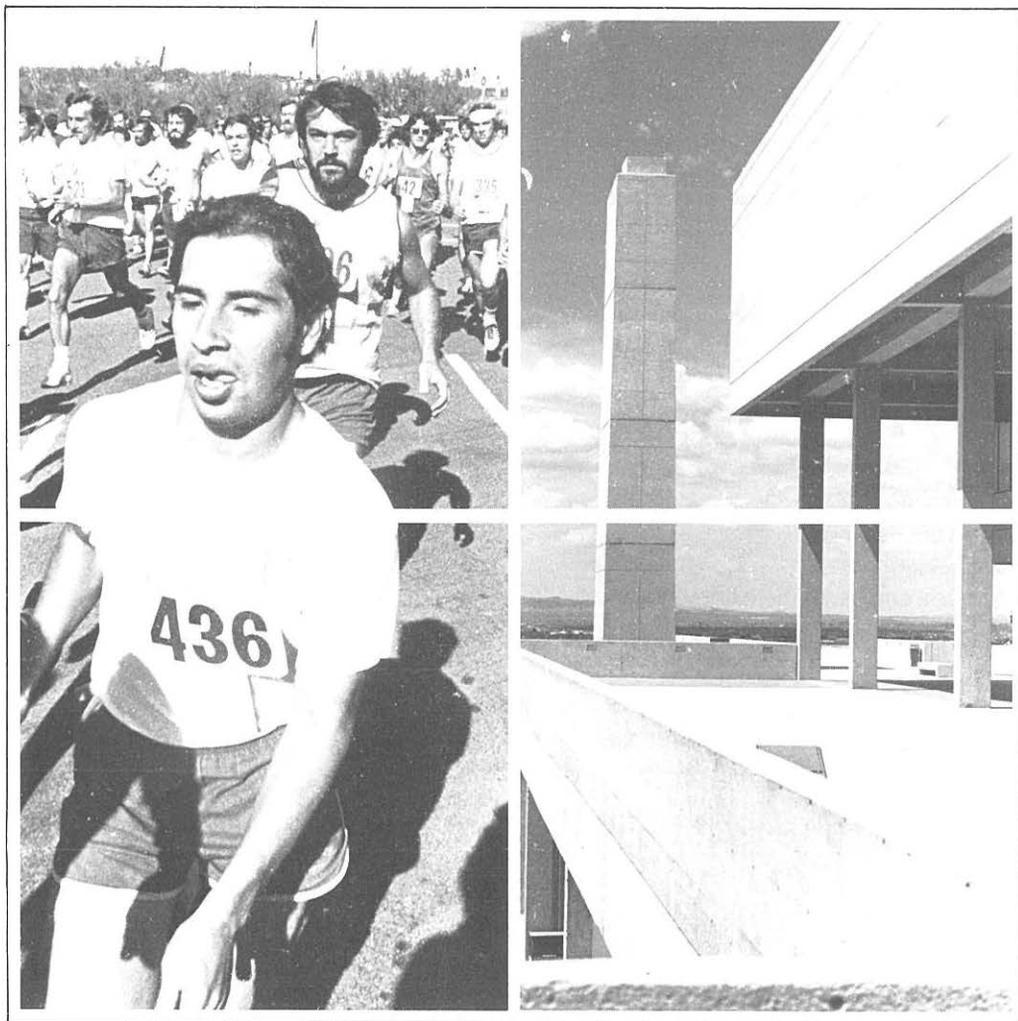
In addition, the centers offer special materials and counseling to assist undecided persons in making career choices. Some of the special services used to help persons select a career include vocational tests, career classes, computerized vocational search, and individual and small group counseling.

Academic Advising

After deciding on an academic, vocational or personal goal, the student is introduced to a faculty advisor familiar with the requirements of a particular program of study.

Personal Development Program

Students seeking alternative approaches to personal growth can take part in a variety of group experiences and individual conferences. Classes are scheduled by modules each semester to focus on such areas as college survival skills, self assessment, human relations, and problem solving, career exploration and development, self-awareness, and specific needs for women and men to improve interpersonal skills. Units are offered at the time of class registration.



Special Programs

Special programs are provided to assist Indian students, ex-offenders (PRISM), foreign students, veterans, and those who are physically impaired or have limited mobility. These programs include assisting the qualified student in obtaining financial benefits, counseling, and tutoring.

An example of such a program is the Paso Adelante Program. The goal of the Paso Adelante Program at Pima Community College is the exposure of newly recruited minority students to the wide range of career opportunities available to them. Paso Adelante recognizes that efforts which merely encourage students to enroll in a course of study, but lack supportive follow-up services, do not foster student success. Therefore, the program encourages a "Step Forward" by providing special support services to participants.

Student Health Services

Limited assistance in health matters is available to students at each campus. Workshops and other means of health education are available to assist students in recognizing and understanding health needs. In addition, West Campus student health services has a registered nurse.

It is hoped that students will avail themselves of these services as they recognize their own health needs or would like to have some health counseling.

Accident insurance is provided 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 are available in each student service area.

Publications

Student publications include two newspapers, the "Aztec Campus News" and the "Downtowner," and two literary magazines, "Mazagine" and "Tlaloc."

Those who would like to serve on the staff of the newspapers in any capacity should contact either the Fine, Applied and Communicative Arts Area office or the Student Activities Office on the West Campus, or Educational Support Services at the Downtown Campus.

West Campus students enrolled in Journalism 57 produce the West Campus student newspaper, the "Aztec Campus News." Additional journalism courses are offered for students desiring more advanced work.

Journalism 160 through 169—a sequence of 10 one credit hour courses—allow students an opportunity to produce campus publications including the "Downtowner," the Downtown Campus student newspaper, as well as learn journalistic skills according to their individual interests. These one hour credit courses offer students practice in reporting, feature writing, writing headlines and captions, editing, photography, layout, art work, proofreading and advertising.

Students interested in helping publish the "Mazagine" should register for Writing 62. Articles also can be contributed, and these should be submitted either to the magazine office in room 127 of the Classroom Building North on the West Campus, or Educational Support Services at the Downtown Campus.

"Tlaloc," a bilingual literary magazine, is published annually by students enrolled in Literatura Creativa (Spanish 206).

Housing

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

Student Activities

Information on the student governance, student clubs, organizations, athletics and cultural events scheduled during the academic year can be obtained at any of the college campuses.

Cultural events include visiting artists, films, visiting speakers, lectures, informal discussion groups or colloquiums, poetry readings, art exhibits, cultural awareness weeks, and festivals.

Student activity offices also provide information on community events, housing and transportation. Information service personnel, in addition, will help students reserve a meeting room for college activities or post a notice. A student handbook is made available through these offices.

For information on these services, consult the Student Services Office on any campus.

Student Leadership

Students have a voice in college functions through many areas. These include recognized student governance associations at each of the campuses, the Board of Governors, and appropriate student groups and committees at each of the campuses. Representatives of the student body also sit on various task forces and committees that make recommendations to the President.

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. Those interested in participating should check with Student Activities for available positions. Students, in addition to serving on the college groups, provide information on activities of the various groups to the student body government. For information on these activities, consult the Student Activities Office on any campus.

Leadership courses are also offered through Career Development courses (CDE) to improve leadership skills and to gain an understanding of the working relationship of student government within the community college structure.

Standard of Conduct and Student Code of Conduct

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. For a detailed statement of college regulations refer to the Student Code of Conduct available in the office of the Campus Student Services Administrator.

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, intramural and campus recreation programs can be obtained from the Athletics Office in the Fieldhouse (P.E. Annex). Physical education programs are handled by the Physical Education Department or the Human Resources Division of the West Campus.

INTERCOLLEGIATE: Pima is a member of the Arizona Community College Athletic Association, and the National Junior College Athletic Association, Region #1. Intercollegiate activities are governed by a board of students, staff and faculty with policies administered under the President by the Director of Athletics. 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 cross country (men & women), basketball (men & women), tennis (men & women), track (men & women), baseball (men), volleyball (women), wrestling (men), golf (men), and softball (women).

INTRAMURAL: Intramural activities are open to any member of the college—students, faculty and staff—with sports geared to individual and team competition. More than 20 activities are available, and others are developed when enough interest is shown. Activities include basketball, baseball, badminton, flag football, golf, billiards, handball, ping pong, seven-mile bicycle race, softball, swimming, tennis and volleyball.

Financial Aid

A complete program of financial assistance is offered students through scholarships, loans, grants and jobs. The principal objective of the Pima Community College financial aid program is to remove any financial barriers to college attendance by sincerely motivated students without regard to age, ethnic heritage or personal circumstances. Financial assistance is offered at the various student service offices.

Types of Financial Aid

SCHOLARSHIPS: A limited number of scholarships have been established for students by generous private donors. Awards range from \$60 to \$300 and often can be renewed for a second year.

The available scholarships are:

- Grace K. Abodeely Scholarship Fund
Source: Grace K. Abodeely
Eligibility: Deserving student on rifle team, in trap shooting
Value: \$120, one award per year
- American Association of University Women Scholarship
Source: American Association of University Women (Tucson Branch)
Eligibility: Promising and needy students
Value: \$150, number varies
- 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
- Arizona Association of Mexican-American Educators Scholarship
Source: Southern Arizona Association of Mexican-American Educators, Inc.
Eligibility: Promising and needy students
Value: \$120, one award per year
- Arizona Independent Automobile Dealers Association Scholarship
Source: Arizona Independent Automobile Dealers Association
Eligibility: Full-time enrollment in Automotive Program
Value: \$100, two awards per year

- Arizona Society of Professional Engineers Scholarship
Source: Arizona Society of Professional Engineers, Southern Chapter
Eligibility: Promising and needy students in Engineering
Value: \$120, two awards per year
- Elise Beaman Memorial Scholarship Fund
Source: Friends
Eligibility: Promising and needy students
Value: Amount varies and number of awards vary
- Continental Airlines Foundation Scholarship
Source: Continental Airlines Foundation
Eligibility: Promising students in any field
Value: \$120, one award per year
- Data Processing Management Association (Southern Arizona Chapter)
Source: Data Processing Management Association
Eligibility: Full-time enrollment in the computer science program
Value: \$60, two awards per year
- El Tigre—NCOA Scholarship
Source: 162nd Tactical Fighter Training Group
Eligibility: High School senior, donor selection
Value: \$300, one award per year
- Riginette Enz Scholarship
Source: Mrs. Riginette Enz
Eligibility: Students enrolled in the Dental Assisting Program
Value: \$60, one award per year
- Margaret Ernst Memorial Scholarship
Source: Family and friends
Eligibility: Promising and needy students
Value: Amount varies, number varies
- Exchange Clubs of Tucson Temporary Loan Fund
Source: Exchange Clubs of Tucson
Eligibility: Second semester students
Value: Up to \$50 for books, number varies
- First National Bank Scholarship
Source: First National Bank of Arizona
Eligibility: Students in the business field
Value: \$150, three awards per year
- 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
- Hughes Aircraft Company Scholarship
Source: Hughes Aircraft Company
Eligibility: Promising and needy students pursuing a four-year degree program
Value: \$1,000, two awards \$500 each



- International Foodservice Manufacturers Association (IFMA) Educational Foundation (Golden Plate)
Source: National Institute for the Foodservice Industry
Eligibility: Full-time student in Foodservice Management
Value: \$600, number varies
- John Paul Jones Memorial Scholarship
Source: American Society of Heating & Refrigerating & Air Conditioning Engineers, Inc.
Eligibility: Full-time enrollment in the air conditioning and sheet metal program
Value: \$150, one award per year
- Kappa Delta Phi Sorority Scholarship
Source: Nu Delta Chapter
Eligibility: Promising student in any field of study
Value: \$120, number of awards varies
- Kino Community Hospital Auxiliary Scholarship Fund
Source: Kino Community Hospital Auxiliary, Inc.
Eligibility: Promising and needy students in Health Sciences
Value: \$120, two awards per year
- Kiwanis Club of Green Valley Scholarship
Source: Kiwanis Club of Green Valley
Eligibility: Promising and needy students
Value: \$250, one award per year
- Kiwanis Club of Tucson Scholarship
Source: Kiwanis Club of Tucson
Eligibility: Promising and needy students
Value: \$250, one award per year
- Sharon Krieg Memorial Scholarship Fund
Source: Family and friends
Eligibility: Promising and needy students
Value: Amount varies, number varies
- La Societe des 40 Hommes Scholarship
Source: La Societe des 40 Hommes, Et 8 Chevaux
Eligibility: Enrolled in the Nursing Program
Value: Registration fees only, number varies
- League of Mexican-American Women Scholarship
Source: League of Mexican-American Women
Eligibility: Promising Mexican-American students
Value: Amount varies, number varies
- Marshall Foundation Fund—Allied Health
Source: Marshall Foundation
Eligibility: Students enrolled in an Allied Health program
Value: Amount varies, number of awards varies
- Marshall Foundation Fund—Nursing
Source: Marshall Foundation
Eligibility: Female students enrolled in the RN program
Value: Amount varies, 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 varies, number varies
- Medical Secretary Society of Pima County
Source: Medical Secretaries Society of Pima County
Eligibility: Full-time enrollment in the medical secretary program
Value: \$150, one award per year
- J. G. (Jack) Moore Memorial Scholarship
Source: Mrs. Margery Moore
Eligibility: Promising students interested in becoming teachers
Value: \$250, two awards per year
- National Academy of Opticianry
Source: The Educational Foundation in Ophthalmic Optics
Eligibility: Second year student in ophthalmic dispensing
Value: Expense paid trip to annual meeting
- Parks and Recreation Scholarship
Source: Arizona Parks & Recreation, District #4
Eligibility: Full-time enrollment in Parks/Recreation
Value: \$150, one award per year
- Pima Community College Booster Club Scholarship Fund
Source: Donations from Booster Club
Eligibility: Outstanding students in athletics and other fields
Value: \$120, number of awards varies
- 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 General Scholarship Fund
Source: General donations to the fund
Eligibility: Promising students in any field
Value: Amount varies, number of awards varies
- Pima County General Hospital Auxiliary
Source: Pima County General Hospital Auxiliary
Eligibility: Promising students interested in a health career
Value: \$120, two awards per year
- Pima Study Grant
Source: Various
Eligibility: Promising and needy students
Value: \$120, number varies

- Andrew J. Pizzini Memorial Fund

Source: The estate

Eligibility: Promising and needy students

Value: Amounts vary, number and type vary

- Recognition Award

Source: Pima Community College Student Association

Eligibility: Participation in extra-curricular college activities and departmental recommendation

Value: Up to \$120, number of awards varies

- Rodeo Club Scholarship

Source: Various

Eligibility: Active participation in Rodeo Club

Value: Varies, number of awards varies

- Safeway/Tucson Greyhound Park Scholarship

Source: Safeway Stores/Tucson Greyhound Park

Eligibility: Promising and needy students

Value: \$240, two awards per year

- Society of Manufacturing Engineers Scholarship

Source: Society of Manufacturing Engineers, Tucson Chapter 106

Eligibility: Second-year engineering student

Value: \$120, 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: \$120 per year, two awards per year, renewable

- Southern Arizona Dental Society Scholarship

Source: Southern Arizona Dental Society

Eligibility: Students enrolled in dental assisting program

Value: \$120, one award per year

- Southern Arizona Osteopathic Medical

Assistants Scholarship

Source: Southern Arizona Osteopathic Medical Assistants Association

Eligibility: Enrolled in Medical/Allied Health

Value: \$100, one award per year

- Southern Arizona-Tucson Innkeeper Ranch and Resort Association Scholarship

Source: The Association

Eligibility: Promising second year students in the hospitality/tourism program

Value: \$120, two awards per year

- Suburban Women's Club Scholarship

Source: Suburban Women's Club of Tucson

Eligibility: Promising and needy students

Value: \$120, six awards per year

- Tucson Advertising Club Scholarship

Source: Tucson Advertising Club

Eligibility: Advertising majors

Value: \$60, ten awards per year

- Tucson Airport Authority Scholarship

Source: Tucson Airport Authority

Eligibility: Employees of Tucson Airport Authority and their families

Value: \$120, two awards per year

- Tucson Broadcasters Scholarship

Source: Tucson Broadcaster

Eligibility: Full-time student in the broadcast, journalism and/or electronics program

Value: \$250, two awards per year

- Tucson Dental Assisting Scholarship

Source: Tucson Dental Assisting Association

Eligibility: Promising students in dental assisting program

Value: \$60, one award per year

- Tucson Gas and Electric Scholarship

Source: Tucson Gas and Electric Company

Eligibility: Children of Tucson Gas and Electric Company employees

Value: \$220, two awards per year, renewable

- Tucson Medical Center Scholarship

Source: Tucson Medical Center Auxiliary

Eligibility: Employees enrolled in Health Fields

Value: \$300, number varies

- Maria Urquides Scholarship

Source: League of Mexican-American Women

Eligibility: Promising and needy students

Value: \$250, two awards 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

- Weatherhead Foundation Scholarship

Source: Weatherhead Foundation

Eligibility: Minority students interested in any health related program

Value: Amount varies, number of awards varies

STUDENT LOANS: *The college offers a large number of student loans at low interest rates and deferred repayment at favorable terms. Among these are Student Nursing Loans, Law Enforcement Student Loans, Federally Insured Student Loans and National Direct Student Loans. A Pima Community College Emergency Loan Fund provides small loans for short periods of time to assist students in meeting emergencies.*

GRANTS: *A number of Supplemental Education Opportunity Grants are offered students having exceptional financial need. A Law Enforcement Education Grant program is available to students employed by law enforcement or correctional agencies. There also is a Nursing Scholarship (Grant) Program available for students enrolled in nursing. Arizona State Student Incentive Grants (SSIG) must be matched by existing scholarship awards to individual students.*

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. 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.*

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.*

BASIC EDUCATIONAL OPPORTUNITY 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.*

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

Because funds under all programs are limited in the amount available each year, applications received by March 1—prior to the beginning of the school year— will be given priority consideration. Applicants are encouraged to apply as early as possible 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.



Pima Community College Foundation

A community college and the community it serves are synonymous. As partners in service, interested citizens of the community have established a Foundation to assist the college in the continual expansion of higher 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 deprived from taxes provide the basic needs for higher education, but private support is often needed to provide those components necessary for true academic excellence.

A prime objective of the Foundation is to help bring about a recognition by local and regional business and industry, and of securing adequate financial support of Pima Community 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. Membership in the Foundation is dependent upon a donation to the Foundation.

Meetings and special functions are held each year where members have an opportunity to meet and hear from students and faculty about the programs taking place at 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 bequest, planning trust and will arrangements for the Foundation.

Officers

William J. Biehl, President
William Hawes Smith, Vice-President
Joseph B. Wilcox, Secretary
Jack D. Davis, Treasurer
Stewart V. Lancaster, Executive
Director

Directors of PCC Foundation

James R. Baum	Howard D. Goldwyn
William J. Biehl	John Mascarella
Keith S. Brown	Sallie Rollings
Marvin S. Cohen	Donald G. Shropshire
Jack D. Davis	William Hawes Smith
Walter H. Fathauer	Irwin L. Spector
Thomas B. Freeman	Joseph B. Wilcox
Edward S. Frohling	William Wilde

Cooperative Education

Students may earn up to three credit hours per semester while working in jobs related to their area of study. Cooperative Education may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester. The Cooperative Education program attempts to provide work experience related to the student's career goals. Part-time students who want to upgrade themselves in their present jobs also are encouraged to enroll.

Those enrolled in the program attend periodic meetings to receive instruction on job interview techniques, developing a personal resume, writing job objectives and career goals, and obtaining job opening information.

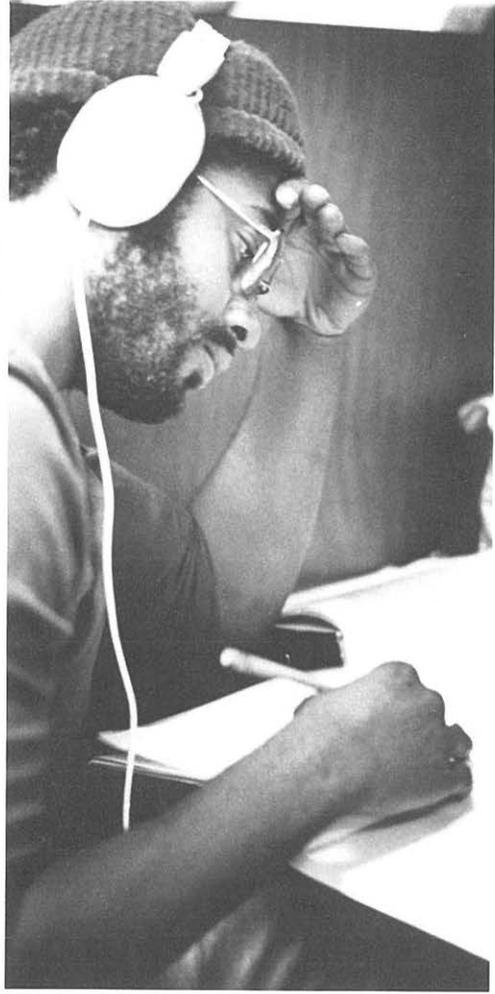
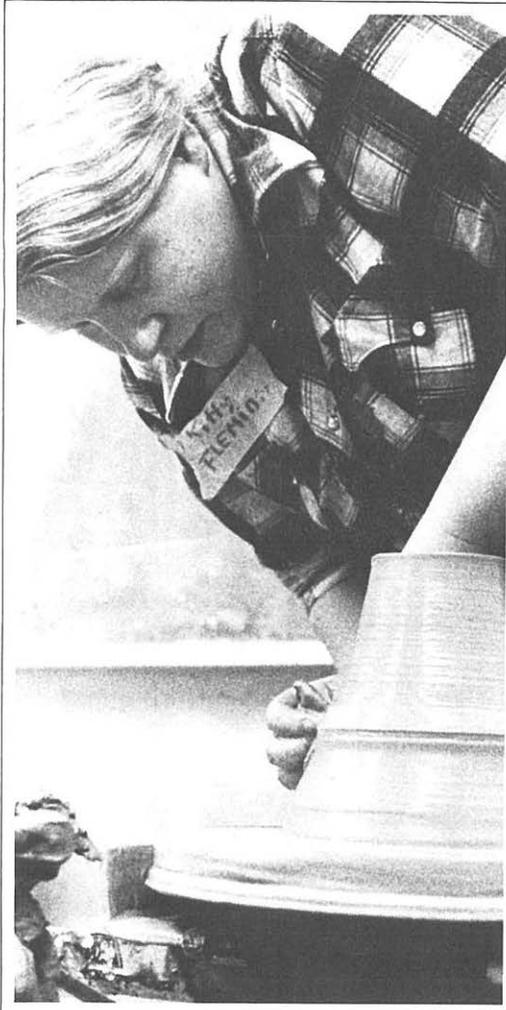
Each student is assigned a Cooperative Education coordinator who works with that student individually and offers assistance in job placement, job upgrading, skill development, skill application and career development.

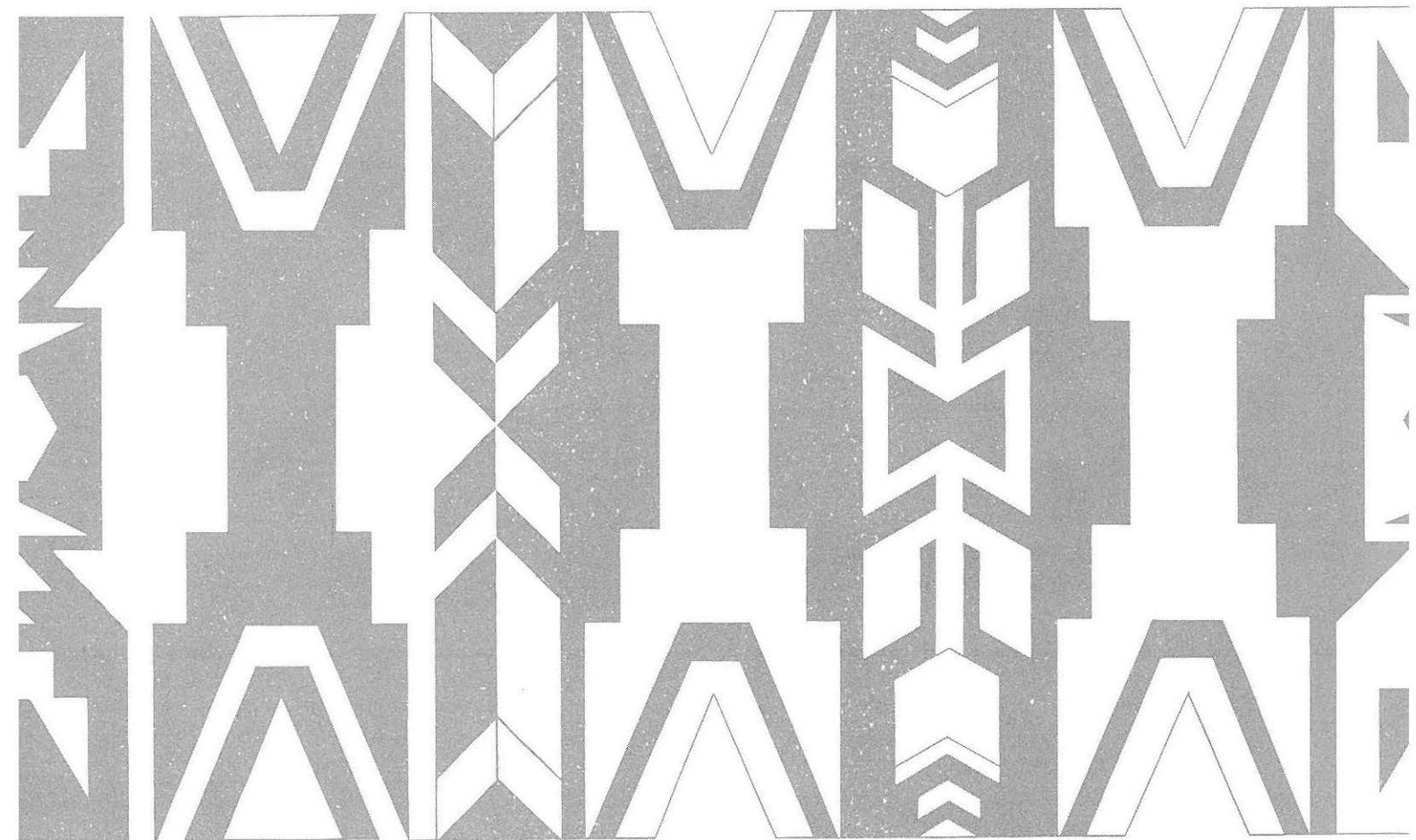
Employers hiring students through the Cooperative Education program are requested to evaluate the student/employee's performance each semester.

Students holding full-time jobs find the Cooperative Education plan helpful in several ways. Most employers encourage employees to continue their education and some also provide plans which pay tuition and other costs for the successful completion of courses related to particular occupations.

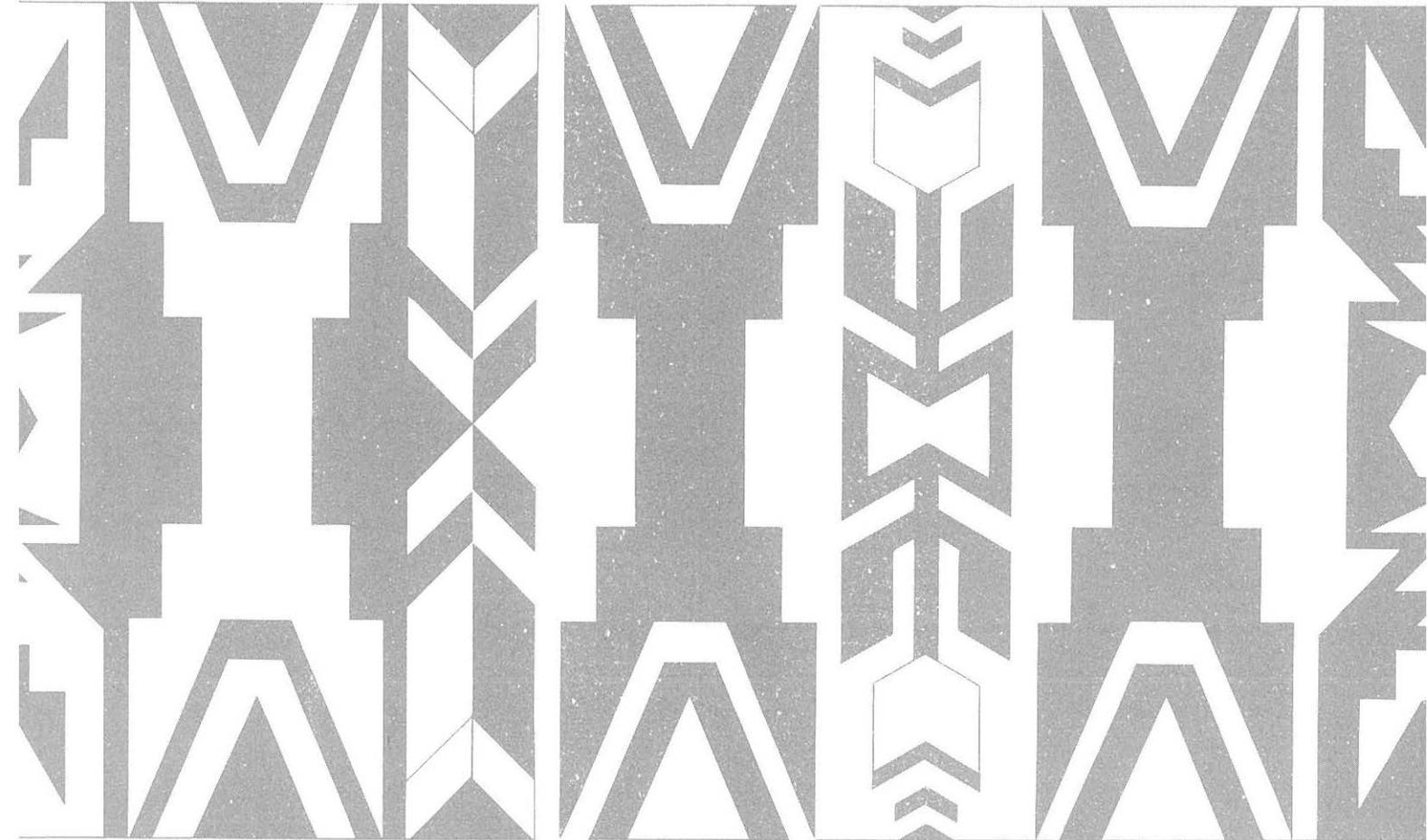
Often, these employers become aware that their employees are trying to upgrade their knowledge and are willing to plan a work experience program. This could lead to faster promotions and higher pay.

The employer, in addition, has the advantage of using college capabilities for training employees on new equipment or for newly created jobs. The college, meantime, assesses the employer's training needs while providing a practical education for those employees.





Programs



Programs by Campus*

PROGRAMS	WEST CAMPUS	DOWNTOWN CAMPUS
Accounting	X	X
Administration of Justice	X	X
Advertising Art		X
Air Conditioning		X
Allied Health	X	X
Anthropology-Archaeology		
Anthropology	X	X
Archaeological Fieldwork	X	
Applied Art and Design	X	
Arts and Crafts	X	
Automotive Technology		X
Aviation Mechanics		X
Bilingual	X	X
Business Administration Transfer	X	X
Chemistry	X	
Computer Science	X	X
Dental Assisting Technology	X	
Dental Laboratory Technology	X	
Drafting Technology	X	X
Drama	X	
Early Childhood Education	X	
Education	X	X
Electronics Technology	X	
Emergency Medical Technology	X	
Engineering	X	
Exploratory	X	X
Finance	X	X
Fine Arts	X	
Fire Science	X	
Geology	X	
Graphic Technology		X
Home Economics	X	X
Hospitality		X
Journalism	X	X
Liberal Arts and Sciences	X	X
Library Technology	X	
Life Sciences		
Biology	X	
Pre-Agriculture	X	
Pre-Dental	X	
Pre-Medical	X	
Pre-Medical Technology and Microbiology	X	
Pre-Pharmacy	X	
Pre-Veterinary	X	
Machine Tool Technology		X
Management	X	X
Marketing	X	X
Mathematics	X	X
Media Technology	X	
Military Science	X	X
Music	X	X

PROGRAMS	WEST CAMPUS	DOWNTOWN CAMPUS
Nursing Assistant		X
Nursing-Associate Degree	X	
Nursing-Practical Nurse		X
Nursing-Transfer	X	
Office Education	X	X
Ophthalmic Dispensing Technology	X	
Optical Laboratory Technology	X	
Physical Education	X	
Physics	X	X
Pre-Law	X	
Public Administration	X	
Radiologic (X-ray) Technology	X	
Real Estate	X	X
Recreation	X	
Respiratory Therapy	X	
Sheet Metal		X
Skills for Allied Health Services		X
Social Services	X	
Speech	X	X
Trade and Industrial Technology (Apprentice)		X
Wastewater Technology		X
Welding		X

*The East Education Center offers introductory courses in a wide range of subject areas, advanced general education courses, and selected courses in occupational programs. The Community Campus offers courses in selected subject areas in response to community interest at various locations throughout the college district.

Certificate and Degree Programs

A career ladder is offered in many programs leading from a basic certificate to an advanced or technical certificate to a degree.

Basic Certificate

Advertising Art
Air Conditioning
Airframe and Powerplant Mechanics
Allied Health Services
Alteration Specialist
Archaeological Fieldwork
Automotive Engine Repair and Rebuilding
Automotive Power Transmission
Automotive Suspension and Brakes
Automotive Tune-Up and Air Conditioning
Commercial Art
Commercial Photography
Credit Union
Data Entry Operator
Drafting, Architectural
Electronics, Consumer
Electronics, General
Emergency Medical Technology
Fast Food Industry
Food and Beverage Service
Functional Design
Graphic Technology
Hotel-Motel Operations
Housekeeping-Executive
Interior Design
Machine Shop Fundamentals
Management
Marketing
Media Technology
Nursing Assistant
Real Estate
Savings and Loan
Secretary, Bilingual
Sheet Metal Fabrication
Social Services
Teacher Aide/Assistant
Television Repair
Trade and Industrial Technology (Apprentice Major Area)
Travel Agent
Wastewater Technology
Welding

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Advanced Certificate

Accounting
Clerk-Typist
Commercial Art
Commercial Photography
Credit Union
Dental Assisting
Functional Design
Housekeeping-Executive
Interior Design
Library Technology
Management
Marketing
Practical Nurse
Real Estate
Receptionist
Respiratory Therapy
Savings and Loan
Secretary, Bilingual
Social Services (Drug Counseling Subspeciality)
Systems Programmer
Travel-Tour Agency Manager
Wastewater Technology

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Technical Certificate

Air Conditioning, Heating and Ventilation
Automotive Mechanics
Computer Operator
Control Technician
Data Entry Operator
Drafting, Architectural
Electronics Technology—Communications
Electronics Technology—Consumer
Electronics Technology—Digital
Electronics Technology—Industrial
Machinist's Standard
Welding

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Associate of Arts Degree

Anthropology
Arts and Crafts
Child Development/Family Relations
Clothing and Textiles
Consumer Service in Food
Corrections
Criminal Justice
Drama, Applied
Drama Education
Drama Production
Drama Theory
Early Childhood Education
Fashion Design
Fine Arts
Food, Nutrition, Dietetics
Food Service Management
General or Exploratory Studies
Home Economics Education
Home Economics Extension
Home Economics, General
Home Economics and Journalism
Interior Design
Journalism
Liberal Arts
Mathematics
Merchandising and Fashion Promotion
Music
Physical Education
Pre-Law
Pre-Professional Education
Public Administration
Social Services
Social Services (Drug Counseling Subspecialty)
Speech
Teacher-Director, Early Childhood Education

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Associate of Applied Science Degree

Accounting
Administrative Assistant
Advertising Art
Air Conditioning and Sheet Metal Technology
Automotive Technology
Banking
Computer Programmer/Analyst
Credit Union
Dental Laboratory Technology
Drafting, Architectural
Drafting, Electro-Mechanical
Drafting, Mechanical
Electronics Technology—Communications
Electronics Technology—Consumer
Electronics Technology—Digital
Electronics Technology—Industrial
Fire Science
Graphic Technology
Hotel-Motel Operations
Library Technology
Machine Tool Technology
Management
Marketing
Media Technology
Natural Resource Recreation
Real Estate
Recreation Leader
Savings and Loan
Seamstress, Professional
Secretary, Bilingual
Secretary, Executive
Secretary, General
Secretary, Legal
Secretary, Medical
Trade and Industrial Technology (Apprentice)
Wastewater Technology
Welding

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Associate of Science Degree

Automotive Technology
Biology
Business Administration
Chemistry
Electronics Technology—Communications
Electronics Technology—Consumer
Electronics Technology—Digital
Electronics Technology—Industrial
Engineering
Geology
Microbiology
Nursing
Ophthalmic Dispensing Technology
Physics
Pre-Agriculture
Pre-Baccalaureate Nursing
Pre-Dental
Pre-Medical
Pre-Medical Technology
Pre-Pharmacy
Pre-Veterinary
Radiologic Technology
Respiratory Therapy

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Accounting

Accounting degree program studies provide training and experience in systems, theory and central problems of business accounting. They also provide the necessary background for related, yet diverse, entry-level careers in private accounting, public accounting and government accounting. Students planning to become Certified Public Accountants should follow requirements in the Business Administration Transfer Program.

Advanced Certificate For Direct Employment

Required Courses (32)	First Semester	Cr. Hrs.
Principles of Accounting I	ACC 101	3
Payroll/Applied Accounting Systems	ACC 50	3
Mathematics of Business	BUS 51	3
Introduction to Business	BUS 100	3
Business Law I	BUS 200	3
		<hr/> 15
	Second Semester	
Principles of Accounting II	ACC 102	3
Tax Accounting	ACC 204	3
Introduction to Computers	CSC 100	3
Business Law II	BUS 201	3
Human Relations	MAN 110	3
Calculating Machines	OED 121	2
		<hr/> 17

Associate of Applied Science Degree For Direct Employment

Required Courses (60-64)	First Semester	Cr. Hrs.
Principles of Accounting I	ACC 101	3
Introduction to Business	BUS 100	3
Mathematics of Business	BUS 51	3
Human Relations	MAN 110	3
Business English	OED 154	3
		<hr/> 15
	Second Semester	
Principles of Accounting II	ACC 102	3
Introduction to Computers	CSC 100	3
Tax Accounting	ACC 204	3
General Education Elective*		3-4
Speech Elective	SPE 110 or 120	3
		<hr/> 15-16
	Third Semester	
Cost Accounting	ACC 203	3
Business Law I	BUS 200	3
Intermediate Accounting I	ACC 201	3
Introduction to Microeconomics	ECO 100	3
General Education Elective*		3-4
		<hr/> 15-16
	Fourth Semester	
Business Organ. and Mgmt.	MAN 280	3
General Education Elective*		3-4
General Education Elective*		3-4
COBOL Programming	CSC 160	3
Intermediate Accounting II	ACC 202	3
		<hr/> 15-17

*General Education Requirements

Select four of the following courses, or other available general education courses with the consent and written approval of the subject area or department coordinator:

MTH 70 or MTH 150
 REA 100
 WRT 101 and/or WRT 154
 POL 110 and/or POL 111
 SPE 120
 SPA 50 and/or SPA 55
 PHI 101 and/or PHI 102 and/or PHI 120
 PSY 100 and/or PSY 101
 SOC 100 and/or SOC 101
 HUM 110 and/or HUM 111
 ECO 101

Administration of Justice

The Administration of Justice curriculum offers two options—criminal justice and corrections—with courses serving three types of students: in-service, pre-service and transfer. Students can acquire skills needed to up-grade their present positions, find a job, or transfer to a four-year institution.

Job entry programs offer the maximum number of skills possible. Students in these programs should concentrate on specific major courses, taking only the minimum general education requirements.

Those planning to transfer should follow the requirements of the four-year institution they wish to attend, taking only the core courses in their major area. Transfer programs also are available at Pima.

Students entering an Administration of Justice program must be advised by one of the instructors in the area.

Corrections Associate of Arts Degree For Direct Employment

Required Courses (62–65)		Cr. Hrs.
Intro. Administration of Justice	AJS 101	3
Criminal Law I	AJS 172	3
Fund. Crime & Delinquency	AJS 260	3
Crim. Justice Procedures	AJS 216	3
Juvenile Justice Proced.	AJS 212	3
		15

General Education Requirements

Writing I	WRT 101	3
Technical Communications	WRT 154	3
Am. National Government	POL 110	3
Am. State/Local Govt.	POL 111	3
Intro. Psychology I–II	PSY 100–101	6
Intro. Sociology	SOC 100	3
Mathematics of Business	BUS 51	3
Intro. Microeconomics	ECO 100	3
Bus. & Prof. Communication	SPE 120	3
Electives*		17–20
		47–50

*Suggested Electives

First Aid	REC 121	(2)
Intro. to Youth Care	AJS 163	(3)
Police Comm. and Human Relations	AJS 210	(3)
Inst. & Field Services	AJS 245	(3)
Intro. Social Welfare	SSE 133	(3)
Casework Methods	SSE 134	(3)
Group Work	SSE 235	(3)
Eval./Support of Drug User	SSE 217	(3)
Defensive Tactics	AJS 12	(2)
Survival	REC 118	(2)
Treatment Drug Abuser	SSE 218	(3)
Criminal Law II	AJS 272	(3)
Organized Crime Investigation	AJS 220	(3)
Crisis Intervention—Theory/Tech.	SSE 236	(3)
Interviewing Techniques	SSE 234	(3)
AJS Field Experience	AJS 290	(3)
Detention Super. Methods	AJS 240	(3)
Behavior Modification	PSY 104	(3)
Ethnic Studies courses	ANT or HIS	(3)
Crim. Invest. & Report Prep.	AJS 204	(3)
Program Planning & Org.	REC 114	(3)
Normal Personality I	PSY 103	(3)
Nutrition	FSN 114	(3)

Note: Other course electives may be taken. For more information, students should contact an advisor.

Corrections Associate of Arts Degree For Transfer

Required Courses (68–70)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Intro. to Logic or Natural Science* (1)	PHI 120 or Natural Science elective	3–4
College Algebra* (2)	MTH 150	3
Am. National Government	POL 110	3
Intro. Adm. of Justice	AJS 101	3
Criminal Law I	AJS 172	3
		18–19

Second Semester		
Writing II	WRT 102	3
Intro. to Logic or Natural Science* (1)	PHI 120 or Natural Science elective	3–4
Finite Math	MTH 170	3
Am. State/Local Govt.	POL 111	3
Fund. Crime & Delinquency	AJS 260	3
Intro. to Public Admin.	PAD 105	3
		18–19

Third Semester		
Intro. to Microeconomics	ECO 100	3
Bus. & Prof. Communication	SPE 120	3
Stat. Methods in Eco. & Bus.	BUS 205	3
Juvenile Justice Proced.	AJS 212	3
Humanities or Foreign Language	HUM or Lang.	4
		16

Fourth Semester		
Intro. to Macroeconomics	ECO 101	3
Intro. to Computers	CSC 100	3
Criminal Justice Proced.	AJS 216	3
Acctg. for Govt. Agencies	ACC 173	3
Humanities or Foreign Lang. *(3)	HUM or Lang.	4
		16

Note: Transfer students should follow the requirements of the four-year institutions which they plan to attend. It is the student's responsibility to obtain appropriate program information from the university of his/her choice on a regular basis.

Upon transfer, students may be expected to complete 6 units in each of 2 of the following 4 fields: Anthropology, Cultural Geography, Psychology, and Sociology.

First Aid (REC 121) is strongly recommended for Corrections Majors.

* (1) Fulfilled by Logic (PHI 120) and 3-4 units of natural science or by 2 semesters of natural science. The natural science courses may be selected from the following: (Although not required, students may enroll in laboratories and use lab units as free electives, unless otherwise specified) AST 101, 102 (111 and 112 are labs); CHM 101, 102; ESC 101, 102; and LSC 103, 104. In the case of the following courses: ESC 120, 121; LSC 207, 208; and PHY 121, 122, labs are required. The 2 semesters do not need to be in the same science.

* (2) The prerequisite for MTH 150 is MTH 130, or two years of algebra. Math placement tests are available; if interested, see an advisor.

* (3) Fulfilled by either 2 semesters (8 units) of a single foreign language, or Humanities I and II (HUM 110, 111), or other selected Humanities electives. See an advisor for information concerning these electives.

**Criminal Justice
Associate of Arts Degree
for Direct Employment**

Required Courses (62–65)		Cr. Hrs.
Intro. Admin. of Justice	AJS 101	3
Criminal Law I-II	AJS 172, 272	6
Criminal Justice Proced.	AJS 216	3
Police Comm./Human Relations	AJS 210	3
		15

General Education Requirements

Writing I	WRT 101	3
Technical Communications	WRT 154	3
Am. National Government	POL 110	3
Am. State/Local Govt.	POL 111	3
Intro. to Sociology	SOC 100	3
Intro. to Psychology I-II	PSY 100–101	6
Mathematics of Business	BUS 51	3
Intro. to Microeconomics	ECO 100	3
Bus. & Prof. Communication Electives*	SPE 120	3
		17–20
		47–50

***Suggested Electives**

Patrol Procedures	AJS 71	(3)
Crime Scene Tech. I	AJS 218	(3)
Crime Scene Tech. II	AJS 273	(3)
Criminalistics: Evidence	AJS 276	(3)
Adv. Criminalistics	AJS 277	(3)
AJS Field Experience	AJS 290	(3)
Cooperative Training	AJS 299	(3)
Police Administration	AJS 208	(3)
Traffic Safety Functions	AJS 106	(3)
Organized Crime Investigation	AJS 220	(3)
Criminal Invest. & Report Prep.	AJS 204	(3)
Detention Super. Methods	AJS 240	(3)
Services: Inst. & Field	AJS 245	(3)
Intro. to Public Admin.	PAD 105	(3)
Defensive Tactics	AJS 12	(2)
Firearms	AJS 214	(2)
Juvenile Just. Procedures	AJS 212	(3)
Typing I	OED 111	(3)
Political & Legal Aspects of Drug Use	SSE 127	(3)
Drugs in Amer. Society	SSE 115	(3)
Fund of Crime & Delinquency	AJS 260	(3)
Intro. to Youth Care	AJS 163	(3)
Intro. to Social Welfare	SSE 133	(3)
Casework Methods	SSE 134	(3)
Crisis Intervention	SSE 236	(3)
Behavior Modification	PSY 104	(3)
Ethnic Studies courses	HIS or ANT	(3)
Human Development	ECE 107	(3)

Note: Other approved electives may be taken. For more information, the student should contact an advisor.

**Criminal Justice
Associate of Arts Degree
For Transfer**

Required Courses (68–70)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Intro. to Logic or Natural Science *(1)	PHI 120 or Natural Science elective	3–4
College Algebra *(2)	MTH 150	3
Am. National Government	POL 110	3
Intro. to Admin. of Justice	AJS 101	3
Criminal Law I	AJS 172	3
		18–19

Second Semester

Writing II	WRT 102	3
Intro. to Logic or Natural Science *(1)	PHI 120 or Natural Science elective	3–4
Finite Math	MTH 170	3
Am. State/Local Govt.	POL 111	3
Criminal Law II	AJS 272	3
Intro. to Public Admin.	PAD 105	3
		18–19

Third Semester

Intro. to Microeconomics	ECO 100	3
Bus. & Prof. Communication	SPE 120	3
Stat. Methods in Eco. & Bus.	BUS 205	3
Crim. Just. Proced.	AJS 216	3
Humanities or Foreign Language *(3)	HUM or Lang.	4
		16

Fourth Semester

Intro. to Macroeconomics	ECO 101	3
Intro. to Computers	CSC 100	3
Police Comm./Human Relations	AJS 210	3
Acctg. for Govt. Agencies	ACC 173	3
Humanities or Foreign Lang. *(3)	HUM or Lang.	4
		16

Note: Transfer students should follow the requirements of the four-year institutions which they plan to attend. It is the student's responsibility to obtain appropriate program information from the university of his/her choice on a regular basis.

Upon transfer, students may be expected to complete 6 units in each of 2 of the following 4 fields: Anthropology, Cultural Geography, Psychology, and Sociology.

Courses in Physical Education are strongly recommended for Criminal Justice majors.

*(1) Fulfilled by Logic (PHI 120) and 3-4 units of natural science or by 2 semesters of natural science. The natural science courses may be selected from the following: (although not required, students may enroll in laboratories and use lab units as free electives, unless otherwise specified) AST 101, 102 (111 and 112 are labs); CHM 101, 102; ESC 101, 102; and LSC 103, 104. In the case of the following courses: ESC 120, 121; LSC 207, 208; and PHY 121, 122, labs are required. The 2 semesters do not need to be in the same science.

*(2) The prerequisite for MTH 150 is MTH 130, or two years of algebra. Math placement tests are available; if interested, see an advisor.

*(3) Fulfilled by either 2 semesters (8 units) of a single foreign language, or Humanities I and II (HUM 110, 111), or other approved Humanities electives. See an advisor for information concerning these electives.

Advertising Art

Both a basic certificate and an associate of applied science degree program are available in advertising art. The first two semesters of the entire program serve as a core curriculum in the areas of advertising art, graphic technology and liberal arts. Studies in the third and fourth semesters offer specialization in advertising art as well as participation in cooperative education work experience. Both advertising art programs are designed for direct employment.

Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Intro. to Business	BUS 100	3
Math (based on placement exam)	MTH	3
Advertising Art I-II	ADA 101-102	6
Advertising Design I	ADA 110	3
Production Tech. & Processes I-II	ADA 111, 221	6
Drawing and Composition	ADA 103	3
		<hr/> 24

Associate of Applied Science Degree For Direct Employment

Required Courses (66)	First Semester	Cr. Hrs.
Intro. to Business	BUS 100	3
Practical Communications	WRT 150	3
Graphic Technology I	GRA 101	3
Advertising Art I	ADA 101	3
Advertising Design I	ADA 110	3
Drawing and Composition	ADA 103	3
		<hr/> 18
	Second Semester	
Math (based on placement exam)	MTH	3
Business & Prof. Communication	SPE 120	3
Graphic Technology II	GRA 102	3
Advertising Art II	ADA 102	3
Production Tech. & Processes I	ADA 111	3
Advertising Design II	ADA 120	3
		<hr/> 18
	Third Semester	
Advertising Design III	ADA 230	3
Production Tech. & Processes II	ADA 221	3
Advertising Drawing	ADA 205	3
Math (second course in sequence)	MTH	3
Co-op Education Training	ADA 299	3
		<hr/> 15
	Fourth Semester	
Human Relations in Business	MAN 110	3
Production Tech. & Processes III	ADA 231	3
Advertising Illustration	ADA 203	3
Adv. Design for Advertising	ADA 204	3
Co-op Education Training	ADA 299	3
		<hr/> 15

Air Conditioning

Conditions similar to industry are provided through a fully equipped air conditioning laboratory. Students learn about both the heating and cooling cycles, and also how to disassemble, rebuild, repair and reassemble all types of air conditioning and refrigeration units, including domestic, residential, commercial and industrial.

A person majoring in an air conditioning curriculum may find Cooperative Education offers an ideal way of gaining additional skills-application experience while attending classes. Consult a Cooperative Education teacher-coordinator for details.

Air Conditioning Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Residential Air Conditioning:		
Air Conditioning Fundamentals	ACD 101	3
Air Conditioning Phase I-II	ACD 120, 125	8
Technical Math I-II	MTH 110, 120	6
Human Relations	MAN 110	3
		<hr/> 20
Light Commercial Endorsement:		
Above course work plus		
Air Conditioning Phase III-IV	ACD 210, 220	8
		<hr/> 28

Air Conditioning, Heating, Ventilation Technical Certificate For Direct Employment

Required Courses		Cr. Hrs.
Air Conditioning Fundamentals	ACD 101	3
Air Conditioning Phase I-IV	ACD 120, 125, 210, 220	16
Technical Math I-II	MTH 110, 120	6
Practical Communications	WRT 150	3
Technical Communications	WRT 154	3
Technical Physics I-II	PHY 101-102	6
Human Relations	MAN 110	3
Combination Welding	WLD 110	3
		<hr/> 43

**Air Conditioning and Sheet Metal Technology
Associate of Applied Science Degree
For Direct Employment**

Required Courses (75)	First Semester	Cr. Hrs.
Air Conditioning Fundamentals	ACD 101	3
Air Conditioning Phase I	ACD 120	4
Technical Math I	MTH 110	3
Sheet Metal I	SML 110	4
Technical Drafting I	DFT 150	3
		<hr/> 17
	Second Semester	
Sheet Metal Pattern Layout I	SML 130	3
Air Conditioning Phase II	ACD 125	4
Technical Math II	MTH 120	3
Sheet Metal II	SML 120	4
Practical Communications	WRT 150	3
Combination Welding	WLD 110	3
		<hr/> 20
	Third Semester	
Air Conditioning Phase III	ACD 210	4
Human Relations	MAN 110	3
Technical Physics I	PHY 101	3
Sheet Metal Pattern Layout II	SML 135	3
Technical Communications	WRT 154	3
Estimating I	ACD 250	3
		<hr/> 19
	Fourth Semester	
Air Conditioning Phase IV	ACD 220	4
Sheet Metal Pattern Layout III	SML 210	3
Architectural Sheet Metal	SML 220	3
Estimating II	ACD 260	3
Technical Physics II	PHY 102	3
Elective in Humanities, Psychol., Sociology or Philosophy		3
		<hr/> 19

Allied Health

Allied Health Programs offer opportunities for men and women who wish to prepare for a career in a health-related field. Programs range from one-semester to two-and-three years in length, and prepare the graduate for certification, registry, and/or licensure. In response to community needs, special refresher and continuing education courses and programs also are offered. Programs, which provide an open or ladder curriculum for career mobility, permit students to move to succeeding levels of study upon the satisfactory completion of their entering program levels. For example, a student entering and satisfactorily completing a certificate program in an allied health field may wish to continue study at the advanced certificate or associate degree levels, if applicable.

Except for Emergency Medical Technicians, Allied Health Service Aides, Nursing Assistants and Patient-Care Attendants, Home-makers and Home Health Aides, and Unit Clerks, which are programs with open admission policies, the following application deadline dates apply:

March 1 for Fall Entering Classes, and
October 1 for Spring Entering Classes, where applicable.

Applicants are notified of the action taken by the selections committee by the following dates:

May 1 for Fall Entering Classes, and
December 1 for Spring Entering Classes, where applicable.

Because of limited laboratory space and clinical facilities, and the delicate balance of job opportunities in the health field, most programs have limited enrollments. These specialized allied health programs have specific eligibility requirements because of enrollment limitations, certification, registry, licensure, program accreditation regulations, and related criteria.

Therefore, students requesting placement into such programs are required to adhere to the policies and procedures which follow:

Admission Policies:

1. Application for admission to programs in allied health is *in addition* to the application required for general admission to the college.
2. Applicants are expected to demonstrate certain educational proficiencies, which may vary from one program to another; the applicant should consult the section of the catalog which describes each program and/or consult with the admission secretary for Allied Health Programs to determine the specific educational proficiencies required by each program.
3. Except for those programs with open admission policies, a Selections Committee for Allied Health Programs makes final selections for each entering class, assuring that consistent selection practices and criteria are employed.
4. Applications for admission to allied health programs are considered for ONE APPLICATION PERIOD ONLY. Students, who desire to be a candidate for admission to the next entering class, must submit a new application for admission to the program.
5. All applicants are responsible for submitting completed applications by the proper application deadlines.
6. Preference is given to Arizona residents in the college district.

Admission Procedure:

1. Application packets may be obtained from the career and advising centers at each campus in the district for the following allied health programs:

Downtown Campus

Allied Health Service Programs—Beginning Level

- Nursing Assistants/Patient-Care Attendants
- Homemaker/Home Health Aides
- Unit Clerks
- R. N. Refresher
- Nursing Assistant
- Practical Nursing

West Campus

Associate Degree Nursing

Dental Programs

- Dental Assisting
- Dental Laboratory Technology
- Emergency Medical Technology
- Ophthalmic Technology
- Ophthalmic Dispensing
- Optical Laboratory Technician
- Radiologic (X-ray) Technology
- Respiratory Therapy

2. Completed applications (including official high school and college transcripts) must be received by the admissions secretary by the application deadline for the next entering class. Applicants must request the Registrar's Office to send Pima Community College transcripts to the admissions secretary. Applications received later than the application deadline date will not be evaluated.

3. All applicants can receive information regarding pre-entrance testing and interviews, when appropriate, from the admissions secretary in the Career and Advising Center. (Refer to the program section of the catalog for specific requirements.)

4. By the "selections date" in each application period, the selections committee will notify each applicant of:

- Acceptance into the program,
- Placement as an alternate,
- Rejection.

5. An accepted applicant is required to submit, within two weeks of the acceptance date, a card of intent to enroll in the program. No deposit is required. Alternates will be placed as vacancies occur up to, and including, the entering date. Alternate status expires when the class has been filled in each enrollment period.

Health Core Curriculum:

A core curriculum operates in Health Sciences providing a foundation of study and supportive-elective study to students pursuing a career in the health care industry. Two courses are offered in the core: Introduction to Health Care (HCA 154) and Independent Studies in Health Sciences (HCA 99). Course descriptions may be found under Health Care.

S.A.R.A.H.E.L.P. Consortium:

The Southern Arizona Regional Allied Health Educational Linkage Program (SARAHHELP) was developed to expand career opportunities to community college students, and to attract well-trained health workers to rural areas of southern Arizona. A consortium between the Arizona College of Technology, Arizona Western College, Cochise College and Pima Community College is designed to help solve the rural health manpower needs by developing educational linkages which will provide, more adequately, prepared personnel throughout Pima, Santa Cruz, Cochise and Yuma Counties.

The Pima County Community College District provides specialized training in the allied health sciences at the post-secondary level and in close clinical affiliation with the University of Arizona Medical Center, greater metropolitan Tucson and Phoenix hospital complexes, and health care centers in Cochise and Yuma Counties. Under SARAHHELP, students take one semester to one year of liberal arts, pre-technical and some introductory technical study at their home community college, followed by one year of technical and clinical training in the Pima County Community College District. Some clinical training for these allied health programs may occur within the student's home community (e.g., at the Cochise County Hospital, Sierra Vista Community Hospital and the Arizona Regional Medical Center).

At the completion of each allied health program, students receive an Associate degree or an advanced certificate from Pima Community College, and also qualify to take the national and/or state certifying registry/licensure examination in their particular specialty. Study through SARAHHELP permits students to receive the best technical training available in the Southern Arizona Region, avoiding costly duplication of college-based programs, and encourages them to return to their home community for service.

Graduates are prepared to enter the health care industry as ophthalmic dispensers, radiologic technologists, respiratory therapists and dental assistants.

The first year curriculum at the home community college consists of courses in the basic sciences, communications, social sciences and humanities disciplines which are generally common to all the allied health programs. The introduction to health care course, during the first semester, provides the student opportunities to become oriented to the health occupations, acquire knowledge of health science fundamentals and explore health care delivery concepts and applications common to all health workers.

The summer session (where applicable) and the second year curriculum at Pima Community College concentrates on the clinical and theoretical education within the student's area of occupational choice. Because of national standards, some programs extend beyond the spring semester of the second year, placing the student in a period of clinical externship.

Students who successfully fulfill requirements for admission to their home college may apply for admission to this program. Because of limited laboratory space and clinical facilities, and the delicate balance of job opportunities in the health field, most programs have limited enrollments. These programs have special eligibility requirements, and a special SARAHHELP application is needed in addition to the general admission application.

All applicants are responsible for submitting completed applications by the proper deadlines announced by the registrar's office. Pre-entrance examinations and interviews also may be required. Preference is given to Arizona residents in the college district.

Interested students should consult the college catalog for career counselors and/or the SARAHHELP coordinator at the respective colleges for information on enrollment, fees, scholarship, stipend and housing. For further information, contact the SARAHHELP director at the District Office of Allied Health.

Allied Health Services

This curriculum is designed to maximize opportunities for learning so that students can adapt basic health worker skills to the varied delivery of health services. Students, upon completing the program, will be qualified to perform basic client care skills in hospitals and in long term and home care facilities as nursing assistants or patient hospital care attendants. Homemaker and home health aide skills are included. Clinic experience as unit clerks can be arranged.

Graduates are prepared to perform beginning health worker skills under the supervision of licensed health care personnel.

This is a one semester program consisting of three courses which include lectures, laboratory and clinical experience in community health facilities. Upon completion of 12 credit hours, the student will receive a Pima Community College Basic Certificate. Course work can be applied to other health career programs.

Acceptance into Program:

- Completion of Pima Community College acceptance requirements.
- Completion of special application for Allied Health Services Program.
- Completion of placement examinations in mathematics and reading comprehension. (Note—Applicants must place at the eighth grade level or better in reading comprehension.)
- Interview by the campus Allied Health Services Review Committee or a committee member.
- A physical examination, including a T.B. screening, is required upon acceptance into the program.

General Requirements:

- Total credits—12 semester hours.
- Successful completion of all academic and clinical program requirements.

Basic Certificate For Direct Employment

Required Courses		Lec.	Lab	Cr. Hrs.
Principles Anatomy, Physiology	LSC 102	3	+ 3	4
Intro. to Health Care	HCA 154	3	+ 0	3
Skills, Allied Health Serv.	HCA 150	2	+ 9	5
				12

Anthropology-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 and a basic certificate that emphasizes archaeological fieldwork.

Anthropology

The anthropology program enhances and develops the student's awareness of the cultural heritage and present cultural diversity of the Southwest, as well as prepares the student for upper division study in Anthropology at a major university. The curriculum generally parallels the lower division Anthropology/Liberal Arts requirements at the state universities.

All students must complete the core curriculum of 18 units (ANT 100, 110, 210, 215, 220, 225). In addition, students with interests in archaeology/physical anthropology must also complete Option 1 and students with interests in cultural anthropology/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 Certificate.

Associate of Arts Degree for Transfer

Required Courses (65–69)	First Semester	Cr. Hrs.
Human Origins and Prehistory	ANT 100	3
Introduction to Cultural Anthropology	ANT 110	3
Foreign Language*		4
Geology I	ESC 120	4
Writing I	WRT 101	3
		17
Second Semester		
Cultural Anthropology	ANT 210	3
Physical Anthropology	ANT 220	3
Foreign Language*		4
Geology II	ESC 121	4
Writing II	WRT 102	3
		17
Third Semester		
Archaeology		3
Individual Studies in Anthropology	ANT 225	3
Humanities**	ANT 290	4
Foreign Language*		3–4
Anthropology Option I or II***		3–4
		16–18

Fourth Semester

The Nature of Language	ANT 215	3
Humanities**		4-5
Foreign Language*		3-4
Anthropology Option I or II***		3-4
Survival	REC 118	2
		<hr/> 15-18
Major Requirements		21
Science Requirements		8
Writing		6
Language Proficiency and/or Electives*		14-16
Humanities**		8-9
Required Option I or II***		8-9
		<hr/> 65-69

*Students meeting language proficiency requirement may take six to eight units of electives in consultation with their faculty advisor.

**Or Literature, Philosophy, Art, Music.

***Option I—Students with area emphasis in Archaeology/Physical Anthropology should take Ecology I and II (LSC 150 & 151).

Option II—Students with area emphasis in Cultural Anthropology/Linguistics should select six units to be taken from Anthropology, History, Psychology, Sociology in consultation with an advisor.

Note: Students, after successful completion of the program, may be eligible to transfer to upper class levels at a four-year university. Students should consult the anthropology major requirements at the college or university to which they plan to transfer.

Archaeological Fieldwork

The archaeology fieldwork curriculum at Pima Community College is designed to provide interested persons with a basic level of practical archaeological experience. Field courses are taught within the context of Arizona prehistory and emphasize an appreciation of the archaeological and environmental resources of the Southwest.

Students have the opportunity to develop their skills and abilities in field archaeology through instructor directed excavation, surveying, mapping, recording, and analysis of archaeological materials.

Emphasis is placed on actual field experience, supplemented by appropriate lecture courses. Specific objectives for the curriculum are: provide field experience in the areas of public archaeology and cultural resource management, give avocational archaeologists and interested members of the community the opportunity to increase their skills and knowledge of archaeology, promote conservation and preservation of cultural resources, and to contribute to the knowledge of the prehistory of Southern Arizona. Upon the completion of the courses listed, an individual will receive a Basic Certificate in Archaeological fieldwork.

Archaeological Fieldwork Basic Certificate

Required Courses		Cr. Hrs.
Archaeology of the Southwest	ANT 141	3
Archaeology	ANT 225	3
Archaeology Laboratory	ANT 250	3
Archaeology Field Methods	ANT 275	4
Advanced Archaeology		
Excavation	ANT 277	3
Construction Surveying	ENG 110	3
		<hr/> 19

Applied Art and Design

This program provides an academic opportunity for development in various career areas including commercial art, commercial photography, functional and interior design. There is considerable opportunity for students to select courses related to particular career interests.

Applied Art and Design

Core Curriculum

For All Applied Art and Design Options

Suggested Course Sequence

Required Courses		Cr. Hrs.
Basic Design	ART 100	3
Color and Design	ART 115	3
Drawing I or Photography I	ART 110 or 140*	3
Writing I or		
Practical Communications	WRT 101 or 150**	3
Human Relations in Bus. & Ind.	MAN 110	3
		<hr/> 15

Additional courses required for completion of advanced certificate or degree options in Applied Art and Design are listed on succeeding pages.

*Commercial Photography Option—Commercial Photography I
All others take Drawing I.

**Interior Design Associate of Arts Degree take WRT 101.

Commercial Art Basic Certificate

Required Courses		Cr. Hrs.
Basic Design	ART 100	3
Drawing I	ART 110	3
Commercial Graphics	DES 211	3
Communigraphics I	MET 50	3
Practical Communications	WRT 150	3
		<hr/> 15

Commercial Art Option Advanced Certificate

Required Courses		Cr. Hrs.
Core Curriculum—Applied Art & Design		15
Commercial Graphics	DES 211	3
Communigraphics I	MET 50	3
Advertising Layout and Design	MKT 127	3
Industrial Graphics or Drawing II	DES 111 or ART 210	3
Photography I or Printmaking or	ART 140 or 212 or	
Offset Printing	GRC 70	3
		<hr/> 30

Commercial Photography Basic Certificate

Required Courses		Cr. Hrs.
Basic Design	ART 100	3
Photography I-II	ART 140-141	6
Commercial Photography	ART 143	3
Practical Communications	WRT 150	3
		<hr/> 19

**Commercial Photography
Advanced Certificate**

Required Courses		Cr. Hrs.
Core Curriculum—Applied Art & Design		15
Photography II	ART 141	3
Commercial Photography	ART 143	3
Offset Printing or	GRC 70	
Advertising Layout and Design	MKT 127	3
Communigraphics I	MET 50	3
Cinematography I	MET 53	3
		<hr/> 30

**Functional Design
Basic Certificate**

Required Courses		Cr. Hrs.
Basic Design	ART 100	3
Industrial Graphics	DES 111	3
Functional Design I-II	DES 150, 250	6
Practical Communications	WRT 150	3
		<hr/> 15

**Functional Design
Advanced Certificate**

Required Courses		Cr. Hrs.
Core Curriculum—Applied Art & Design		15
Industrial Graphics	DES 111	3
Functional Design I-II	DES 150, 250	6
Technical Drafting I or		
Construction Drafting I	DFT 150 or 110	3
Communigraphics I or	MET 50 or	
Interior Design I or	DES 156 or	
Light Structure Design	DES 151	3
		<hr/> 30

**Interior Design
Basic Certificate**

Required Courses		Cr. Hrs.
Home Furnishings	DES 155	3
Interior Design I-III	DES 156, 255, 256	9
Practical Communications	WRT 150	3
		<hr/> 15

**Interior Design
Advanced Certificate**

Required Courses		Cr. Hrs.
Core Curriculum—Applied Art & Design		15
Home Furnishings	DES 155	3
Interior Design I-III	DES 156, 255, 256	9
Construction Drafting I	DFT 110	3
		<hr/> 30

**Interior Design
Associate of Arts Degree**

Required Courses		Cr. Hrs.
Advanced Certificate Curriculum		30
Drawing I or Photography I	ART 110 or 140	3
Functional Design I	DES 150	3
Small Business Management	MAN 124	3
Landscape Gardening	GTC 90	3
Industrial Graphics or		
Functional Design II	DES 111 or 250	3
Intro. to Oral Communication	SPE 102	3
Writing II	WRT 102	3
Humanities Electives		6-8
Social Science Elective		3
		<hr/> 60-62

Humanities Electives

ART 130-131
MUS 151
LIT 141-142
HUM 110-111
PHI 101-102
DRA 240-241

Apprentice Related Instruction

Pima Community College works cooperatively with local and state apprenticeship committees to offer related instruction in a number of apprentice programs. Apprentice related instruction currently is offered in the following areas:

Bricklaying	Lineman
Cableman	Meterman
Carpentry	Operating Engineer
Electric Distribution Developer	Painting & Decorating
Engineering Technician	Pipe Fitting
Floor Covering	Plastering & Cement Masonry
General Construction	Plumbing
Glazing	Sheet Metal
Ironworking	Shop Electrician
Lathing	Substation Electrician

Students will be awarded a Certificate of Completion upon finishing all apprentice related instruction in a chosen program. It is also possible to work toward a degree while enrolled in apprentice programs.

Those wishing to progress toward an Associate of Applied Science degree (trade and industrial technology option) may qualify for credit in related technical instruction, from 12 to 28 credit hours, upon completing the apprenticeship. In order to have a student meet the requirements of this degree, no less than 28 credit hours must be in approved technical courses. In addition to the major subject requirements, the following additional course requirements also must be met:

Writing	6 credit hours
Mathematics and/or Science	12 credit hours
Social Sciences	6 credit hours

The remaining 12 credit hours, to meet the minimum degree requirement of 64 credit hours, should be chosen in consultation with the College Apprentice Coordinator.

DEGREE PROGRAM: (Associate of Applied Science—Trade and Industrial Technology):

28 hours	Apprenticeship related instruction and/or approved technical courses
6 hours	Writing
12 hours	Mathematics and/or Science (select 12 hours from the following—mathematics, astronomy, chemistry, earth sciences, physics)
6 hours	Social Sciences (select six hours from the following—anthropology, history, humanities, literature, philosophy, sociology, management)
12 hours	Electives
64 hours (total)	

CERTIFICATE PROGRAM: Students completing their apprenticeship related instruction will be awarded a Certificate of Completion by Pima Community College.

Information on how to become an apprentice may be obtained from the Bureau of Apprenticeship and Training, United States Department of Labor, Federal Building, 301 West Congress Street, Tucson, Arizona 85701. Information on college related instruction may be obtained from the Coordinator of Apprenticeship Training, Pima Community College, Downtown Campus.

Arts and Crafts

Students are provided an opportunity to develop proficiency in at least one medium and a background in several media. Art electives and supportive courses should be selected according to the major emphasis of the program. The 100 level courses should be taken as early as possible in the program.

Associate of Arts Degree

Required Courses (62)		Cr. Hrs.
Basic Design	ART 100	3
Drawing I	ART 110	3
Photography I	ART 140	3
Art and Culture I or II	ART 130 or 131	3
Functional Design I	DES 150	3
Ceramics I or	ART 160	
Metal Work or	ART 170	
Weaving or	ART 180	
Leatherwork	ART 190	3
Art Electives	ART	12
		<hr/> 30

General Education Requirements:

Writing I-II	WRT 101-102	6
Social Science Elective		3
Humanities I or II	HUM 110 or 111	4
Science Elective	ESC or LSC	4
Business or Technology Elective		3
Electives in program of interest		12
		<hr/> 32

Automotive Technology

The Automotive Technology department offers a variety of study avenues including two-year Associate degree programs, a two-year technical certificate program and several automotive mechanic basic certificate programs as well as special interest automotive courses.

Courses are designed to meet the needs of the beginner, the professional mechanic who wants to update his skills, and the do-it-yourself person interested in knowing his or her car. The degree program provides students with educational opportunities that allow for rapid entry into the automotive field beyond the mechanic position. Those enrolled in the Mechanics Technical Certificate program are trained in general automotive repair. The various basic mechanic certificate programs offer opportunities for specialization in a particular area of automotive repair. Persons who later decide to advance to the technical certificate or degree level may use the basic certificate programs as a beginning step.

Programs also can be arranged for students planning to transfer to four-year institutions. Students, however, should follow the first two-year requirements of the college or university to which they plan to transfer.

All students taking lab courses are required to have a basic set of tools, safety glasses and work clothing.

A person majoring in an Automotive Technology curriculum may find Cooperative Education offers an ideal way of gaining additional skills-application experience while attending classes. Consult a Cooperative Education teacher-coordinator for details.

Automotive Engine Repair and Rebuilding Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Internal Combustion Engines	AUT 120	4
Auto Engine Service Repair	AUT 122	3
Engine Tune-up	AUT 125	4
Human Relations	MAN 110	3
		14

Automotive Tune-Up and Air Conditioning Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Internal Combustion Engines	AUT 120	4
Engine Tune-up	AUT 125	4
Automotive Electricity I-II	AUT 128-129	6
Automotive Air Conditioning	AUT 142	3
Human Relations	MAN 110	3
		20

Power Transmission Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Automatic Transmissions	AUT 132-133	8
Drive Line	AUT 136	4
Human Relations	MAN 110	3
		15

Suspension and Brakes Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Automotive Chassis	AUT 138	4
Drive Line	AUT 136	4
Automotive Brakes	AUT 140	4
Human Relations	MAN 110	3
		15

Automotive Mechanics Technical Certificate For Direct Employment

Required Courses (52)		First Semester	Cr. Hrs.
Internal Combustion Engines	AUT 120		4
Automotive Electricity I	AUT 128		3
Automatic Transmission Removal	AUT 132		4
Technical Math I*	MTH 110		3
			14
		Second Semester	
Auto Engine Service Repair	AUT 122		3
Automotive Electricity II	AUT 129		3
Automatic Transmission Rebuilding	AUT 133		4
Technical Physics I	PHY 101		3
			13
		Third Semester	
Engine Tune-up	AUT 125		4
Automotive Chassis	AUT 138		4
Practical Communications	WRT 150		3
Human Relations	MAN 110		3
			14
		Fourth Semester	
Drive Line	AUT 136		4
Automotive Brakes	AUT 140		4
Automotive Air Conditioning	AUT 142		3
			11

*This course requires prerequisites or a placement test.

**Automotive Technology
Associate in Applied Science Degree
For Direct Employment**

Required Courses (64)	First Semester	Cr. Hrs.
Internal Combustion Engines	AUT 120	4
Automotive Electricity I	AUT 128	3
Automatic Transmission Removal	AUT 132	4
Technical Math I*	MTH 110	3
Technical Physics I	PHY 101	3
		<hr/> 17
	Second Semester	
Auto Engine Service Repair or Engine Tune-up	AUT 122 AUT 125	3 or 4
Automotive Electricity II	AUT 129	3
Automatic Transmission Rebuilding	AUT 133	4
Technical Math II	MTH 120	3
Technical Physics II	PHY 102	3
		<hr/> 16 or 17
	Third Semester	
Auto Engine Service Repair or Engine Tune-up	AUT 122 AUT 125	3 or 4
Automotive Chassis	AUT 138	4
Human Relations	MAN 110	3
Practical Communications	WRT 150	3
Intro. to Psychology I	PSY 100	3
		<hr/> 16 or 17
	Fourth Semester	
Automotive Brakes	AUT 140	4
Automotive Air Conditioning	AUT 142	3
Drive Line	AUT 136	4
Technical Communications	WRT 154	3
		<hr/> 14

*This course requires prerequisites or a placement test.

**Automotive Technology
Associate of Science Degree
For Transfer**

Required Courses (68)	Cr. Hrs.	
Internal Combustion Engines	AUT 120	4
Automotive Electricity I-II	AUT 128-129	6
Automatic Transmissions	AUT 132-133	8
Auto Engine Service Repair	AUT 122	3
Engine Tune-up	AUT 125	4
Automotive Chassis	AUT 138	4
Drive Line	AUT 136	4
Automotive Brakes	AUT 140	4
General Education Requirements		31
		<hr/> 68

Note: Automotive courses to be taken in the same order as for the Associate in Applied Science Degree program. The 31 credit hours of general education requirements must be taken for the Associate of Science Degree. General education courses taken at Pima should be checked against a catalog of the college or university to which the student plans to transfer.

Aviation Mechanics

The aviation mechanics courses prepare experienced aircraft mechanics for federal airframe and powerplant certification. A minimum of 30 months experience of concurrently performing the duties of airframe and powerplant maintenance, or at least 18 months experience in performing the duties appropriate to the rating sought are prerequisites for course entry. A review of experience must be made by the instructor in all cases prior to registration.

A letter of completion will be awarded for Airframe Mechanics (AVM 220) and for Powerplant Mechanics (AVM 230). Basic certificates also are awarded to qualified students.

**Airframe and Powerplant Mechanics
Basic Certificate
For Direct Employment**

Required Courses	Cr. Hrs.	
Airframe Mechanics	AVM 220	6
Powerplant Mechanics	AVM 230	5
Combination Welding	WLD 110	3
Technical Math I	MTH 110	3
Human Relations	MAN 110	3
		<hr/> 20

Bilingual

A variety of subjects is offered on a bilingual-bicultural education basis for all persons fluent in Spanish. This is not a remedial program, but is aimed at developing competency in Spanish for literacy, vocational, professional and cultural purposes.

Some 100 courses are being offered under the Bilingual Program in areas of drama, pre-school education, machine shop, welding, electronics, folklore dances, business, home economics, physical education, humanities, history, English as a second language (ESL), reading, literature, Spanish and others. Some of the courses are listed in the individual sections of the catalog.

Courses in the Bilingual Program, with the exception of those prefixed SPA or ESL, offer students the advantage of receiving credit for the course, plus additional credit in Spanish at no extra charge. Credit in Spanish is at the 50 or 100 level as it is assumed that if a student can pursue a bilingual course taught totally in Spanish, he has a knowledge of the language.

The student may, therefore, obtain 1 to 8 units of additional Spanish credit, but such credit is not awarded automatically. It must be petitioned for before the end of the course. The actual number of credits will be determined by the instructor teaching the course in cooperation with the Spanish faculty based on the evaluation of the student's written and oral work.

Credit is divided as follows: a) 4 credits in Spanish 50 and/or 4 credits in Spanish 55, totaling 4 or 8 credits (Please note that credit in Spanish 50 and 55—conversational Spanish I and II—is not transferable); b) if a student is in a university transfer program, 2 credits may be awarded for Spanish 101 (Credits for the latter may be considered separately or together, totaling 2 or 4 credits respectively. The same is applicable to Spanish 102.); c) Reading 52 will receive 1 elective credit in Spanish; d) if a bilingual course consists of 1 unit, the Spanish credit is 1 unit of elective credit. (This additional credit cannot be awarded if credit in Spanish 101, 102, 50 and 55 had been earned previously through enrollment in these classes.)

Programa Bilingüe

El colegio está ofreciendo una variedad de cursos, tomando como base la educación bilingüe-bicultural para todas las personas que ya hablan español.

Unos 100 (cien) cursos se ofrecen en el Programa Bilingüe, tales como drama, educación pre-escolar, máquinas y herramientas, soldadura, electrónica, bailes folklóricos, negocios, economía doméstica, educación física, humanidades, historia, inglés como segundo idioma, lectura, literatura, español, y muchos otros. Los cursos se encuentran en el catálogo bajo las secciones de programas respectivos.

Es un programa en el que se ha señalado el propósito de obtener mayor dominio en el idioma, con fines profesionales, culturales y técnicos. Hay ventaja de obtener crédito adicional en español en estos cursos, exceptuando aquellos que están señalados con prefijos SPA o ESL, sin pagar más dinero.

El crédito en español es otorgado al nivel 50 y 100, porque se considera que si el estudiante puede seguir una materia del Programa Bilingüe impartida en español, este estudiante ya tiene conocimiento de dicho idioma.

Por consiguiente, este estudiante puede obtener de 1 a 8 unidades de crédito adicional en español, pero tal crédito no se otorga automáticamente y es necesario hacer petición, antes de terminar el curso, para recibir este crédito adicional. El número exacto será determinado por la facultad de español en cooperación con el instructor del curso dependiendo en la evaluación del trabajo oral y escrito del estudiante.

Las unidades se dividen así: a) 4 unidades en Español 50 y/o 4 unidades en Español 55 sumando a 4 o 8 unidades. Favor de tomar en cuenta que las unidades en Español 50 y 55 no son transferibles. b) Si el estudiante se encuentra en un programa transferible a la universidad se puede otorgar crédito en Español 101 o 102, si no se ha recibido ya este crédito por medio de inscripción en estos cursos. Las unidades del curso 101 pueden ser consideradas en forma respectivamente. Este mismo concepto se aplicará a Español 102. c) Reading 52 tiene el valor de un crédito electivo de español. d) Si el curso Bilingüe consiste de una unidad de crédito, el crédito en español será una unidad elegible. Este crédito adicional no se otorgará si crédito se ha recibido anteriormente en Español 101, 102, 50 o 55 por medio de inscripción en estos cursos.

Business Administration Transfer

Arizona's three universities normally require that professional courses in business administration be taken in the last two years of a four-year program. Only a limited amount of work in business courses is offered below the junior level. The objective of this policy is to permit students to acquire a foundation of work in the basic arts and sciences as a prerequisite for professional courses in business.

All business programs accredited by the American Association of Collegiate Schools of Business require students to take a minimum of 40 percent of the four-years work in the arts and sciences, including work in mathematics, social science, humanities and the natural sciences. Students desiring a four-year degree are advised to take a majority of their work during the first two years in the arts and sciences, including a strong background in mathematics.

Students taking their first two years of work at a community college should take only those courses in business and economics that are offered as freshman or sophomore level courses at any of the three Arizona universities. These lower division courses are numbered 1 through 99 at the University of Arizona, and 1 through 299 at Arizona State University and Northern Arizona University. The introductory course in business law will be accepted as an exception to this policy. A maximum of 30 hours of business and economics courses will be accepted from community colleges toward a bachelor's degree in business administration.

Professional business courses taught in the junior and senior years in the three state universities may not be completed at a two-year college for transfer credit in the business core or major field of specialization. Such courses may be utilized in the free elective category subject to the 30-hour limitation. Courses taught as vocational or career classes at the community college which are not taught in the colleges of business at any of the three state universities will not be accepted for credit toward a bachelor's degree. Courses taught in the upper-division business core at the three state universities must be completed at the degree-granting institution unless transferred from an accredited four-year school.

The following general pattern of courses is recommended for students completing their first two year's work in a community college and planning to transfer to one of Arizona's universities without loss of credit.

Pre-Professional Courses: 30 credit hours

Accounting	6
Economics	6
Quantitative Analysis & Statistics	6
Business Law	3
Lower-Division Business Elective	9

General Education: 34-42 credit hours*

English	Humanities
Mathematics	Physical Education
Science	Social Sciences

*Contingent upon the university of your choice.

Associate of Science Degree For Transfer

Students must adhere to course prerequisites as indicated in the catalog.

Required Courses (62-66)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
PHI 120 or Natural Science*		3-4
Am Nat. Govt.	POL 110	3
Social Science Elective or Math**		3
Introduction to Computers	CSC 100	3
Physical Ed. Elective	PED	1
		<hr/> 16-17
Second Semester		
Writing II	WRT 102	3
PHI 120 or Natural Science		3-4
Finite Math	MTH 170	3
Social Science Elective**		3
Bus. & Prof. Communication	SPE 120	3
Physical Ed. Elective	PED	1
		<hr/> 16-17
Third Semester		
Prin. of Accounting I	ACC 101	3
Intro. to Microeconomics	ECO 100	3
Humanities or Foreign Language Elective***		3-4
Topics in Calculus	MTH 175	3
Statistical Methods I	BUS 205	3
		<hr/> 15-16
Fourth Semester		
Prin of Accounting II	ACC 102	3
Intro. to Macroeconomics	ECO 101	3
Humanities or Foreign Language Elective***		3-4
Social Science Elective or CSC 160 (Cobol)****		3
Statistical Methods II	BUS 206	3
		<hr/> 15-16

*Fulfilled by PHI 120 and 3-4 units of natural science or by two semesters of Natural Science from the following list: AST 101–102; LSC 103–104; CHM 101–102; ESC 101–102; LSC 207–208; PHY 121–122. (Sciences need not be the same)

**Students who have not completed a college algebra equivalent in high school should take MTH 150 during the first semester of the freshman year and delay completion of the social science requirement. Otherwise, two three-unit social science courses which are open to freshmen must be completed in the freshman year. They may be chosen from courses in anthropology, geography (ESC-103), psychology, or sociology.

***Fulfilled by completion of 8-10 units selected from Humanities or Foreign Language Option:

Choose one of the following options:

- (1) 2 semesters of a single foreign language (8 units)
- (2) Humanities 110 and 111
- (3) HUM 110 OR HUM 111, *Plus* 6 units from option 4
- (4) No less than 9 units from the following 3 groups:
 - (a) DRA 240, 241; LIT 241, 242, 261, 265, 270, 271, 272
 - (b) PHI 101, 130
 - (c) ART 130, 131, MUS 151

****Students who took MTH 150 in the first semester of the freshman year should complete the social science requirement during the second semester of the sophomore year. Students who intend to major in accounting, information systems or operations management, will enroll in COBOL Programming, CSC 160, and complete the social science elective in the junior year.

Note: It is the student's responsibility to obtain appropriate program information at the university of his/her choice on a regular basis.

Chemistry

Associate of Science Degree For Transfer

Suggested Courses (62-66)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
General Chemistry I	CHM 120	4
College Algebra & Trigonometry	MTH 160	5
Social Science Elective*		3
Physical Education	PED	1
		17–18
	Second Semester	
Writing II	WRT 102	3
General Chemistry II	CHM 121	4
Anal. Geometry & Calculus I	MTH 180	3
Introductory Physics I	PHY 121 or 131	4
Fortran IV Programming or Social Science Elective	CSC 140	3–4
		17–18
	Third Semester	
Organic Chemistry I	CHM 240	4
Anal. Geometry & Calculus II	MTH 185	3
Introductory Physics II	PHY 122 or 132	4
Humanities Elective		3–4
Physical Education	PED	1
		15–16
	Fourth Semester	
Organic Chemistry II	CHM 241	4
Anal. Geometry & Calculus III	MTH 215	4
Humanities Elective		3–4
Elementary German I or Social Science Elective	GER 110	4 or 3
		14–16

*For course electives in Humanities and Social Sciences consult the catalog of the college or university you plan to enter.

NOTE: The courses suggested meet University of Arizona requirements for the first two years of a Bachelor of Science degree.



Computer Science

Various Computer Science programs consist of one, two and four semesters of study, with the four semester program leading to an Associate of Applied Science degree.

Certificates are awarded upon completion of the shorter programs, indicating that the student is qualified as a computer operator, a data entry operator or a control technician.

Students entering the pre-computer science program as a preliminary to additional study in business administration, engineering, mathematics, or similar fields at a four-year college or university should plan their programs to include mathematics through calculus, basic computer science and statistics.

Students planning to transfer to a four-year institution should follow the first two-year requirements of the particular college or university to which they plan to transfer.

The continuing education program is designed for those who hold an Associate of Applied Science degree in Computer Science and have at least two years of programming experience.

Data Entry Operator Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Data Entry	CSC 110	3
Intro. to Business	BUS 100	3
Writing I	WRT 101	3
Reading	REA 100 series	4
Mathematics of Business or Algebra II	BUS 51 MTH 130	3
Job Entry Procedures	CSC 195	1
		<hr/> 17

Data Entry Operator Technical Certificate For Direct Employment

Required Courses (32-33)	First Semester	Cr. Hrs.
Basic Certificate Requirements		17
	Second Semester	
Advanced Data Entry	CSC 115	3
Intro. to Computers	CSC 100	3
Reading (if required) or Electives		3-4
Work Stand./Job Attitudes	CSC 196	1
Calculating Machines	OED 121	2
Co-Op Training or Elective	CSC 299	3
		<hr/> 15-16

Control Technician Technical Certificate For Direct Employment

Required Courses (32-33)	First Semester	Cr. Hrs.
Intro. to Computers	CSC 100	3
Prin. of Accounting I	ACC 101	3
Data Entry	CSC 110	3
Reading	REA 100 series	4
Mathematics of Business	BUS 51	3
		<hr/> 16
	Second Semester	
Writing I	WRT 101	3
Prin. of Accounting II	ACC 102	3
Job Entry Procedures	CSC 195	1
Work Stand./Job Attitudes	CSC 196	1
Calculating Machines	OED 121	2
Reading (if required) or Elective		3-4
Intro. to Business or Co-Op Training	BUS 100 CSC 299	3
		<hr/> 16-17

Computer Operator Technical Certificate For Direct Employment

Required Courses (35-37)	First Semester	Cr. Hrs.
Intro. to Computers	CSC 100	3
Computer Operations	CSC 150	3
Algebra II or Mathematics of Business	MTH 130 BUS 51	3
Reading	REA 100 series	4
Intro. to Business	BUS 100	3
Key Punch for Prog. & Oper.	CSC 197	1
Job Entry Procedures	CSC 195	1
		<hr/> 18
	Second Semester	
Prin. of Accounting I	ACC 101	3
Systems Oper. & Procedures	CSC 155	3
Writing I	WRT 101	3
Reading (if required) or Elective		3-4
Computer Science Elective	CSC	3
Work Stand./Job Attitudes	CSC 196	1
Data Processing Projects I	CSC 198	1-2
		<hr/> 17-19

**Computer Programmer/Analyst
Associate of Applied Science Degree
For Direct Employment**

Required Courses (62-65)	First Semester	Cr. Hrs.
Intro. to Computers	CSC 100	3
Prin. of Accounting I	ACC 101	3
Writing I	WRT 101	3
Reading	REA 100 series	4
Algebra II or College Algebra	MTH 130 MTH 150	3 3
Key Punch for Prog. & Oper.	CSC 197	1
		<hr/> 17
Second Semester		
COBOL Programming	CSC 160	3
Prin. of Accounting II	ACC 102	3
Writing II	WRT 102	3
Reading (if required) or Elective		3-4
College Algebra or FORTRAN IV Programming	MTH 150 CSC 140	3 3
		<hr/> 3
		15-16
Third Semester		
Fund. of Assembly Lang.	CSC 270	3
Systems Analysis	CSC 280	3
Adv. COBOL/File Mgmt.	CSC 260	4
Select two of the following:		6
Statistical Methods I	BUS 205	(3)
Finite Math	MTH 170	(3)
Co-op Training	CSC 299	(3)
Intro. to Microeconomics	ECO 100	(3)
Cost Accounting	ACC 203	(3)
		<hr/> 16
Fourth Semester		
Job Entry Procedures	CSC 195	1
Work Stand./Job Attitudes	CSC 196	1
Systems Design	CSC 281	3
MACRO-10 Assembly Lang. or Data Processing Projects II	CSC 274 CSC 298	3-4
Select two courses following sequence of third semester		6-7
Statistical Methods II	BUS 206	(3)
Topics in Calculus	MTH 175	(3)
Co-op Training	CSC 299	(3)
Intro. to Macroeconomics	ECO 101	(3)
Elective*		(3-4)
		<hr/> 14-16

*Select from humanities or philosophy.

**Systems Programmer
Advanced Certificate
For Direct Employment**

Required Courses (29)	First Semester	Cr. Hrs.
FORTRAN IV Programming	CSC 140	3
Operating Systems	CSC 296	3
Anal. Geometry/Calculus I	MTH 180	3
		<hr/> 9
Second Semester		
Systems Programming Theory	CSC 290	3
MACRO-10 Assembly Lang.	CSC 274	4
Anal. Geometry/Calculus II	MTH 185	3
		<hr/> 10
Third Semester		
Current Topics in CSC	CSC 294	3
Anal. Geometry/Calculus III	MTH 215	4
Data Processing Projects II	CSC 298	3
		<hr/> 10

NOTE: Students majoring in computer science with non-business emphasis may substitute courses with approval of the department coordinator.

Dental Assisting Technology

Theoretical and practical preparation is provided to qualify graduates for immediate employment as Dental Assistants in hospitals, clinics and dental offices.

The total program consists of two semesters on campus and a minimum of 304 hours of clinical procedures in an affiliated dental clinic and/or private dental office. Students having successfully completed this curriculum will graduate with a certificate from Pima Community College and be eligible to take the National Certification Examination.

Acceptance Into Program:

- Completion of college and allied health program acceptance requirements.
- One year of mathematics (including algebra).
- One semester of biology or zoology.
- One semester of typing.
- Receipt of placement examination results for dental assisting applicants.
- Personal interview with the program coordinator.

General Requirements:

- Total credit: 34 credit hours.
- Work in residence: minimum, 28 credit hours of major (DAT) courses to be completed in residence or challenged. (Approval required by program coordinator.)

Restrictions:

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

Minimal Grade Achievement:

"C" level.

Advanced Certificate For Direct Employment

Required Courses (34)	First Semester	Lec.	Lab	Cr. Hrs.
Writing I	WRT 101	3	+ 0	3
Intro. Dental Assisting	DAT 61	4	+ 0	4
Dental Assisting I	DAT 62	1	+ 3	2
Oral Radiography	DAT 63	2	+ 3	3
Dental Materials	DAT 64	2	+ 3	3
Clinical Procedures I	DAT 65	0	+ 9	3
				18
	Second Semester			
Writing II	WRT 102	3	+ 0	3
Dental Assisting II	DAT 66	2	+ 3	3
Dental Assisting III	DAT 67	3	+ 6	5
Clinical Procedures II	DAT 68	0	+ 16	5
				16

Dental Laboratory Technology

The total program consists of four semesters on campus and includes 1,492 clock hours of laboratory practice. Graduates will be qualified for an Associate of Applied Science Degree with a major in Dental Laboratory Technology. Candidates for graduation are eligible for the National Board for Certification Recognized Graduates Examination. After three years of employment experience, graduates are eligible to take the Certified Dental Technician Practical Examination, administered by the National Board for Certification.

Acceptance Into Program:

- Completion of college and district allied health program applications and acceptance requirements.
- One year of mathematics (including algebra) and one year of science.
- Receipt of satisfactory placement examination (math, dexterity and reading comprehension) results for dental laboratory applicants.
- Personal interview and recommendation by program facilitator in dental laboratory technology.
- Evaluation and acceptance by district allied health programs admissions committee.

General Requirements:

- Total credit: 68 semester hours.
- Work in residence; minimum 36 semester hours of major (DLT) and related courses to be completed in residence.

Restrictions:

- Correspondence study: maximum 6 semester hours.
- Extension/transfer: maximum 32 semester hours, including above.

Minimal Grade Achievement:

"C" level.



**Associate of Applied Science Degree
For Direct Employment**

Required Courses (68)	First Semester	Lec.	Lab	Cr. Hrs.
Fund. of Chemistry I	CHM 110	3	+ 3	4
Intro. Physics I	PHY 121	4	+ 3	4
Dental Morphology	DLT 101	2	+ 3	3
Non-Metallic Dental Materials	DLT 102	3	+ 0	3
Complete Dentures	DLT 103	0	+ 12	4
				18
Second Semester				
Writing I	WRT 101	3	+ 0	3
Fund. of Chemistry II	CHM 111	3	+ 3	4
Intro. Physics II	PHY 122	4	+ 3	4
Dental Laboratory I	DLT 104	2	+ 3	3
Partial Denture Reconstruction	DLT 105	0	+ 12	4
				18
Third Semester				
Writing II	WRT 102	3	+ 0	3
Small Business Mgmt.	MAN 124	3	+ 0	3
Dental Laboratory II	DLT 201	2	+ 3	3
Dental Metallurgy I	DLT 202	3	+ 0	3
Fixed Bridgework	DLT 203	0	+ 12	4
				16
Fourth Semester				
Supervision	MAN 122	3	+ 0	3
Liberal Arts Elective		4	+ 0	4
Dental Laboratory III	DLT 204	2	+ 3	3
Dental Metallurgy II	DLT 205	2	+ 6	4
Ceramics	DLT 206	0	+ 6	2
				16

Drafting Technology

Architectural Drafting: Students can select from a basic certificate program, an advanced certificate program and a two-year Associate of Applied Science degree program. The degree program provides experiences in drafting techniques, building construction systems and materials leading to employment in an architect's office and in construction oriented fields. Not designed for university transfer.

Electro-Mechanical Drafting: This two-year program, which leads to an Associate of Applied Science degree, provides an opportunity for developing skills which prepare students for a career in drafting as found in several types of industry. Also available is a Mechanical/Electro-Mechanical drafting advanced certificate program.

Mechanical Drafting: This is a two-year Associate in Applied Science degree program which provides experiences in fundamental techniques and drafting practices for employment in a wide variety of drafting oriented industries.

**Architectural Drafting
Basic Certificate
For Direct Employment**

Required Courses	Cr. Hrs.	
Construction Drafting I-II	DFT 110, 120	6
Nine credit hours selected from the following:		9
Construction Determinants I-II	DFT 114-115	(6)
Bldg. Utilities & Site Work	DFT 123	(3)
Construction Drafting III-IV	DFT 130, 140	(6)
Independent Study	DFT 149	(3)
Technical Drafting I	DFT 150	(3)
Construction Surveying	ENG 110	(3)
Blueprint Reading	GTC 99	(3)
		15

**Architectural Drafting
Technical Certificate
For Direct Employment**

Required Courses (30)	First Semester	Cr. Hrs.
Construction Drafting I	DFT 110	3
Elective Skill Course*		3
Math Elective	MTH	3
Writing I or Practical Communications	WRT 101 WRT 150	3
Elective		3
		15
Second Semester		
Construction Drafting II	DFT 120	3
Elective Skill Courses*		6
Math Elective	MTH	3
Writing II or Technical Communications	WRT 102 WRT 154	3
		15

*Elective skill courses to be selected from the following:

Construction Determinants I-II	DFT 114-115	(6)
Bldg. Utilities & Site Work	DFT 123	(3)
Construction Drafting III-IV	DFT 130, 140	(6)
Independent Study	DFT 149	(3)
Construction Surveying	ENG 110	(3)

**Architectural Drafting
Associate of Applied Science Degree
For Direct Employment**

Required Courses (62)	First Semester	Cr. Hrs.
Construction Drafting I	DFT 110	3
Construction Determinants I	DFT 114	3
Math Elective	MTH	3
Writing I or Practical Communications	WRT 101 WRT 150	3
Art Elective	ART	3
Physical Ed. Elective	PED	1
		<hr/> 16

Second Semester		
Construction Drafting II	DFT 120	3
Construction Determinants II	DFT 115	3
Math Elective	MTH	3
Writing II or Technical Communications	WRT 102 WRT 154	3
Art Elective	ART	3
Physical Ed. Elective	PED	1
		<hr/> 16

Third Semester		
Construction Drafting III	DFT 130	3
Bldg. Utilities and Site Work	DFT 123	3
Science Elective		3
Math Elective	MTH	3
Electives		3
		<hr/> 15

Fourth Semester		
Construction Drafting IV	DFT 140	3
Construction Surveying	ENG 110	3
Science Elective		3
Electives		6
		<hr/> 15

Suggested Electives:

Humanities I-II	HUM 110-111	(4-4)
Intro. to Western Civil. I	HIS 101	(3)
Functional Design I	DES 150	(3)
Art History	ART 231	(3)
Art Studio Courses	ART	(3)
Blueprint Reading	GTC 99	(3)
Building Materials	GTC 60	(3)
Woodshop I	GTC 92	(3)
Speech	SPE	(3)
Technical Drafting I	DFT 150	(3)
Computer Science	CSC	(3)
Mathematics	MTH	(3)
Physics	PHY	(3-4)
Psychology	PSY	(3)
Sociology	SOC	(3)

**Mechanical or
Electro-Mechanical Drafting
Associate of Applied Science Degree
For Direct Employment**

Required Courses (60-64)	First Semester	Cr. Hrs.
Technical Drafting I	DFT 150	3
Practical Communications or Writing I	WRT 150 WRT 101	3
Intro. Math	MTH 60	3
Manufacturing Processes I	MAC 240	3
Human Relations	MAN 110	3
		<hr/> 15

Second Semester		
Technical Drafting II	DFT 151	3
Technical Communications or Writing II	WRT 154 WRT 102	3
Technical Math I	MTH 110	3
Manufacturing Processes II	MAC 245	3
Introduction to Electronics	ETR 1	4
		<hr/> 16

Third Semester		
Technical Drafting III	DFT 152	3
Industrial Graphics	DES 111	3
Technical Physics I	PHY 101	3
Electronic Drafting	DFT 154	3
Humanities Electives or Machine Shop or Functional Design	HUM MAC DES 150 or 250	3-4
Elective		2-3
		<hr/> 14-17

Fourth Semester		
Tool Design (for Mechanical Drafting Option) or Electro-Mech. Design (for Elec.-Mech. Drafting Option)	DFT 153 or DFT 155	3-4
Engineering Graphics	ENG 120	3
Introduction to Computers	CSC 100	3
Humanities Electives or Machine Shop or Functional Design	HUM MAC DES 150 or 250	2-3
		<hr/> 14-17

Humanities Electives:

ART 130-131	
MUS 151	
LIT 141-142	
HUM 110-111	
PHI 101-102	
DRA 240-241	

Drama

The drama program is comprised of a core curriculum and four options of study leading to an associate degree.

Drama Education: This option, which prepares students for transfer to four-year college studies leading to a Bachelor of Fine Arts in Drama Education, provides training in performing and other aspects of theatrical production. Students are encouraged to begin studies toward a teaching minor.

Drama Production: Students in this option, which prepares for transfer to four-year college studies leading to a Bachelor of Fine Arts in Drama (Production), receive extensive experience and training in performing and all other aspects of theatrical productions.

Drama Theory: Students receive some training in performing and other aspects of theatrical production, but the eventual focus is on drama as literature. This option prepares students to transfer to four-year college studies leading to a Bachelor of Arts with a major in drama theory in which upper division concentration is on literature as well as drama.

Applied Drama: This option provides opportunities to prepare for a variety of activities in theatrical situations, concentrating on application of skills in productions. Not intended for transfer.

Drama Core Curriculum For All Drama Options Suggested Sequence

Required Courses (39)	First Semester	Cr. Hrs.
Introduction to Acting I	DRA 105	3
Stagecraft I	DRA 120	3
Writing I	WRT 101	3
Social Science Elective		3
		<hr/> 12
	Second Semester	
Introduction to Acting II	DRA 106	3
Stagecraft II	DRA 121	3
Writing II	WRT 102	3
Social Science Elective		3
		<hr/> 12
	Third Semester	
Make-up	DRA 115	1
Theater History I	DRA 240	3
Humanities I*	HUM 110	4
		<hr/> 8
	Fourth Semester	
Theater History II	DRA 241	3
Humanities II*	HUM 111	4
		<hr/> 7

*The Humanities requirement may also be met by a minimum of 9 credit hours from among ART 130–131, MUS 151, LIT 141–142, or PHI 101–102.

The suggested sequence in the core is supplemented by a suggested sequence in the four degree programs—in order to equalize loads from semester to semester.

SUGGESTED ELECTIVES FOR ALL PROGRAM OPTIONS:
DRA 201, DRA 109, Speech, Music, Art, Dance, Fencing, Literature—and in addition for Applied Arts in Theater Degree: Drafting, Welding or Electronics.

Applied Drama Associate of Arts Degree For Transfer

Required Courses (60–67)	First Semester	Cr. Hrs.
Core Curriculum—Drama		(39)
Voice and Articulation	SPE 115	2
Electives		1–3
		<hr/> 3–5
	Second Semester	
Oral Interpretation of Lit.	SPE 136	3
Electives		0–2
		<hr/> 3–5
	Third Semester	
Intermediate Acting I	DRA 248	3
Electives		3–5
		<hr/> 6–8
	Fourth Semester	
Intermediate Acting II	DRA 249	3
Theater Practice	DRA 51	3
Electives		2–4
		<hr/> 8–10

Drama Education Option Associate of Arts Degree For Transfer

Required Courses (63–66)	First Semester	Cr. Hrs.
Core Curriculum—Drama		(39)
Electives		3–5
	Second Semester	
Teaching Minor		3
Electives		1–2
		<hr/> 4–5
	Third Semester	
Intermediate Acting I	DRA 248	3
Lab Science or Science for Teachers		4
		<hr/> 7
	Fourth Semester	
Intermediate Acting II	DRA 249	3
Lab Science or Science for Teachers		4
Teaching Minor		3
		<hr/> 10

**Drama Production Option
Associate of Arts Degree
For Transfer**

Required Courses (60–63)	First Semester	Cr. Hrs.
Core Curriculum—Drama Voice and Articulation Electives	SPE 115	(39) 2 <hr/> 1–3 3–5
Oral Interpretation of Lit. Electives	SPE 136	3 <hr/> 1–2 4–5
Intermediate Acting I Laboratory Science	DRA 248	3 <hr/> 4 7
Intermediate Acting II Laboratory Science	DRA 249	3 <hr/> 4 7

**Drama Theory Option
Associate of Arts Degree
For Transfer**

Required Courses (63)	First Semester	Cr. Hrs.
Core Curriculum—Drama Foreign Language		(39) 4
Foreign Language		4
Foreign Language Lab Science		4 <hr/> 4 8
Foreign Language Lab Science		4 <hr/> 4 8

Early Childhood Education

Programs offered in Early Childhood Education include teacher aide/assistant, teacher-director, self-employment; transfer to a four-year institution; and personal development in child rearing practices.

Career preparation sections give students an opportunity to prepare themselves in Early Childhood Education and as Teacher Aide/Assistant.

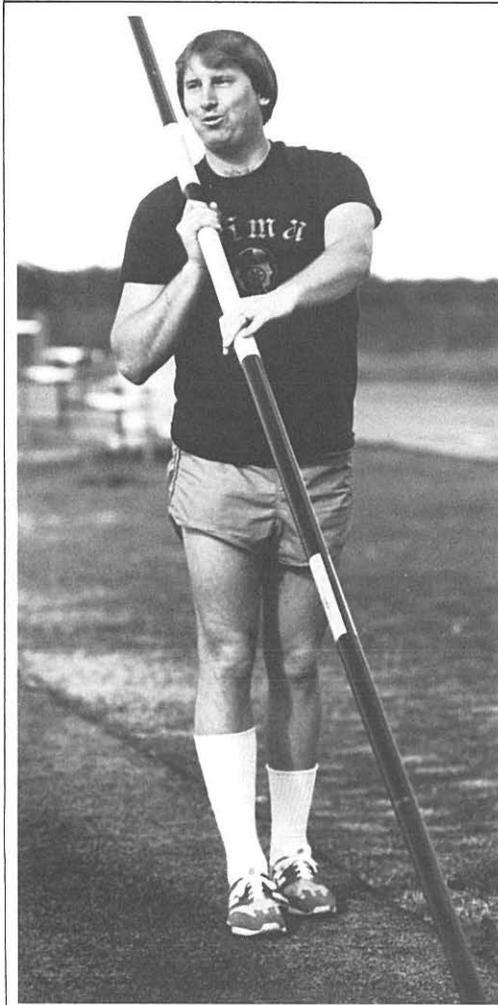
Certificates are awarded to those successfully completing the teacher aide/assistant program. The other programs lead to an Associate of Arts degree.

Transfer programs are arranged primarily for transfer to Arizona universities. Students, however, should consult the catalog of the institution to which they plan to transfer for the first two-year requirements. Programs also should be arranged with an advisor.

Transfer programs offer study in the following areas: Child Development and Family Relations; Early Childhood Education—Home Economics School; Early Childhood Education—College of Education.

**Teacher Aide/Assistant
Certificate
For Direct Employment**

Required Courses (30)	First Semester	Cr. Hrs.
The Growing Years or Human Development or Child Development or Effective Parenthood	ECE 106 ECE 107 ECE 117 ECE 114	3
Literature for the Young Child	ECE 108	3
Math & Science for the Young Child	ECE 124	3
Pre-School Education Elective	ECE 118	3 <hr/> 3 15
	Second Semester	
Language Arts for the Young Child	ECE 110	3
Techniques for Teacher Aides	ECE 126	3
Music for the Young Child	ECE 112	3
ECE Practicum	ECE 240	3
Elective		3 <hr/> 3 15



**Teacher-Director
Associate of Arts Degree
For Direct Employment**

Required Courses (60-67)	First Semester	Cr. Hrs.
Human Development or The Growing Years or Child Development	ECE 107 ECE 106 ECE 117	 3 3
Pre-School Education	ECE 118	3
Techniques for Teachers Aides	ECE 126	3
*General Education Electives		<u>6-8</u>
		15-17
Second Semester		
Understanding the Young Child or Effective Parenthood	ECE 116 ECE 114	3 3
Literature for the Young Child	ECE 108	3
Math & Science for the Young Child	ECE 124	3
Music for the Young Child	ECE 112	3
*General Education Electives		<u>3-4</u>
		15-17
Third Semester		
Intro. to the Exceptional Child	ECE 111	3
Lang. Arts for the Young Child	ECE 110	3
ECE Practicum	ECE 240	3
Planning for Play	ECE 128	3
*General Education Electives		<u>3-4</u>
		15-16
Fourth Semester		
Supervision & Administration	ECE 120	3
Current Trends in Ear Ch Ed	ECE 130	3
ECE Practicum	ECE 240	3
*General Education Electives		<u>6-8</u>
		15-17

*The General Education Electives should be selected from the following:

Writing	WRT	(3)
Math	MTH	(3)
Humanities	HUM	(3-4)
Music	MUS	(3)
Physical Education	PED	(3)
Art	ART	(3)
Language		(4)
Social Sciences		(3)
Nutrition or Foods for Children	FSN 114 or 124	(3)

**Child Development and Family Relations
Associate of Arts Degree
For Transfer to Home Economics School**

Persons planning to enter this field of Early Childhood Education can complete their first two years of study at Pima Community College. However, students should follow the first two-year requirements of the college or university to which they plan to transfer and consult with an advisor for appropriate course selection

**Early Childhood Education
Associate of Arts Degree
For Transfer**

Persons planning to enter this field of Early Childhood Education can complete their first two years of study at Pima Community College. However, students should follow the first two-year requirements of the college or university to which they plan to transfer and consult with an advisor for appropriate course selection.

Education

An Associate of Arts Degree is available for students planning to enter one of the fields of Education: Elementary, Early Childhood, Special or Secondary (and, at the University of Arizona, Rehabilitation).

However, students should follow the first two years' requirements of the college or university to which they plan to transfer and consult with an advisor for appropriate course selection.

Electronics Technology

The Electronics Technology program offers many varied opportunities for the student through several certificate programs and two degree programs.

The certificate programs enable students looking for the shortest route to employment to specialize in certain areas. These credits may later be applied to degree programs if the student wishes either to return to, or continue with, his or her studies.

A two-year Associate of Applied Science degree program is available for students who do not anticipate transferring to a four-year technology program. Those who do plan to continue their studies at a four-year institution should enroll in the two-year Associate of Science degree program.

Extensive laboratory experiences are offered to reinforce classroom theory and develop skills in the use of basic test equipment such as multimeters, oscilloscopes and signal generators. The latest trainers and test equipment are available for use by students in advanced and specialized courses.

Students planning to enroll in an electronics program should consult with an electronics advisor so that a program can be set up to meet individual needs. Students also should plan their schedules to allow sufficient time for study—1 to 2 hours outside study for each hour of class time.

General Electronics* Basic Certificate For Direct Employment

Suggested Course Sequence		Cr. Hrs.
Electronics Math I or	MTH 115	
Algebra II	MTH 130	3
Fundamentals of Electronics	ETR 100	6
Electronics Math II or	MTH 125	
College Algebra	MTH 150	3
Elec. Circuits/Systems I	ETR 105	6
Digital Electronics	ETR 110	3
		21

Television Repair* Basic Certificate For Direct Employment

Suggested Course Sequence		Cr. Hrs.
Fundamentals of Electronics	ETR 100	6
Electronics Math I or	MTH 115	
Algebra II	MTH 130	3
TV Repair I/Black & White	ETR 140	6
TV Repair/Color	ETR 145	6
Human Relations	MAN 110	3
		24

Consumer Electronics* Basic Certificate For Direct Employment

Suggested Course Sequence		Cr. Hrs.
TV Repair Program		24
Home Enter. Equip. Repair	ETR 150	6
		30

*Students with no prior electronics experience or having a weak math background should take Intro. to Electronics (ETR 1) and Algebra I (MTH 70 series) as program entry prerequisites.

**Communications, Consumer, Digital, Industrial
Electronics Technology
Technical Certificate
For Direct Employment**

Suggested Course Sequence (48-57)	First Semester	Cr. Hrs.
Electronics Math I or Algebra II	MTH 115	3
Fundamentals of Electronics	ETR 100	6
Technical Drafting I	DFT 150	3
		12
	Second Semester	
Electronics Math II or College Algebra	MTH 125	3
Digital Electronics	MTH 150	3
Electronics Circuits/Systems I	ETR 110	3
Practical Communications or Writing I	ETR 105	6
	WRT 150	3
	WRT 101	3
		15
	Third Semester	
Electronics Math III or Trigonometry	MTH 205	3
Technical Communications or Writing II	MTH 155	3
Option 1*	WRT 154	3
	WRT 102	3
		9-12
	Fourth Semester	
Electronic Drafting	DFT 154	3
Human Relations or Technical Communications	MAN 110	3
Option 2*	WRT 254	6
Option 3* (For Consumer Electronics Only)		6
		12-18

*Students should choose appropriate courses from the four specialized options given:

Communications Electronics	Digital Electronics
Option 1 ETR 230 (6)	Option 1 ETR 250 (4)
Option 2 ETR 235 (6)	Option 2 ETR 255 (6)

Consumer Electronics	Industrial Electronics
Option 1 ETR 140 (6)	Option 1 ETR 230 (6)
Option 2 ETR 145 (6)	Option 2 ETR 275 (6)
Option 3 ETR 150 (6)	

Note: F.C.C. License (ETR 290) should be considered by all communications majors. Students with no prior experience or having a weak math background should take Intro. to Electronics (ETR 1) and Algebra I (MTH 70 series) as program entry prerequisites.

**Communications, Consumer, Digital, Industrial
Electronics Technology
Associate of Applied Science Degree
For Direct Employment**

Suggested Course Sequence (60-69)	First Semester	Cr. Hrs.
Electronics Math I or Algebra II	MTH 115	3
Fundamentals of Electronics	MTH 130	6
Technical Drafting I	ETR 100	3
Practical Communications or Writing I	DFT 150	3
Electives	WRT 150	3
	WRT 101	3
		0-3
		15-18
	Second Semester	
Electronics Math II or College Algebra	MTH 125	3
Electronics Circuits/Systems I	MTH 150	6
Digital Electronics	ETR 105	3
Technical Communications or Writing II	ETR 110	3
Electives	WRT 154	3
	WRT 102	3
		0-3
		15-18
	Third Semester	
Electronics Math III or Trigonometry	MTH 205	3
Human Relations or Technical Communications	MTH 155	3
Technical Physics I	MAN 110	3
Elective	WRT 254	3
Option 1*	PHY 101	3
		6
		18
	Fourth Semester	
Electronic Drafting	DFT 154	3
Technical Physics II	PHY 102	3
Elective		0-3
Option 2*		6
Option 3* (For Consumer Electronics Only)		6
		12-15

*Students should choose appropriate course options from the four specializations given:

Communications Electronics Options	Digital Electronics Options
Option 1 ETR 230 (6)	Option 1 ETR 250 (4)
Option 2 ETR 235 (6)	Option 2 ETR 255 (6)

Consumer Electronics Options	Industrial Electronics Options
Option 1 ETR 140 (6)	Option 1 ETR 230 (6)
Option 2 ETR 145 (6)	Option 2 ETR 275 (6)
Option 3 ETR 150 (6)	

Note: F.C.C. License (ETR 290) should be considered by all communications majors. Students with no prior experience or having a weak mathematics background should take Intro. to Electronics (ETR 1) and Algebra 1 (MTH 70 series) as program entry prerequisites.

**Communications, Consumer, Digital, Industrial
Electronics Technology
Associate of Science Degree
For Transfer**

**Suggested Course
Sequence (61–75)**

	First Semester	Cr. Hrs.
Algebra II	MTH 130	3
Fundamentals of Electronics	ETR 100	6
Technical Drafting I	DFT 150	3
Writing I	WRT 101	3
Electives*		0–3
		<hr/> 15–18
	Second Semester	
College Algebra	MTH 150	3
Digital Electronics	ETR 110	3
Electronics Circuits/Systems I	ETR 105	6
Writing II	WRT 102	3
Electives*		0–3
		<hr/> 15–18
	Third Semester	
Technical Communications	WRT 254	3
Trigonometry	MTH 155	3
Electives*		6–7
Option 1**		4–6
		<hr/> 16–19
	Fourth Semester	
Electronic Drafting	DFT 154	3
Electives*		3–6
Option 2**		6
Option 3** (For Consumer Electronics Only)		6
		<hr/> 15–18

*Students must have 8 credits in any combination of humanities, literature, speech or philosophy and 9 credits—with at least 6 in one subject—from history, psychology, anthropology, economics or political science.

**Students should choose appropriate course options from the four specializations given:

**Communications Electronics
Options**

Option 1 ETR 230 (6)
Option 2 ETR 235 (6)

**Consumer Electronics
Options**

Option 1 ETR 140 (6)
Option 2 ETR 145 (6)
Option 3 ETR 150 (6)

**Digital Electronics
Options**

Option 1 ETR 250 (4)
Option 2 ETR 255 (6)

**Industrial Electronics
Options**

Option 1 ETR 230 (6)
Option 2 ETR 275 (6)

Note: F.C.C. License (ETR 290) should be considered by all communications majors. Students with no prior experience or having a weak math background should take Intro. to Electronics (ETR 1) and Algebra 1 (MTH 70 series) as program entry prerequisites.

Emergency Medical Technology

This program covers all knowledge and performance objectives currently considered within the realm of the Emergency Medical Technician-Ambulance (EMT-A). The course, 114 clock hours in length, is a strenuous introduction to the field of pre-hospital emergency medical care. Emphasis is placed on basic mechanisms of emergency disease conditions, recognition and treatment of emergency medical and traumatic conditions as well as an introduction to the operational aspects of emergency care in the pre-hospital setting.

Students successfully completing the program objectives will be issued a certificate of course completion from Pima Community College. Current Arizona Department of Public Safety Regulations allow program graduates, who present a need for State EMT Certification (usually an affiliation with a pre-hospital provider of emergency services), to take the Arizona EMT Registry Examination. Program graduates with sufficient work experience may be eligible to take the national certifying examination through the National Registry of Emergency Medical Technicians.

Acceptance Into Program:

- Completion of college and E.M.T. acceptance requirements.
- Personal interview and recommendation by program facilitator/faculty.

Note: Priority in admission will be given to persons affiliated with agencies providing pre-hospital emergency services (ambulance services, fire departments, search and rescue organizations); hospital and clinic workers, and others presenting a documented need for training (students in other allied health programs, fire sciences and law enforcement) also qualify for admission.

General Requirements:

- Total credit: 5 credit hours.
- Work in residence: minimum 5 credit hours of major (EMT) courses to be completed in residence.

Restrictions:

None.

Minimal Grade Achievement:

“C” level.

**Certificate
For Direct Employment**

				Lec.	Lab	Cr. Hrs.
Emergency Medical Tech.	EMT	51		4	+ 2	5

Engineering

Students completing the two-year program should be able to transfer to a four-year college or university for further studies. By selecting appropriate options, the student can specialize in one of the following branches of engineering: aerospace, agricultural, chemical, civil, electrical, geological, mechanical, metallurgical or mining.

Associate of Science Degree For Transfer

Suggested Courses (62-70)		First Semester	Cr. Hrs.
Writing I		WRT 101	3
Anal. Geometry & Calculus I		MTH 180	3
Fortran IV Programming		CSC 140	3
General Chemistry I		CHM 120	4
Physical Ed. Elective		PED	1
Option 1			3-4
			17-18
		Second Semester	
Writing II		WRT 102	3
Anal. Geometry & Calculus II		MTH 185	3
General Chemistry II		CHM 121	4
Introductory Physics I*		PHY 131	4
Physical Ed. Elective		PED	1
Option 2			3-4
			18-19
		Third Semester	
Anal. Geometry & Calculus III		MTH 215	4
Eng. Mechanics-Statics		ENG 210	3
Introductory Physics II**		PHY 132	4
Option 3			3-6
			14-17
		Fourth Semester	
Linear Alg. & Differential Eq.		MTH 220	4
Mechanics of Materials***		ENG 230	3
Option 4			3-5
Option 5			3-4
			13-16
Aerospace or Mechanical Engineering			Cr. Hrs.
Option 1	Engineering Graphics	ENG 120	3
Option 2	Elective		3-4
Option 3	Elective		3-4
Option 4	Elective or Eng 240*		3-5
Option 5	Elective		3-4
Agricultural Engineering			
Option 1	Engineering Graphics	ENG 120	3
Option 2	Elective		3-4
Option 3	Elective		3-4
Option 4	Organismic Biology I	LSC 205	4
Option 5	Elective		3-4
Chemical Engineering			
Option 1	Elective		3-4
Option 2	Elective		3-4
Option 3	Organic Chemistry I	CHM 240	4
Option 4	Organic Chemistry II	CHM 241	4
Option 5	Elective		3-4

Civil Engineering

Option 1	Engineering Graphics	ENG 120	3
Option 2	Elementary Surveying	ENG 130	3
Option 3	Elective		3-4
Option 4	Elective or Eng 240*		3-5
Option 5	Engineering Mech. Dynamics	ENG 220	3-4

Electrical Engineering

Option 1	Elective		3-4
*	Introductory Mechanics	PHY 210	4
**	Intro. Electricity & Magnetism	PHY 216	4
Option 2	Elective		3-4
Option 3	Fundamentals of Electronics	ETR 100	6
***	Intro. to Waves and Heat	PHY 221	3
Option 4	Basic Circuits & Electronics	ENG 240	5
Option 5	Elective		3-4

Geological or Mining Engineering

Option 1	Engineering Graphics	ENG 120	3
Option 2	Elementary Surveying	ENG 130	3
Option 3	Elective		3-4
Option 4	Elective or ENG 240*		3-5
Option 5	Elective		3-4

Metallurgical Engineering

Option 1	Elective		3-4
Option 2	Elective		3-4
Option 3	Elective		3-4
Option 4	Elective		3-4
Option 5	Elective		3-4

*Non-electrical engineering majors taking ENG 240 as an option should check with the college or university to which they wish to transfer to insure that credits will be accepted toward their degree program.

All electives listed under the specialization in engineering are in the humanities or social science areas.

If four or more electives are taken, at least two should be in the humanities and at least two in the social sciences.

If three electives are taken, two should be in the humanities and one in the social sciences, or vice versa.

Electives in humanities and the social sciences that are acceptable in the engineering program are listed below:

Humanities Electives

All the courses numbered 100 or higher in humanities, literature, philosophy and religion.
ART 130, ART 131, ART 230, ART 231, DRA 240, DRA 241, SPA 220, SPE 136.

Social Science Electives

All the courses numbered 100 or higher in anthropology, economics, history, political science, psychology and sociology. ESC 101, ESC 102, ESC 103, SPE 110, SPE 130.



English as a Second Language (ESL)

This is a special program designed for the bilingual and foreign student to develop proficiency in oral and written American English. Students will be placed in the program according to language test results.

Program Courses:				Cr. Hrs.
Elementary Grammatical Patterns	ESL	50		6
Intermediate Grammatical Patterns (Level 1)	ESL	51		3
Intermediate Grammatical Patterns (Level 2)	ESL	52		3
Intermediate Reading and Writing (Level 1)	ESL	52		3
Intermediate Reading and Writing (Level 2)	ESL	52		3
Advanced Grammatical Patterns	ESL	53		3
Advanced Reading	ESL	54		3
Advanced Writing	ESL	55		3
Composition I*	ESL	57		3
Composition II*	ESL	58		3

*These courses may be transferable as Writing 101 and 102 on approval by the Writing and ESL faculty.

Finance

The two-year Associate of Applied Science degree program was designed in affiliation with the various financial institutions in the Tucson area. It is flexible so as to allow for a variety of specialty options within the finance industry. These options currently include banking, savings and loan associations and credit unions. Basic and advanced certificate programs also are offered in savings and loan, and in credit union.

Banking Associate of Applied Science Degree For Direct Employment

Required Courses (60)	First Semester	Cr. Hrs.
Prin. of Bank Operations	FIN 102	3
Intro. to Macroeconomics	ECO 101	3
Math (based on placement exam)	MTH	3
Elective*		3
Banking Elective**		3
		<hr/> 15
	Second Semester	
Prin. of Accounting I	ACC 101	3
Human Relations	MAN 110	3
Writing (based on placement exam, 100 level or above)	WRT	3
Elective*		3
Banking Elective**		3
		<hr/> 15
	Third Semester	
Money and Banking	FIN 210	3
Prin. of Accounting II	ACC 102	3
Supervision	MAN 122	3
Business Law I	BUS 200	3
Elective*		3
		<hr/> 15
	Fourth Semester	
Bank Management	FIN 203	3
Electives*		6
Banking Electives**		6
		<hr/> 15

*Electives selected from humanities, psychology, sociology, philosophy, anthropology or history.

**Banking electives may be selected from FIN prefix courses and other courses which relate to the banking industry.

Credit Union Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Credit Union Basics	FIN 131	3
Credit Union Management	FIN 132	3
Installment Credit	FIN 208	3
Elective (select any course from two-year program)		3
		<hr/> 12

**Credit Union
Advanced Certificate
For Direct Employment**

Required Courses		Cr. Hrs.
Basic Certificate Requirements		12
Intro. to Macroeconomics	ECO 101	3
Prin. of Accounting I	ACC 101	3
Credit Union Operations	FIN 231	3
Credit Union Advanced Mgmt.	FIN 232	3
Electives*		6
		<hr/> 30

*Select any courses from Credit Union Associate of Applied Science Degree program.

**Credit Union
Associate of Applied Science Degree
For Direct Employment**

Required Courses (60)		Cr. Hrs.
First Semester		
Credit Union Basics	FIN 131	3
Installment Credit	FIN 208	3
Human Relations	MAN 110	3
Math (based on placement exam)	MTH	3
Writing (based on placement exam, 100 level or above)	WRT	3
		<hr/> 15
Second Semester		
Credit Union Management	FIN 132	3
Supervision	MAN 122	3
Intro. to Macroeconomics	ECO 101	3
Elective*		3
Elective**		3
		<hr/> 15
Third Semester		
Credit Union Operations	FIN 231	3
Prin. of Accounting I	ACC 101	3
Intro. to Microeconomics	ECO 100	3
Business Law I	BUS 200	3
Elective*		3
		<hr/> 15
Fourth Semester		
Credit Union Advanced Mgt.	FIN 232	3
Advertising	MKT 125	3
Prin. of Accounting II	ACC 102	3
Elective*		3
Elective**		3
		<hr/> 15

*Select from history, humanities, psychology, sociology, philosophy, political science or anthropology.

**Select from FIN prefix courses and other courses which relate to the credit union industry.

**Savings and Loan
Basic Certificate
For Direct Employment**

Required Courses		Cr. Hrs.
Savings & Loan Business Oper.	FIN 101	3
Insurance of Savings Accounts	FIN 104	3
Teller Operations	FIN 106	3
Human Relations	MAN 110	3
		<hr/> 12

**Savings and Loan
Advanced Certificate
For Direct Employment**

Required Courses		Cr. Hrs.
Basic Certificate Requirements		12
Financial Institutions	FIN 212	3
Supervision	MAN 122	3
Intro. to Political Science	POL 100	3
Real Estate Principles	RLS 101	3
Bus. & Prof. Communication	SPE 120	3
Elective*		3
		<hr/> 30

*Select from history, humanities, anthropology, psychology, sociology, philosophy or political science.

**Savings and Loan
Associate of Applied Science Degree
For Direct Employment**

Required Courses (60)		Cr. Hrs.
First Semester		
Savings & Loan Bus. Operations	FIN 101	3
Insurance of Savings Accounts	FIN 104	3
Human Relations	MAN 110	3
Bus. & Prof. Communication	SPE 120	3
Math (based on placement exam)	MTH	3
		<hr/> 15
Second Semester		
Prin. of Accounting I	ACC 101	3
Intro. to Microeconomics	ECO 100	3
Supervision	MAN 122	3
Real Estate Principles	RLS 101	3
Writing (based on placement exam, 100 level or above)	WRT	3
		<hr/> 15
Third Semester		
Prin. of Accounting II	ACC 102	3
Intro. to Macroeconomics	ECO 101	3
Electives*		6
Elective**		3
		<hr/> 15
Fourth Semester		
Financial Institutions	FIN 212	3
Electives*		6
Electives**		6
		<hr/> 15

*Select from history, humanities, psychology, sociology, philosophy, political science or anthropology.

**Select from FIN prefix courses and other courses which relate to the savings and loan industry.

Fine Arts

This program provides four semesters of study appropriate for the student who plans to transfer to a four-year institution or professional school in the areas of painting, sculpture, printmaking, crafts, art history, photography, commercial art or industrial design. Students should consult the catalog of the institution to which they plan to transfer for assistance in selecting some courses.

Associate of Arts Degree For Transfer

Required Courses (60-64)	First Semester	Cr. Hrs.
Basic Design	ART 100	3
Art and Culture I	ART 130	3
Writing I	WRT 101	3
Science or Math Elective		3-4
Elective*		2-3
		<hr/> 14-16
	Second Semester	
Drawing I	ART 110	3
Art and Culture II	ART 131	3
Color and Design	ART 115	3
Writing II	WRT 102	3
Science or Math Elective		3-4
		<hr/> 15-16
	Third Semester	
Drawing II or Life Drawing	ART 210	
	ART 213	3
3-D Design	ART 120	3
Humanities I	HUM 110	4
Social Science Elective		3
Elective*		2-3
		<hr/> 15-16
	Fourth Semester	
Art Elective	ART	3
Art Electives	ART 200 level	6
Humanities II	HUM 111	4
Social Science Elective		3
		<hr/> 16

*Consult the four-year program requirements of the institution to which you plan to transfer.

Fire Science

The Fire Science Program provides in-service training in the occupation of firefighting. The program deals with the technical, managerial, para-medical and human aspect of firefighting tactics, and the application of modern methods of fire prevention and suppression.

Slightly more than half of the 63 credit hours required for an Associate Degree in Fire Science are in courses relating directly 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; and to move toward managerial and command positions.

The other half of the program consists of required related general education courses, and choices from a wide range of electives which enable the student to develop supportive skills and generally broaden his educational base.

Associate of Applied Science Degree For Direct Employment

Required Courses	Cr. Hrs.	
Introduction to Fire Science	FSC 51	3
Fundamentals of Fire Prevention	FSC 52	3
Hazardous Materials I-II	FSC 53, 61	6
Advanced Fire Prevention	FSC 54	3
Hydraulics & Fire Suppression	FSC 62	3
Fire Apparatus & Equipment	FSC 63	3
Fire Protection Systems	FSC 64	3
Bldg. Constr. for Fire Protec.	FSC 65	3
Fire Suppression Tactics	FSC 66	3
Rescue Practices and First Aid	FSC 67	3
		<hr/> 33

General Education Requirements:

Writing I	WRT 101	3
Technical Communications	WRT 154	3
Algebra I (or more advanced)	MTH 70	3
Technical Physics I	PHY 101	3
Electives**		15
		<hr/> 60

**Electives to be selected from:

Automotive Technology
Business
Computer Science
Cooperative Education
Emergency Medical Technology
Engineering
Federal Lands and Fire Control (LSC 78)
History
Humanities
Literature
Mathematics
Philosophy
Physics
Political Science
Psychology
Recreation
Sociology
Spanish
Speech
Writing

Note: Other course electives may be taken. For more information, student should contact an advisor.



General or Exploratory Studies

A general or exploratory studies program, meeting broad individual interests, may be arranged through conferences with a counselor or faculty advisor. Courses can be selected from a variety of subject areas and an Associate of Arts degree will be granted upon completion of 60 credit hours of study.

Students may transfer to another educational program at any time, subject to specific course requirements of that program.

Students should be aware that if an Associate of Arts degree is obtained in general or exploratory studies, and they intend to transfer to a four-year institution, it may be necessary to take additional courses to satisfy the first two years of a four-year curriculum leading to a Baccalaureate degree.

Geology

Associate of Science Degree For Transfer

Suggested Courses (64–66)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Introductory Geology I	ESC 120	4
College Algebra	MTH 150	3
Social Science Elective*		3
Physical Education	PED	1
		<hr/> 14
	Second Semester	
Writing II	WRT 102	3
Introductory Geology II	ESC 121	4
Trigonometry	MTH 155	3
General Chemistry I	CHM 120	4
Social Science Elective*		4
		<hr/> 18
	Third Semester	
Engineering Graphics	ENG 120	3
General Chemistry II	CHM 121	4
Introductory Physics I	PHY 121	4
Humanities Elective*		3–4
Physical Education	PED	1
		<hr/> 15–16
	Fourth Semester	
Elementary Surveying	ENG 130	3
Introductory Physics II	PHY 122	4
Fortran IV Programming	CSC 140	3
Humanities Elective*		3–4
Earth Science	ESC	4
		<hr/> 17–18

*For course electives in humanities and social sciences consult the catalog of the college or university you plan to enter.

Note: The courses suggested meet University of Arizona requirements for the first two years of a Bachelor of Science degree in Geology in Liberal Arts. However, students should consult the college to which they plan to transfer for requirements.

A foreign language may be required in lieu of, or in addition to, courses listed.

Graphic Technology

The Graphic Technology program offers two options: a basic certificate, requiring 24 credit hours; and an Associate of Applied Science degree, requiring 60 credit hours. The first two semesters of the total program serve as a core curriculum of course work in the areas of graphic technology, advertising art and liberal arts. During the third and fourth semester, students specialize in graphic technology as well as participate in cooperative education work experience. This program is designed for direct employment.

Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Intro. to Business	BUS 100	3
Graphic Technology I-II	GRA 101-102	6
Offset Photography— Strip & Platemaking	GRA 104	3
Binding & Finishing	GRA 103	3
Offset Presswork	GRA 202	3
Advanced Offset Presswork	GRA 222	3
Math (based on placement exam)		3
		<hr/> 24

Associate of Applied Science Degree For Direct Employment

Required Courses (60)	First Semester	Cr. Hrs.
Intro. to Business	BUS 100	3
Practical Communications	WRT 150	3
Graphic Technology I	GRA 101	3
Advertising Art I	ADA 101	3
Binding and Finishing	GRA 103	3
		<hr/> 15
	Second Semester	
Math (based on placement test)	MTH	3
Business & Prof. Communication	SPE 120	3
Graphic Technology II	GRA 102	3
Advertising Art II	ADA 102	3
Offset Photography— Stripping & Platemaking	GRA 104	3
		<hr/> 15
	Third Semester	
Color Theory & Practice	GRA 201	3
Offset Presswork	GRA 202	3
Estimating Printing & Mtls.	GRA 203	3
Math (second course in sequence)	MTH	3
Co-op Education Training	GRA 299	3
		<hr/> 15
	Fourth Semester	
Advanced Offset Presswork	GRA 222	3
Adv. Stripping & Platemaking	GRA 221	3
Human Relations in Business	MAN 110	3
Offset Operations & Maintenance	GRA 232	3
Co-op Education Training	GRA 299	3
		<hr/> 15

Home Economics

The Home Economics area offers students a broad exposure to family and consumer sciences and specific opportunities in the following areas:

- Career preparation
- Transfer to a four-year institution
- Personal development for home and family living

Career or Occupational Programs:

Career preparation sections are designed to give students an opportunity to prepare themselves in:

- Alteration Specialist
- Professional Seamstress
- Fashion Design

Alteration Specialist Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Clothing Construction 1	FDC 111	3
History of Fashion	FDC 122	3
Alteration & Repair	FDC 142	3
Alteration & Designing	FDC 112	3
Clothing Selection	FDC 131	3
Textiles	FDC 126	3

Suggested Electives:

Human Relations or Small Business Mgmt.	MAN 110 MAN 124	3
Electives (See advisor)		<hr/> 9
		30

Professional Seamstress Associate of Applied Science Degree For Direct Employment

Required Courses		Cr. Hrs.
Alteration Specialist Program		30
Clothing Construction II-III	FDC 211, 212	6
Applied Dress Design	FDC 121	3
Psychology of Dress	FDC 132	3
Today's World	HEC 137	3
Co-op Training	HEC 299	6
Electives (See advisor)		<hr/> 9
		60

Fashion Design Associate of Arts Degree For Direct Employment

Required Courses (63)		Cr. Hrs.
Clothing Construction I-II	FDC 111, 211	6
Alteration & Designing	FDC 112	3
History of Fashion	FDC 122	3
Applied Dress Design	FDC 121	3
Fashion Design I-II	FDC 141, 241	6
Clothing Selection	FDC 131	3
Textiles	FDC 126	3
Psychology of Dress	FDC 132	3
Today's World	HEC 137	3
Co-op Training	HEC 299	6
		<hr/> 6
		39

General Education Requirements:

Basic Design	ART 100	3
Retailing	MKT 139	3
Advertising	MKT 125	3
Human Relations	MAN 110	3
Writing I or Practical Communications	WRT 101 WRT 150	3 9
Electives*		<hr/> 24

***Suggested Electives:**

Stagecraft/Production 1	DRA 120	(3)
Drawing I	ART 110	(3)
Fund. of Chemistry I	CHM 110	(4)
Intro. to Psychology I	PSY 100	(3)
Human Development	ECE 107	(3)

Home Economics Transfer Programs:

Transfer programs should be arranged on an individual basis with an advisor so that a student can complete the first two-year requirements at Pima and then complete the last two years' coursework at the college to which the student plans to transfer.

The programs offered by universities may include study in the following areas:

- Child Development and Family Relations
- Early Childhood Education
- Human Nutrition and Dietetics
- Consumer Service in Food
- Food Service Management
- Clothing and Textiles
- Fashion Merchandising
- Home Economics Education
- Interior Design*
- General Home Economics
- Home Economics and Journalism
- Home Economics Extension Education

*Advising for Interior Design majors who are planning to transfer is actually done by advisors in the Fine, Applied and Communicative Arts Area at the West Campus.

Hospitality

This program develops personnel for public service within the hospitality industry—hotels-motels, clubs, food and beverage operations plus meeting the many special needs of tourists. The growth of the Tucson area provides many job opportunities within this rapidly growing industry.

Dual objectives are pursued under the program: 1) updating the skills of those already in the field; and 2) providing beginning skills for persons planning to enter the field. The curriculum, offered through the college's Downtown Campus, is in response to a request of the Southern Arizona hospitality industry. Its continuing interest and on-going cooperation in program content contributes greatly to the effectiveness of the studies. The industry also provides many of the instructors.

Course content provides theory and practice, information on economy and profits, and puts stress on customer satisfaction.

Fast Food Industry Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Human Relations	MAN 110	3
Introductory Mathematics	MTH 60	3
Restaurant Sanitation and Operations	FFI 101	3
Cash Register Operations & Inv. Control for Restaurants	FFI 102	3
Cooperative Education Training	HMM 199	3
		<hr/> 15

Food and Beverage Service Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Intro. to Hotel-Motel Mgmt.	HMM 100	3
Food & Beverage Mgmt.	HMM 104	3
Food Study	FSN 113	3
Professional Food Services	FSN 214	3
Co-op Education Training	HMM 199	3
		<hr/> 15

Hotel-Motel Operations Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Intro. to Hotel-Motel Mgmt.	HMM 100	3
Front Office Procedures	HMM 101	3
Hotel-Motel Accounting	HMM 102	3
Supervisory Housekeeping	HMM 103	3
Co-op Education Training	HMM 199	3
		<hr/> 15

**Hotel-Motel Operations
Associate of Applied Science Degree
For Direct Employment**

Required Courses (63)	First Semester	Cr. Hrs.
Intro. to Hotel-Motel Mgmt.	HMM 100	3
Front Office Procedures	HMM 101	3
Writing I or Practical Communications	WRT 101 WRT 150	3
Math (determined by placement test)	MTH	3
Co-op Education (in operations)	HMM 199	3
		<hr/> 15

Second Semester		
Hotel-Motel Accounting	HMM 102	3
Supervisory Housekeeping	HMM 103	3
Food & Beverage Mgmt.	HMM 104	3
Human Relations in Business	MAN 110	3
Hotel-Motel Operations	HMM 110	3
Co-op Education (in food & beverage)	HMM 199	3
		<hr/> 18

Third Semester		
Adv. Hotel-Motel Accounting or Principles of Accounting II	HMM 202 ACC 102	3
Professional Food Services	FSN 214	3
Mktg. of Hospitality Services Elective*	HMM 203	3
Co-op Education (in general mgmt.)	HMM 299	3
		<hr/> 15

Fourth Semester		
Hotel-Motel Financial Mgmt.	HMM 204	3
Labor-Mgmt. Relations	MAN 278	3
Electives**		6
Co-op Education (in general mgmt.)	HMM 299	3
		<hr/> 15

*Select from humanities, psychology, sociology or philosophy.

**Select from science, humanities, psychology, sociology or philosophy.

**Housekeeping-Executive
Basic Certificate
For Direct Employment**

Required Courses		Cr. Hrs.
Executive Housekeeping I	HSK 150	3
Executive Housekeeping II	HSK 151	3
Co-op Education	HMM 199	3
Elective*		3
		<hr/> 12

**Housekeeping-Executive
Advanced Certificate
For Direct Employment**

Required Courses		Cr. Hrs.
Basic Certificate Requirements		12
Intro. to Microeconomics	ECO 100	3
Supervision	MAN 122	3
Human Relations	MAN 110	3
Co-op Education	HMM 199 or 299	3
Electives*		6
		<hr/> 30

*Electives to be chosen from writing 150, psychology 100, management 280.

**Travel Agent
Basic Certificate
For Direct Employment**

Required Courses		Cr. Hrs.
Human Relations	MAN 110	3
Introduction to Psychology	PSY 100	3
Cooperative Education Training	HMM 199	3
Principles of Travel-Tourism Industry	TVL 101	3
Travel Agent Methods and Procedures	TVL 102	3
		<hr/> 15

**Travel-Tour Agency Manager
Advanced Certificate
For Direct Employment**

Required Courses		Cr. Hrs.
Basic Certificate Requirements		15
Advanced Hotel-Motel Accounting	HMM 202	3
Marketing of Hospitality Services	HMM 203	3
Cooperative Education Training	HMM 199 or 299	3
Travel-Tour Agency Management	TVL 201	3
Current Issues and Problems in Travel-Tourism	TVL 202	3
		<hr/> 30



Journalism

A two-year Liberal Arts program for students planning to enter Journalism should include courses in news writing and mass communications. Experience in producing a publication is offered through a laboratory course, JRN 57. Students planning to transfer to a four-year institution should follow the first two-year study requirements of the college or university to which they plan to transfer.

Associate of Arts Degree For Transfer

Required Courses (68)	First Semester	Cr. Hrs.
Expl. Mass Media	JRN 110	3
Writing I	WRT 101	3
Foreign Language		4
Social Science Elective		3
Elective*		3
		16
	Second Semester	
Basic Reporting	JRN 101	3
Writing II	WRT 102	3
Foreign Language		4
Humanities I	HUM 110	4
Social Science Elective		3
		17
	Third Semester	
Advanced Reporting	JRN 201	3
Foreign Language		4
Science or Math Elective		4
Social Science Elective		3
Elective**		3
		17
	Fourth Semester	
Social Science Elective		3
Foreign Language		4
Science or Math Elective		4
Humanities II	HUM 111	4
Elective**		3
		18

*Journalism majors are expected to be able to type and OED 111 is suggested.

**Suggested electives:

Advertising	MKT 125	(3)
Photography I	ART 140	(3)
Public Relations	GEB 84	(3)

Liberal Arts and Sciences

Behavioral or social sciences, astronomy, biology, chemistry, communicative arts, geography, geology, languages, literature, mathematics, philosophy, physics, and many other subjects are included in the transfer program for Liberal Arts or Science majors.

Students are urged to see an advisor in order to select courses required by the college or university to which they plan to transfer, as well as to determine specific recommendations for subject areas in which they may be interested in majoring. Liberal Arts students should have their proposed major and minor subjects selected upon transfer to the four-year institutions of their choice.

After successful completion of this program, students may then be eligible to transfer into upper class levels at their selected college or university.

Liberal Arts or Sciences (General) Associate of Arts or Sciences Degree For Transfer

Required Courses	Cr. Hrs.
Writing I-II	6
Humanities Electives* (1)	8-10
Foreign Language* (2)	16
Behavioral or Social Sciences* (3)	9
Math. and/or Science* (4)	8-9
Transferable Electives	13-15
	60-65

*(1) Choose one of the following options:

- (a) Humanities I and II (HUM 110, 111) 8
- (b) Humanities I or II and 6 units from Option C. 10

- (c) Not less than 9 units from the following 3 groups, with no more than 6 units from any one group:

1. DRA 240, 241; LIT 241, 242, 261, 265, 270, 271, 272
2. PHI 101, 102, 130
3. ART 130, 131; MUS 151, 201, 202

*(2) Fulfilled by either 4 semesters (2 years) of any *one* foreign language or 2 semesters (1 year) *each* of 2 different foreign languages. Bilingual or international students should consult an advisor concerning this requirement.

*(3) Fulfilled by 9 units in behavioral or social sciences, with 6 units in *one* subject and 3 units in a *second* subject, chosen from the following: anthropology, cultural geography, economics, history, political science, psychology or sociology.

*(4) Fulfilled by 1 of the following: 2 semesters (8 units) of a single lab science, 8 units of college-level math; 9 units of non-lab science or a combination of MTH 130 or above and/or science courses. For more information, see an advisor.

Library Technology

This program prepares students for entry positions as library technicians in school libraries, public libraries, college and special libraries. It is for persons who wish to enter the library field at a level below the fifth year professional. Graduates are eligible for employment in the public services or the technical services department of any library. Options include an advanced certificate program requiring 29 credit hours and an Associate of Applied Science degree program requiring 64 credit hours.

Advanced Certificate For Direct Employment

Required Courses (29)	First Semester	Cr. Hrs.
Library Resources	LMT 50	3
Library Public Services	LMT 52	3
Typing II	OED 112	3
Data Entry	CSC 110	3
Instructional Media Tech. I	MET 81	3
		<hr/> 15
	Second Semester	
Library Tech. Services	LMT 51	4
Word Processing	OED 122	4
Implications of Media Tech.	MET 84	3
Elective*		3
		<hr/> 14

*Elective to be chosen with the consent of an advisor.

Associate of Applied Science Degree For Direct Employment

Suggested Semester Sequence (65)

	First Semester	Cr. Hrs.
Library Public Services	LMT 52	3
Writing I	WRT 101	3
Typing II	OED 112	3
Humanities Elective	HUM	4
Social or Physical Science Elective		3
		<hr/> 16
	Second Semester	
Writing II	WRT 102	3
Data Entry	CSC 110	3
Library Resources	LMT 50	3
Intro. to Computers	CSC 100	3
Word Processing	OED 122	4
		<hr/> 16
	Third Semester	
Library Tech. Services	LMT 51	4
Instructional Media Tech. I	MET 81	3
Office Procedures	OED 257	4
Humanities Elective	HUM	4
Social Science Elective		3
		<hr/> 18
	Fourth Semester	
Co-op Library Training	LMT 299	3
Implications of Media Tech.	MET 84	3
Science Elective*		3
Social Science Elective*		3
Elective*		3
		<hr/> 15

*Electives to be chosen with the consent of an advisor.

Life Sciences

Life Sciences at Pima Community College offers an Associate of Science Degree for transfer in the following areas:

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

Students planning to enter these fields should have completed two years of high school algebra, one year of high school geometry and preferably one year of trigonometry. Students entering with deficiencies in these courses should complete them at Pima Community College.

All students entering a Life Science program at Pima Community College should take the Math Placement Test in the Math-Science Alternative Learning Center. The student should arrange to meet with a Life Science faculty advisor to plan a program. Advising for students, who wish to pursue preliminary course work for Pre-Dental Hygiene, Pre-Forestry, Pre-Physical Therapy and Pre-Optometry studies, is also available, although a formal program is not outlined herewith.

Programs of study and requirements for the various majors follow:

PRE-MEDICAL, PRE-DENTAL, PRE-VETERINARY AND BIOLOGY MAJORS

Minimum requirements for admission to a medical school have been established by the Association of American Medical Colleges and the Council on Medical Education of the American Medical Association. Requirements for admission to a dental school have been established by the Council on Dental Education of the American Dental Association.

While the minimum requirements are less than a bachelor's degree, most successful applicants enter medical school with a bachelor's degree. The medical associations strongly urge students to acquire a broad, general education in all areas, including the social or behavioral sciences and humanities, as well as studies in the sciences.

Career options open to graduate veterinarians include private practice in large and small animal clinics, college instruction, veterinary practice in the Agricultural Research Service, U.S. Department of Agriculture, livestock management and veterinary microbiology and pathology. Minimum standards for admission to veterinary schools have been established by the American Veterinary Medical Association. Generally, before students are considered for admission to a veterinary school, they must have completed not less than two pre-professional years of college credit (60 semester credits).

The following courses, which lead to an Associate of Science Degree, are recommended for students who plan to transfer to a four-year institution to complete their pre-professional course requirements for medicine, dentistry, veterinary medicine or a B.S. degree in the biological sciences. Students are urged to contact the school of their choice for specific requirements.

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

Suggested Courses (63–65)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Analytic Geom. & Calculus I*or Topics in Calculus	MTH 180 MTH 175	3
Humanities Elective***		3–4
General Chemistry I	CHM 120	4
Social Sciences Elective		3
		<hr/> 16–17
	Second Semester	
Writing II	WRT 102	3
Analytic Geom. & Calculus II or Intro. to Statistics*	MTH 185 MTH 210	3
General Chemistry II	CHM 121	4
Organismic Biology I	LSC 205	4
Social Sciences Elective		3
		<hr/> 17
	Third Semester	
Humanities Elective***		3–4
Analytic Geom. & Calculus III* or Physics** or Foreign Language	MTH 215	4
Organismic Biology II	LSC 206	4
Organic Chemistry I	CHM 240	4
		<hr/> 15–16
	Fourth Semester	
General Genetics	LSC 210	4
Organic Chemistry II	CHM 241	4
Physics** or Foreign Language		4
Transfer Elective		3
		<hr/> 15

*Students may choose Mathematics sequence 180, 185, 215, or 175, 210.

**Students may choose Physics 121, 122 or Physics 131, 132 or a Foreign Language.

***The Baccalaureate requirement is 8 units in humanities field; i.e., philosophy, humanities or literature.

Students in Pre-Dental, Pre-Medical and Pre-Veterinary programs should consult the catalog of the school to which they plan to apply. Students are advised that a maximum of 72 hours community college credit may be transferred to universities.

Pre-Agriculture

Modern Agriculture is a basic and complex industry with a wide range of career opportunities. In many departments, these opportunities overlap. The curricula in agriculture are designed to meet the needs of students by combining a broad knowledge of agriculture with elements of general education. By successfully completing the Pre-Agricultural program, a student might elect to pursue one of the following fields of study at the university level:

Agricultural Communications	General Agriculture
Agricultural Economics	Horticulture
Agricultural Education	Landscape Architecture
Agri-Mechanics & Irrigation	Natural Resource Rec.
Agronomy	*Nutritional Science
Animal Health Science	Plant Pathology
Animal Sciences	Plant Science
*Dietetics	Range Management
Entomology	Soil & Water Science
Fisheries Science	Watershed Management
*Food Science	Wildlife Ecology

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

Associate of Science Degree For Transfer

Suggested Courses (66-68)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
College Algebra	MTH 150	3
General Chemistry I	CHM 120	4
Intro. Geology I	ESC 120	4
Transfer Elective		3
		17
	Second Semester	
Writing II	WRT 102	3
General Chemistry II	CHM 121	4
Intro. to Oral Communication	SPE 102	3
Trigonometry	MTH 155	3
Transfer Elective		3
		16
	Third Semester	
Organismic Biology I	LSC 205	4
Intro. Physics I	PHY 121	4
Tech. Communications	WRT 254	3
Humanities Elective*		3-4
Social Sciences Elective		3
		17-18
	Fourth Semester	
Organismic Biology II or Botany I	LSC 206	4
Humanities Elective*	LSC 220	3-4
Social Sciences Elective		3
Intro. to Microeconomics	ECO 100	3
Transfer Elective		3
		16-17

*The baccalaureate requirement is 8 units in humanities field; i.e., philosophy, humanities or literature.

Pre-Medical Technology and Microbiology

Students wishing to pursue a course of study leading toward a medical technology degree and/or certification should consider the following courses. However, specific requirements of the institution granting the degree may vary and students should check the catalog of the institution to which they plan to transfer. A background of high school algebra, biology and chemistry is recommended.

Associate of Science Degree For Transfer

Suggested Courses (64-66)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
College Algebra	MTH 150	3
General Chemistry I	CHM 120	4
Social Science Elective		3
Microbiology I	LSC 207	4
		17
	Second Semester	
Writing II	WRT 102	3
Trigonometry	MTH 155	3
General Chemistry II	CHM 121	4
Human Anatomy/Physiology I*	LSC 120	4
Social Sciences or Humanities Elective**		3-4
		17-18
	Third Semester	
Intro. Statistics	MTH 210	3
Organic Chemistry I	CHM 240	4
Intro. Physics I	PHY 121	4
Human Anatomy/Physiology II*	LSC 121	4
		15
	Fourth Semester	
Organic Chemistry II	CHM 241	4
Intro. Physics II	PHY 122	4
Social Science Elective		3
Humanities Elective		4
		15

*Not required for microbiology majors. Micro majors might substitute a foreign language for LSC 120, 121.

**The Baccalaureate requirement is 8 units in the humanities field; i.e., philosophy, humanities or literature.

Pre-Pharmacy

As one of the basic health professions, pharmacy offers a wide range of career choices to the student interested in the delivery of health care and services. Among career choices open to the graduate pharmacist are: community pharmacy (retail: independent chain pharmacies), institutional pharmacy (hospital), the Public Health Service, Indian Health Service, armed forces, manufacturing, quality control, etc. The graduate pharmacist, additionally, is prepared to pursue further study leading to advanced degrees in the pharmaceutical and related biomedical sciences.

A five-year curriculum became mandatory for the pharmacy degree in 1960. Colleges of pharmacy vary in the requirement of one or two years of pre-pharmacy before admission. The student is urged to contact the college of his choice for specific pre-pharmacy requirements.

Associate of Science Degree For Transfer

Suggested Courses (64–66)		First Semester	Cr. Hrs.
Writing I		WRT 101	3
Topics in Calculus		MTH 175	3
General Chemistry I		CHM 120	4
Microbiology I		LSC 207	4
Humanities Elective*			3–4
			<hr/> 17–18
		Second Semester	
Writing II		WRT 102	3
Intro. Statistics		MTH 210	3
General Chemistry II		CHM 121	4
Microbiology II		LSC 208	4
Humanities Elective*			3–4
			<hr/> 17–18
		Third Semester	
Organic Chemistry I		CHM 240	4
Intro. Physics I		PHY 121	4
Intro. to Microeconomics**		ECO 100	(3)
Human Anatomy/Physiology I		LSC 120	4
Social Science Elective			3
			<hr/> 15
		Fourth Semester	
Organic Chemistry II		CHM 241	4
Intro. Physics II		PHY 122	4
Intro. to Macroeconomics**		ECO 101	(3)
Human Anatomy/Physiology II		LSC 121	4
Social Science Elective			3
			<hr/> 15

*The baccalaureate requirement is 8 units in humanities field; i.e., philosophy, humanities or literature.

**Micro- and macroeconomics courses are highly recommended for transfer to the baccalaureate degree program in pharmacy; however, these courses are not required for Associate of Science Degree.

Note: Transfer students may substitute two semesters of general biology for anatomy and physiology I. Pharmacy is a five-year program.

Machine Tool Technology

The Machine Tool Technology program offers a broad coverage of techniques used in metals manufacturing including machine shop, welding and sheet metal. It is accompanied by supporting courses in manufacturing processes, quality control, metallurgy and drafting. A two-year degree program is offered as well as basic certificate and technical certificate programs.

A person majoring in a Machine Tool Technology curriculum may find Cooperative Education offers an ideal way of gaining additional skills-application experience while attending classes. Consult a Cooperative Education teacher-coordinator for details.

Machine Shop Fundamentals Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Machine Shop I-II	MAC 110, 120	8
Technical Math I-II	MTH 110, 120	6
Technical Drafting I	DFT 150	3
Basic Metallurgy	MAC 130	3
		<hr/> 20

Machinist's Standard Certificate Technical Certificate For Direct Employment

Required Courses		Cr. Hrs.
Machine Shop I-II	MAC 110, 120	8
Jig & Fixture Design I-II	MAC 210, 220	8
Quality Control	MAC 230	3
Technical Math I-II	MTH 110, 120	6
Basic Metallurgy	MAC 130	3
Physical Metallurgy	MAC 135	3
Technical Communications	WRT 154	3
Human Relations	MAN 110	3
Technical Drafting I-II	DFT 150–151	6
		<hr/> 43

Machine Tool Technology
Associate of Applied Science Degree
For Direct Employment

Required Courses (67)	First Semester	Cr. Hrs.
Machine Shop 1	MAC 110	4
Technical Math I	MTH 110	3
Practical Communications	WRT 150	3
Basic Metallurgy	MAC 130	3
Technical Drafting I	DFT 150	3
		<hr/>
		16
	Second Semester	
Machine Shop II	MAC 120	4
Technical Math II	MTH 120	3
Technical Communications	WRT 154	3
Physical Metallurgy	MAC 135	3
Technical Drafting II	DFT 151	3
		<hr/>
		16
	Third Semester	
Jig & Fixture Design I	MAC 210	4
Quality Control	MAC 230	3
Human Relations	MAN 110	3
Technical Physics I	PHY 101	3
Manufacturing Processes I	MAC 240	3
Humanities, Psychology, Sociology, or Philosophy Elective		3
		<hr/>
		19
	Fourth Semester	
Jig & Fixture Design II	MAC 220	4
Intro. to Numerical Control	MAC 250	3
Combination Welding	WLD 110	3
Technical Physics II	PHY 102	3
Manufacturing Processes II	MAC 245	3
		<hr/>
		16

Management

The Management curriculum is offered in recognition of the requirements of modern business for the development of more effective skills in the supervisory area. This program emphasizes the behavioral and quantitative aspects of the planning, organizing, coordinating, analyzing and evaluating that is inherent in the administrative process.

Basic Certificate
For Direct Employment

Required Courses	Cr. Hrs.	
Principles of Accounting I	ACC 101	3
Mathematics of Business	BUS 51	3
Business Law I	BUS 200	3
Human Relations	MAN 110	3
Supervision	MAN 122	3
		<hr/>
		15

Advanced Certificate
For Direct Employment

Required Courses	Cr. Hrs.	
Basic Certificate Requirements		15
Principles of Accounting II	ACC 102	3
Business Law II	BUS 201	3
Introduction to Business	BUS 100	3
Personnel Management	MAN 276	3
Labor/Management Relations	MAN 278	3
		<hr/>
		30

**Associate of Applied Science Degree
For Direct Employment**

Required Courses (60–65)	First Semester	Cr. Hrs.
Prin. of Accounting I	ACC 101	3
Intro. to Business	BUS 100	3
Mathematics of Business	BUS 51	3
Human Relations	MAN 110	3
Business English	OED 154	3
		<hr/> 15
	Second Semester	
Prin. of Accounting II	ACC 102	3
Supervision	MAN 122	3
Small Business Mgmt.	MAN 124	3
General Education Elective*		3–4
Speech Elective	SPE 110 or 120	3
		<hr/> 15–16
	Third Semester	
Accounting Elective	ACC 201, 203, 204	3
Business Law I	BUS 200	3
Personnel Management	MAN 276	3
Intro. to Microeconomics	ECO 100	3
General Education Elective*		3–4
		<hr/> 15–16
	Fourth Semester	
Business Elective**		3–4
Labor/Mgmt. Relations	MAN 278	3
Business Org. & Mgmt.	MAN 280	3
General Education Electives*		6–8
		<hr/> 15–18

***General Education Requirements**

Select four of the following courses or other available general education courses with the consent and written approval of the subject area coordinator or faculty advisor.

MTH 70 or MTH 150
 REA 100
 WRT 101 and/or WRT 154
 POL 110 and/or POL 111
 SPE 120
 SPA 50 and/or SPA 55
 PHI 101 and/or PHI 102 and/or PHI 120
 PSY 100 and/or PSY 101
 SOC 100 and/or SOC 101
 HUM 110 and/or HUM 111
 ECO 101

****Business Elective**

Students may take any courses offered in the subject areas of the Business Division (ACC, CSC, BUS, MAN, MKT, or OED) that are not required in their degree program. It is suggested that OED 259, Business Communications, be taken.

Marketing

The Marketing curriculum offers students a variety of courses to develop an understanding of how business serves people through new product development, physical distribution, communication and consumer research. Students may begin preparation for careers in advertising, consumer affairs, industrial marketing, international marketing, marketing research, product management, retail management, sales management and small business marketing.

**Basic Certificate
For Direct Employment**

Required Courses	Cr. Hrs.	
Principles of Accounting I	ACC 101	3
Mathematics of Business	BUS 51	3
Business Law I	BUS 200	3
Marketing	MKT 111	3
Salesmanship	MKT 113	3
		<hr/> 15

**Advanced Certificate
For Direct Employment**

Required Courses	Cr. Hrs.	
Basic Certificate Requirements		15
Principles of Accounting II	ACC 102	3
Business Law II	BUS 201	3
Introduction to Business	BUS 100	3
Advertising	MKT 125	3
Consumer Behavior	MKT 141	3
		<hr/> 30

Associate of Applied Science Degree For Direct Employment

Required Courses (60–65)	First Semester	Cr. Hrs.
Principles of Accounting I	ACC 101	3
Introduction to Business	BUS 100	3
Mathematics of Business	BUS 51	3
Human Relations	MAN 110	3
Business English	OED 154	3
		15
	Second Semester	
Principles of Accounting II	ACC 102	3
	MKT*	3
	MKT*	3
General Education Elective**		3–4
Speech Elective	SPE 110 or 120	3
		15–16
	Third Semester	
Accounting Elective	ACC 201, 203, 204	3
Business Law I	BUS 200	3
	MKT*	3
Intro. to Microeconomics	ECO 100	3
General Education Elective**		3–4
		15–16
	Fourth Semester	
Business Elective***		3–4
	MKT*	3
	MKT*	3
General Education Elective**		3–4
General Education Elective**		3–4
		15–18

*Required Marketing Courses:

Select five of the following:	Cr. Hrs.	
Marketing	MKT 111	3
Salesmanship	MKT 113	3
Advertising	MKT 125	3
Advertising Layout & Design	MKT 127	3
Retailing	MKT 139	3
Consumer Behavior	MKT 141	3

These courses should be taken in numerical sequence, if possible.

**General Education Requirements:

Select four of the following courses or other available general education courses with the consent and written approval of the subject area coordinator:

MTH 70 or MTH 150
 REA 100
 WRT 101 and/or WRT 154
 POL 110 and/or POL 111
 SPE 120
 SPA 50 and/or SPA 55
 PHI 101 and/or PHI 102 and/or PHI 120
 PSY 100 and/or PSY 101
 SOC 100 and/or SOC 101
 HUM 110 and/or HUM 111
 ECO 101

***Business Elective

Students may take any courses offered in the subject areas of the Business Division (ACC, CSC, BUS, MAN, MKT, or OED) that are not required in their degree program. It is suggested that OED 259, Business Communications, be taken.

Mathematics

Associate of Arts Degree For Transfer

Suggested Courses (64–66)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Anal. Geometry & Calculus I	MTH 180	3
Finite Mathematics	MTH 170	3
Elementary French I (or German)	FRE (or GER) 110	4
Social Science Elective*		3
		16
	Second Semester	
Writing II	WRT 102	3
Anal. Geometry & Calculus II	MTH 185	3
Fortran IV Programming	CSC 140	3
Elementary French II (or German)	FRE (or GER) 111	4
Social Science Elective*		3
		16
	Third Semester	
Anal. Geometry & Calculus III	MTH 215	4
Introductory Physics I	PHY 131	4
Intermediate French I (or German)	FRE (or GER) 210	4
Humanities Elective*		3–4
Physical Education	PED	1
		16–17
	Fourth Semester	
Linear Alg. & Diff. Equations	MTH 220	4
Introductory Physics II	PHY 132	4
Intermediate French II (or German)	FRE (or GER) 211	4
Humanities Elective*		3–4
Physical Education	PED	1
		16–17

*For course electives in humanities and social sciences consult the catalog of the college or university you plan to enter.

Note: The courses suggested above meet University of Arizona requirements for the first two years of a Bachelor of Arts or Science degree.



Media Technology

Upon completing the two-year Instructional Media Technology program, students will have the necessary basic knowledge and skills for entry level in the following areas: communigraphics, reprographics, telecommunications, photography and audiovisual equipment repair and maintenance.

The program prepares students for para-professional roles in educational institutions, public institutions, business and industry. Each of the areas is presented through discussion of modern techniques, and extensive laboratory experience in designing and producing instructional materials as well as in the operation of a media production center or instructional media services center.

Both a basic certificate program, requiring 21 credit hours of work, and an Associate in Applied Sciences degree program, requiring 64 credit hours, are offered.

Basic Certificate For Direct Employment

Suggested Semester Sequence (21)

	First Semester	Cr. Hrs.
Library Public Services	LMT 52	3
Communigraphics I	MET 50	3
Media Technology I	MET 81	3
		<hr/> 9
	Second Semester	
Cinematography I	MET 53	3
Repair and Maintenance	MET 70	3
Implications of Media Tech.	MET 84	3
Telecomm-TV Productions	MET 90	3
		<hr/> 12

Associate of Applied Science Degree For Direct Employment

Suggested Semester Sequence (64)

	First Semester	Cr. Hrs.
Communigraphics I	MET 50	3
Media Technology I	MET 81	3
Writing I	WRT 101	3
Library Public Services	LMT 52	3
Science or Math		4
		<hr/> 16

Second Semester

Cinematography I	MET 53	3
Media Technology II	MET 82	3
Writing II	WRT 102	3
Humanities I	HUM 110	4
Social Science Elective		3
		<hr/> 16

Third Semester

Repair and Maintenance	MET 70	3
Telecomm-TV Productions	MET 90	3
Intro. to Computers	CSC 100	3
Science or Math		4
Co-op Training	MET 299	3
		<hr/> 16

Fourth Semester

Implications of Media Tech.	MET 84	3
Co-op Training	MET 299	3
Art	ART	3
Electives		7
		<hr/> 16

Military Science

The primary objective of the Army and Air Force ROTC programs is to furnish leaders suitable for commissioning as Reserve Officers. Intermediate objectives are to develop self-discipline, integrity, a sense of responsibility, and a capacity for thoughtful and decisive leadership.

ROTC is offered to full-time 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 conducted at the Old Main Building on the University of Arizona campus.

First year students should take classes in the semester sequence listed. Second year students who have not taken these classes in their first year may, however, combine the first and third semesters of ROTC in the fall, and the second and fourth semesters in the spring, thereby gaining in one year the 8 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 of \$25 will be paid with student's normal registration fees. The fee receipt will be taken to the ROTC supply clerk, Bear Down Gym, University of Arizona campus, so that a uniform can be issued.

Upon return of the uniform to the supply clerk at the end of the semester, the student fee receipt will be signed to the fact that the uniform has been returned, and the student's \$25 will be refunded. Refunds are at the West Campus only.

Students who complete the first two years of the program and continue their ROTC training receive a tax-free subsistence pay of \$100 per month during their junior and senior years at four-year institutions.

Air Force ROTC

Required Courses (8)	First Semester	Cr. Hrs.
The U.S. Air Force Today I	MLA 101	2
	Second Semester	
The U.S. Air Force Today II	MLA 102	2
	Third Semester	
U.S. Air Force History I	MLA 203	2
	Fourth Semester	
U.S. Air Force History II	MLA 204	2
		8

Army ROTC

Required Courses (8)	First Semester	Cr. Hrs.
Introduction to ROTC	MSC 101	2
	Second Semester	
Defense Estab. in National Security	MSC 102	2
	Third Semester	
American Military History	MSC 203	2
	Fourth Semester	
Military Map Reading & Tactics	MSC 204	2
		8

Music

The suggested program provides the first two years of music experiences generally required by higher institutions of learning. Arizona's three universities also require an examination of all students who transfer applied work. Because of different or specific degree requirements, it is necessary that each student consult with the music faculty for advice on specific programs. Students also should follow the first two-year study requirements of the four-year institution to which they plan to transfer.

Associate of Arts Degree For Transfer

Required Courses (72)	First Semester	Cr. Hrs.
Music Theory I	MUS 103	4
Band or	MUS 120	
Chorale	MUS 130	2
Applied Music/Private Inst.	MUS 145	2
Piano Class I	MUS 141	1
Writing I	WRT 101	3
Electives*		4
		16
	Second Semester	
Music Theory II	MUS 204	4
Band or	MUS 120	
Chorale	MUS 130	2
Applied Music/Private Inst.	MUS 145	2
Piano Class II	MUS 142	1
Writing II	WRT 102	3
Electives*		7
		19
	Third Semester	
Music Theory III	MUS 205	4
History and Lit. of Music I	MUS 201	3
Band or	MUS 120	
Chorale	MUS 130	2
Applied Music/Private Inst.	MUS 145	2
Piano III	MUS 143	1
Electives*		7
		19
	Fourth Semester	
Music Theory IV	MUS 206	4
History and Lit. of Music II	MUS 202	3
Band or	MUS 120	
Chorale	MUS 130	2
Applied Music/Private Inst.	MUS 145	2
Piano IV	MUS 144	1
Electives*		6
		18

*Electives should be selected to meet general education and/or departmental requirements at four-year institutions to which transfer is planned. Faculty advisors must approve electives in the program of study.

Nursing Careers

Nursing career programs prepare graduates to practice as a Nursing Assistant, Practical Nurse and Associate Degree Nurse. Both the Nursing Assistant and Practical Nurse curriculum are designed to permit students, if they later wish, to move upward in their nursing career.

Nursing Assistant

This program provides the basic health care skills students can utilize as nursing assistants in hospitals, long-term facilities and other health care agencies. Graduates are prepared to give patient care under the direct supervision of licensed health personnel. Students who satisfactorily complete this curriculum will receive a Nursing Assistant Basic Certificate.

Nursing assistant training also is provided under the Allied Health Services program.

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.)
- Interview by the campus Allied Health Service Review Committee or a committee member.
- A physical examination, to include T.B. screening, is required upon acceptance into the program.

General Requirements:

- Total credits: 12 semester hours
- Successful completion of all academic and clinical program requirements.

Basic Certificate For Direct Employment

Required Courses		Lec.	Lab	Cr. Hrs.
Prin. of Anatomy & Physiology	LSC 102	3	+ 3	4
Intro. to Health Care Skills, Allied Health Services	HCA 154	3	+ 0	3
	HCA 150	2	+ 9	<u>5</u>
				12

Note: Nursing assistant graduates interested in preparing for the practical nurse or Associate Degree nursing programs should consult with their nursing advisor.

Practical Nurse

This curriculum provides the theoretical and practical preparation to qualify graduates for immediate employment as Practical Nurses in hospitals, clinics and medical offices.

The graduate is prepared to give quality nursing care as defined by the Arizona State Board of Nursing, and to work under the direct supervision of the registered nurse or physician.

The program consists of two semesters on campus and in affiliated hospitals. Nursing courses must be taken in sequence as each course builds upon the previous one. Required general education courses in each semester must be completed in advance or taken concurrently with the nursing courses. Students having satisfactorily completed this curriculum will graduate with an advanced certificate from Pima Community College and be eligible to take the State Board examination for licensure as an L.P.N.

Acceptance Into Program:

- Completion of Pima Community College acceptance requirements.
- Completion of a special application for the practical nurse program.
- Receipt of placement examination results in mathematics and reading comprehension (minimum requirement at the 12th grade reading level and 70 per cent in math test).
- Personal interview and recommendation by the campus Allied Health Services Review Committee.

General Requirements:

- Total credit: 36 credit hours.
- Work in residence: minimum 17 credit hours of major (NRS) courses to be completed in residence.

Advanced Certificate For Direct Employment

Required Courses (36)	First Semester	Lec.	Lab	Cr. Hrs.
Prin. Anatomy/Physiology	LSC 102	3	+ 3	4
Intro. to Health Care	HCA 154	3	+ 0	3
Writing I or Practical Communications	WRT 101	3	+ 0	
	WRT 150	3	+ 0	3
Nursing I	NRS 70	4	+ 12	<u>8</u>
				18
	Second Semester			
Intro. to Infectious Diseases	LSC 117	3	+ 0	3
Intro. to Psychology I	PSY 100	3	+ 0	3
Intro. to Sociology	SOC 100	3	+ 0	3
Nursing II	NRS 72	4	+ 15	<u>9</u>
				18

Associate Degree Nursing

This curriculum provides the theoretical and practical preparation to qualify graduates to give quality nursing care and to offer this care to the health consumer with some degree of independence under the supervision of a professional nurse. The program consists of four semesters on campus and in affiliated hospitals and community agencies. Nursing courses must be taken in sequence as each course builds upon the previous one. Required general education courses in each semester must be completed before or taken concurrently with the nursing courses. Students satisfactorily completing this curriculum will graduate with an Associate of Science degree in nursing and be eligible to take the Arizona State Board Registered Nurse Licensing examination.

Acceptance into Program:

- Completion of allied health application.
- Completion of high school chemistry or one semester of college chemistry within the past five years.
- Completion of a reading proficiency examination.
- Approval by selections committee.

General Requirements:

- Total credit: 66 credit hours.
- Work in residence: minimum, 35 credit hours of major (NRS) courses to be completed in residence or transfer.

Restrictions:

- Correspondence study: maximum 6 credit hours.

Minimal Grade Achievement:

"C" level.

Associate of Science Degree For Direct Employment

Required Courses (66)	First Semester	Lec.	Lab	Cr. Hrs.
Anatomy/Physiology I	LSC 120	3	+ 3	4
Intro. to Health Care	HCA 154	3	+ 0	3
Writing I	WRT 101	3	+ 0	3
Nursing I	NRS 70	4	+ 12	8
				18
Second Semester				
Anatomy/Physiology II	LSC 121	3	+ 3	4
Intro. to Psychology I	PSY 100	3	+ 0	3
Nursing II	NRS 72	4	+ 15	9
				16
Third Semester				
Writing II	WRT 102	3	+ 0	3
Microbiology I	LSC 207	3	+ 4	4
A.D. Nursing III	NRS 80	4	+ 15	9
				16
Fourth Semester				
A.D. Nursing IV	NRS 82	4	+ 15	9
Intro. to Sociology	SOC 100	3	+ 0	3
Elective				4
				16

Pre-Baccalaureate Nursing For Transfer

Required Courses (66)

		Cr. Hrs.
Fund. Chemistry I-II	CHM 110-111	8
Anatomy/Physiology I-II	LSC 120-121	8
Microbiology I-II	LSC 207-208	8
Human Development or Child Development	ECE 107 ECE 117	3
College Algebra	MTH 150	3
Intro. Physics I	PHY 121	4
		34

General Education Requirements

Writing I-II	WRT 101-102	6
Intro. to Psychology I-II	PSY 100-101	6
Intro. to Sociology	SOC 100	3
U.S. Social Problems	SOC 101	3
Humanities I-II	HUM 110-111	8
Introductory Statistics	MTH 210	3
Intro. Cultural Anthro.	ANT 110	3
		32



Office Education

A wide variety of courses and programs is available in the secretarial and clerical fields. Two-year programs leading to an Associate of Applied Science degree are available in the areas of administrative assistant, executive secretary, general secretary, legal secretary and medical secretary. One year programs leading to an advanced certificate are offered for clerk-typist and receptionist. Certificate and degree programs also are offered for bilingual secretary.

The office occupations curriculum provides training in shorthand, typewriting, business and management subjects and operating office machines. Two-year programs also include a minimum of 18 credits in general education: six in communications; three in mathematics; six or more in business, management or economics; and three or four in humanities, psychology, sociology and philosophy.

Clerk-Typist Advanced Certificate For Direct Employment

Required Courses (34)	First Semester	Cr. Hrs.
Typing II	OED 112	3
Mathematics of Business	BUS 51	3
Payroll/Applied Accounting Systems	ACC 50	3
Business English	OED 154	3
Human Relations	MAN 110	3
		15
	Second Semester	
Calculating Machines	OED 121	2
Word Processing	OED 122	4
Office Procedures	OED 257	4
Business Communications	OED 259	3
Typing III	OED 252	3
Records Management	OED 103	3
		19

Receptionist (Medical, Legal, General) Advanced Certificate For Direct Employment

Required Courses (31)	First Semester	Cr. Hrs.
Business English	OED 154	3
Typing II	OED 112	3
Mathematics of Business	BUS 51	3
Office Procedures	OED 257	4
Elective*		3
		16
	Second Semester	
Payroll/Applied Accounting Systems or Business Communications	ACC 50	3
Word Processing	OED 122	4
Calculating Machines	OED 121	2
Human Relations	MAN 110	3
Records Management	OED 103	3
		15

*For medical receptionist, the elective should be Medical Office Procedures (OED 166). For legal receptionist, the elective should be Legal Terms (OED 180).

Administrative Assistant Associate of Applied Science Degree For Direct Employment

Required Courses (65-66)	First Semester	Cr. Hrs.
Business English	OED 154	3
Typing II	OED 112	3
Mathematics of Business	BUS 51	3
Bus. & Prof. Communication	SPE 120	3
Reading	REA 100 series	4
		16
	Second Semester	
Typing III	OED 252	3
Records Management	OED 103	3
Human Relations	MAN 110	3
Intro. to Computers	CSC 100	3
Business Communications	OED 259	3
		15
	Third Semester	
Business Law I	BUS 200	3
Calculating Machines	OED 121	2
Supervision	MAN 122	3
Prin. of Accounting I	ACC 101	3
Office Procedures	OED 257	4
Intro. to Microeconomics	ECO 100	3
		18
	Fourth Semester	
Business Law II	BUS 201	3
Prin. of Accounting II	ACC 102	3
Word Processing	OED 122	4
Business Organ. & Mgmt.	MAN 280	3
General Ed. Elective*		3-4
		16-17

*General education elective can be selected from:

Humanities I	HUM 110	(4)
Intro. to Psychology I	PSY 100	(3)
Intro. to Sociology	SOC 100	(3)
Intro. to Philosophy I	PHI 101	(3)

**General Secretary
Associate of Applied Science Degree
For Direct Employment**

Required Courses (64-66)	First Semester	Cr. Hrs.
Business English	OED 154	3
Shorthand I	OED 101	3
Typing I	OED 111	3
Mathematics of Business	BUS 51	3
Elective*		3-4
		<hr/> 15-16
	Second Semester	
Shorthand II	OED 102	3
Typing II	OED 112	3
Calculating Machines	OED 121	2
Records Management	OED 103	3
Word Processing	OED 122	4
		<hr/> 15
	Third Semester	
Typing III	OED 252	3
Shorthand III	OED 253	3
Office Procedures	OED 257	4
Prin. of Accounting I or Payroll/Applied Accounting Systems	ACC 101 ACC 50	3
Intro. to Computers or Intro. to Business	CSC 100 BUS 100	3
Elective		3
		<hr/> 19
	Fourth Semester	
Human Relations	MAN 110	3
Business Law I	BUS 200	3
Shorthand IV	OED 264	3
Business Communications	OED 259	3
General Ed. Elective**		3-4
		<hr/> 15-16

*Recommended: Reading (REA 100 series).

**General education elective can be selected from:

Humanities I	HUM 110	(4)
Intro. to Psychology I	PSY 100	(3)
Intro. to Sociology	SOC 100	(3)
Intro. to Philosophy I	PHI 101	(3)

**Executive, Legal, Medical Secretary
Associate of Applied Science Degree
For Direct Employment**

Required Courses (60-62)	First Semester	Cr. Hrs.
Business English	OED 154	3
Shorthand II	OED 102	3
Typing II	OED 112	3
Mathematics of Business	BUS 51	3
Elective*		3-4
		<hr/> 15-16
	Second Semester	
Business Communications	OED 259	3
Shorthand III	OED 253	3
Typing III	OED 252	3
Human Relations	MAN 110	3
Prin. of Accounting I or Payroll/Applied Accounting Systems	ACC 101 ACC 50	3
		<hr/> 15
	Third Semester	
Word Processing	OED 122	4
Calculating Machines	OED 121	2
Business Law I	BUS 200	3
Option 1		3
Option 2		3
		<hr/> 15
	Fourth Semester	
Records Management	OED 103	3
General Ed. Elective**		3-4
Option 3		3
Option 4		3
Option 5		3
		<hr/> 15-16

*Recommended: Reading (REA 100 series).

**General education elective can be selected from:

Humanities I	HUM 110	(4)
Intro. to Psychology I	PSY 100	(3)
Intro. to Sociology	SOC 100	(3)
Intro. to Philosophy I	PHI 101	(3)

Note: Students interested in a secretarial specialization should choose appropriate courses from the three options given to Executive, Legal and Medical Secretary—

Executive Secretary

Option	Units
1 Office Procedures (OED 257)	(4)
2 Intro. to Business (BUS 100)	(3)
or Intro. to Computers (CSC 100)	(3)
3 Shorthand IV (OED 264)	(3)
or Prin. of Accounting II (ACC 102)	(3)
4-5 Electives	(3)

Legal Secretary

Option	Units
1 Legal Terms (OED 180)	(3)
2 Legal Secretarial Procedures I (OED 250)	(3)
3 Legal Secretarial Procedures II (OED 251)	(3)
4 Business Law II (BUS 201)	(3)
or Criminal Law I (AJS 172)	(3)
5 Shorthand IV (OED 264)	(3)
or Office Procedures (OED 257)	(4)

Medical Secretary

Option		
1	Medical Office Procedures (OED 166)	(3)
2	Medical Terms (OED 255)	(3)
3	Medical Transcription (OED 256)	(3)
4-5	Electives	(6)

**Bilingual Secretary
Basic Certificate
For Direct Employment**

Required Courses		Cr. Hrs.
Typing II	OED 112	3
Español Comercial*	OED 130	2
Prácticas de Oficina*	OED 257	4
Business English	OED 154	3
Intensive Spanish* for Native Speakers I or Intermediate Spanish I*	SPA 101	4
		<u>16</u>

Note: Spanish III is a prerequisite to Spanish 210. Typing I or equivalent is a prerequisite to Typing II. Fluency in reading and writing Spanish is a prerequisite to Commercial Spanish and Practicas de Oficina. Consult instructor for placement.

*Taught in Spanish

**Bilingual Secretary
Advanced Certificate
For Direct Employment**

Required Courses (35)		Cr. Hrs.
Basic Certificate Requirements (First 5 courses listed below)		
Typing II	OED 112	3
Español Comercial*	OED 130	2
Prácticas de Oficina*	OED 257	4
Business English	OED 154	3
Español Inten. Para. Estud. de Habla Hispana I* or Intermediate Spanish I*	SPA 101 SPA 210	4
		<u>16</u>
Plus the Following:		
Business Math	BUS 51	3
Shorthand II	OED 102	3
Business Communications	OED 259	3
Typing III	OED 252	3
Literatura Creativa I*	SPA 205	3
Español Inten. Para. Estud. de Habla Hispana II* or Intermediate Spanish II*	SPA 102 SPA 211	4
		<u>19</u>

Note: Shorthand I is a prerequisite for Shorthand II. A certain proficiency in reading and writing Spanish is a prerequisite for OED 130, Español Comercial (Commercial Spanish) and OED 257, Prácticas de Oficina (Office Procedures). Consult instructor for placement.

*Taught in Spanish

**Bilingual Secretary
Associate in Applied Science Degree
For Direct Employment**

Required Courses (63-65) •		First Semester	Cr. Hrs.
Typing II	OED 112		3
Shorthand I	OED 101		3
Business English	OED 154		3
Intermediate Spanish I or Español Inten. Para. Estud. de Habla Hispana I*	SPA 210		4
Elective	SPA 101		<u>3-4</u>
			16-17
Second Semester			
Typing III	OED 252		3
Shorthand II	OED 102		3
Business Math	BUS 51		3
Business Communications	OED 259		3
Intermediate Spanish II* or Español Inten. Para Estud. de Habla Hispana II*	SPA 211		4
	SPA 102		<u>4</u>
			16
Third Semester			
Human Relations	MAN 110		3
Calculating Machines	OED 121		2
Español Comercial*	OED 130		2
Shorthand III	OED 253		3
Literatura Creativa I*	SPA 205		3
General Education Elective**			<u>3-4</u>
			16-17
Fourth Semester			
Literatura Creativa II*	SPA 206		3
Prácticas de Oficina*	OED 257		4
Records Management	OED 103		3
Introducción a Negocios*	BUS 100		3
Spanish Elective***			<u>3</u>
			15

Note: Prerequisites for the program are Typing I or equivalent skill and Spanish III or equivalent Spanish proficiency.

*Taught in Spanish

**General Education Elective: Three units may be selected from the following areas: humanities, psychology, sociology, and philosophy.

***Highly recommended Spanish elective: SPA 225, SPA 226, SPA 240, or any SPA 200 series.

Optical Laboratory Technology and Ophthalmic Dispensing Technology

This program provides the theoretical and practical preparation to qualify graduates for employment as an optical laboratory technician, or as an ophthalmic dispenser and/or a contact lens technician in private offices and clinics. Other opportunities may be found as private practitioners, optical laboratory managers, ophthalmic sales representatives and ophthalmic research technicians.

The program consists of four semesters of theory and practical laboratory on campus including 240 hours of externship during the fourth semester. Graduates will qualify for an Associate of Science degree in ophthalmic dispensing technology from Pima Community College. To establish a private practice in Arizona, the graduate must complete 24 calendar months of apprenticeship as required by the Arizona State Board of Dispensing Opticians.

Acceptance into Program:

- Completion of college and health sciences acceptance requirements.
- One year of math (including algebra or geometry).
- Receipt of placement examination results in math and reading comprehension.

General Requirements:

- Total credit: 60 credit hours for ophthalmic dispensing.
- Work in residence: ophthalmic dispensing—minimum 40 credit hours of major (ODT) and related courses to be completed in residence.

Restrictions:

- Correspondence study: ophthalmic dispensing—maximum 6 credit hours.
- Extension study: ophthalmic dispensing—maximum 22 credit hours (including correspondence study).

Minimal Grade Achievement:

“C” level

Ophthalmic Dispensing Technology Associate of Science Degree For Direct Employment

Required Courses (60)	First Semester	Lec.	Lab	Cr. Hrs.
Writing I or Practical Communications	WRT 101			
Algebra I	MTH 70	3 + 0		3
Fundamental Physics	PHY 105	3 + 3		4
Optical Orientation I	ODT 51	5 + 3		6
				16
Second Semester				
Writing II or Technical Communications	WRT 102			
Math Elective**	WRT 154	3 + 0		3
Social Science Elective	SOC or PSY	3 + 0		3
Optical Orientation II	ODT 52	3 + 3		4
Optical Laboratory* or Elective* (facilitator's approval)	ODT 53	1 + 6		
		3 + 0		3
				16
Third Semester				
Optical Dispensing I	ODT 54	4 + 6		6
Contact Lenses I	ODT 55	4 + 3		5
Ophthalmic Assistant* or Elective* (facilitator's approval)	ODT 56	2 + 3		
		3 + 0		3
				14
Fourth Semester				
Contact Lenses II	ODT 57	4 + 3		5
Optical Dispensing II	ODT 58	4 + 0		4
Senior Seminar	ODT 59	2 + 0		2
Co-op Ophthalmic Dispensing	ODT 299	0 + 15		3
				14

*Students, in the second and third semesters, must take either ODT 53 or ODT 56. Students may take both if they wish. If students choose to take one of the two courses, an elective is taken in the other semester, with the approval of the program facilitator.

**Select from the following: BUS 51 Mathematics of Business; MTH 90 Elementary Geometry; MTH 130; Algebra II.

Physical Education

The Physical Education program is based on the philosophy of acquiring a leisure-time education for life with classes providing skill development. Options available under the Physical Education program are service activity classes; special interest classes; and teaching majors and minors.

Students planning to enroll in physical education courses should first consult with a faculty member for specific information. Requirements include providing the Student Health Services Office with a current, valid medical examination showing acceptable health standards and dated prior to enrollment; and obtaining health insurance which is available during registration.

Some courses may require a special fee or special dress to insure safety.

Associate of Arts Degree For Transfer

Required Courses (60)	First Semester	Cr. Hrs.
Intro. to Leisure Ed.	PED 139	3
Elem. School Phys. Ed.	PED 130	3
Professional Activities	PED 131-138	8
Practicum I-II	PED 1-2	2
Phys. Ed. History	PED 149	2
Facilities for Phys. and Rec.	PED 120	2
		<hr/> 20

General Education Requirements:

Writing I-II	WRT 101-102	6
Algebra II	MTH 130	3
Intro. to Psychology I	PSY 100	3
Humanities I-II	HUM 110-111	8
Anatomy & Physiology I-II	LSC 120-121	8
National Government	POL 110	3
Electives*		9
		<hr/> 40

*Suggested Electives for a minimum of nine credits:

Sports Officiating	PED 145	(2)
Dance	PED 144	(2)
Athletic Training	PED 125	(2)
Intro. to Sociology	SOC 100	(3)
Intro. Health Science	HED 136	(3)
Elementary School Health Ed.	HED 137	(3)
Child Development	ECE 117	(3)
Practicum III	PED 3	(1)
Practicum IV	PED 4	(1)

Physics

Associate of Science Degree For Transfer

Suggested Courses (63-65)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Anal. Geometry & Calculus I	MTH 180	3
Introductory Mechanics	PHY 210	4
Fortran IV Programming	CSC 140	3
Social Science Elective*		3
		<hr/> 16
	Second Semester	
Writing II	WRT 102	3
Anal. Geometry & Calculus II	MTH 185	3
Intro. Electricity & Magnetism	PHY 216	4
General Chemistry I	CHM 120	4
Social Science Elective		3
		<hr/> 17
	Third Semester	
Anal. Geometry & Calculus III	MTH 215	4
Intro. to Waves & Heat	PHY 221	3
General Chemistry II	CHM 121	4
Humanities Elective		3-4
Physical Education	PED	1
		<hr/> 15-16
	Fourth Semester	
Linear Alg. & Diff. Equations	MTH 220	4
Intro. to Modern Physics	PHY 230	3
Elementary German I	GER 110	4
Humanities Elective		3-4
Physical Education	PED	1
		<hr/> 15-16

*For course electives in humanities and social sciences consult the catalog of the college or university you plan to enter.

Note: The courses suggested meet University of Arizona requirements for the first two years of a Bachelor of Science Degree.

Pre-Law

Colleges of Law usually have no specific pre-legal course requirements. Although a Bachelor's degree is usually required, the degree itself may be in any four-year program which the student selects. Students may choose degrees in Liberal Arts or Business Administration, although any Bachelor's degree is acceptable. Students are encouraged to develop their programs with advisors.

In addition to this four-year degree, an acceptable score on the Law School Admissions Test (LSAT) is required to enter a college of law. Each college of law has its own requirements for Grade Point Average and LSAT scores.

The courses listed are suggested courses which may be taken to supplement students' programs:

Suggested Courses		Cr. Hrs.
Writing I-II	WRT 101, 102	6
Intro. to Political Science	POL 100	3
Am. Natl. Govt.	POL 110	3
Am. State & Local Govt.	POL 111	3
Comparative Politics	POL 120	3
International Relations	POL 130	3
Minority Groups	POL 140	3
Immigration Law	POL 50	3
Intro. to Sociology	SOC 100	3
Humanities I-II	HUM 110, 111	4-8
Western Civilization I-II	HIS 101, 102	6
Amer. Civilization I-II	HIS 143, 144	6
U. S. History I-II	HIS 141, 142	6
Economics Elective	ECO	3-6
Intro. to Philosophy I	PHI 101	3
Intro. to Logic	PHI 120	3
Accounting Elective	ACC	3
Voice & Diction	SPE 105	3
Public Speaking	SPE 110	3
Bus. & Prof. Communications	SPE 120	3
Argumentation & Debate	SPE 124	3
College Algebra	MTH 150	3
Intro. to Psychology	PSY 100	3
U. S. Social Problems	SOC 101	3

Public Administration

The Public Administration Transfer Program is for students interested in working in the public sector such as departments or agencies associated with municipal, state or federal governments. Students completing the described program will be eligible for an Associate of Arts degree in Public Administration.

Students specifically interested in receiving an Associate of Arts degree in Corrections or Criminal Justice should refer to the programs listed in this catalog under the heading of "Administration of Justice."

Transfer students should follow the requirements of the four-year institutions which they plan to attend.

Associate of Arts Degree For Transfer

Required Courses (62-66)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Intro. to Logic or Natural Science* (1)	PHI 120	3-4
American National Govt.	POL 110	3
Social Science Elective or Math* (2)		3
Business & Prof. Communication	SPE 120	3
Physical Education Elective	PED	1
		<hr/> 16-17
	Second Semester	
Writing II	WRT 102	3
Intro. to Logic or Natural Science* (1)	PHI 120	3
Finite Math	MTH 170	3
American State & Local Govt.	POL 111	3
Social Science Elective* (2)		3
Physical Education Elective	PED	1
		<hr/> 16-17
	Third Semester	
Intro. to Public Administration	PAD 105	3
Intro. to Microeconomics	ECO 100	3
Stat. Methods in Bus. & Ind. I	BUS 205	3
Humanities or Foreign Lang.* (3)		3-4
Intro. to Computers	CSC 100	3
		<hr/> 15-16
	Fourth Semester	
Acctg. for Public Agencies	ACC 173	3
Environ. Factors in the Admin. Proc.	PAD 215	3
Intro. to Macroeconomics	ECO 101	3
Elective (see advisor)		3
Humanities or Foreign Lang.* (3)		3-4
		<hr/> 15-16

*(1) Fulfilled by PHI 120 and 3–4 units of natural science or by 2 semesters of natural science. The natural science courses may be selected from the following: (Although not required, students may enroll in laboratories and use lab units as free electives, unless otherwise specified) AST 101, 102 (111 and 112 are labs); CHM 101, 102; ESC 101, 102; and LSC 103, 104. In the case of the following courses: ESC 120, 121; LSC 207, 208; and PHY 121, 122, labs are required.

(2) By the end of the second year, students will be expected to have completed 6 units in one of the following fields: anthropology, cultural geography, psychology, or sociology. Upon transfer to the university, students will be expected to complete 6 additional units in one other field, chosen from the previous list.

(3) Fulfilled by either 2 semesters (8 units) of a single foreign language, or Humanities I and II (HUM 110, 111), or other selected Humanities electives. See an advisor for information concerning these electives.

Radiologic Technology

This curriculum provides the theoretical and practical preparation to qualify graduates for immediate employment as Radiologic Technologists in hospitals, clinics, medical offices or for transfer into specialized four-year programs.

The total program consists of four semesters on campus and a minimum of 2,200 hours of externship practicum in an affiliated hospital radiology department. Students having successfully completed all required prerequisites will be scheduled to enter the hospital portion of their practicum beginning with the third semester. Graduates will be qualified for the Associate of Science degree in Radiologic Technology and will be eligible to apply for registration with the American Registry of Radiologic Technologists.

Acceptance Into Program:

- Completion of college and allied health programs acceptance requirements.
- High school mathematics—algebra and geometry required.
- One year of chemistry.
- One year of biology or zoology.
- Personal interview and recommendation by the program advisor.
- Approval by selections committee.

General Requirements:

- Total credit: 105 credit hours.
- Work in residence: minimum of 75 credit hours of major (RAD) courses to be completed in residence, 30 of which may be challenged. (Approval required by program facilitator.)

Restrictions:

- Correspondence study: maximum 6 credit hours.
- Extension study: maximum 27 credit hours (including correspondence study).

Minimal Grade Achievement:

"C" level.

**Associate of Science Degree
For Direct Employment**

Required Courses (105)	First Semester	Lec.	Lab	Cr. Hrs.
Writing I	WRT 101	3	+ 0	3
Intro. to Health Care	HCA 54	3	+ 0	3
Algebra II	MTH 130	3	+ 0	3
Human Anat. & Phys. I	LSC 120	3	+ 3	4
Radiologic Fund.	RAD 71	3	+ 3	4
				17
	Second Semester			
Fundamental Physics	PHY 105	3	+ 3	4
Human Anat. & Phys. II	LSC 121	3	+ 3	4
Rad. Processing & Tech.	RAD 72	3	+ 3	4
Rad. Positioning I	RAD 73	3	+ 3	4
				16
	Third Semester			
Writing II	WRT 102	3	+ 0	3
Rad. Positioning II	RAD 81	4	+ 3	5
Radiologic Physics I	RAD 82	4	+ 3	5
Clinical Procedures I	RAD 83	0	+ 6	2
Rad. Therapy/Biology/ Nuc. Medicine	RAD 84	3	+ 0	3
				18
	Fourth Semester			
Intro. to Psychology I	PSY 100	3	+ 0	3
Rad. Positioning III	RAD 85	4	+ 3	5
Clinical Procedures II	RAD 86	0	+ 6	2
Radiologic Physics II	RAD 88	4	+ 3	5
Elective*		3	+ 0	3
				18
	Fifth Semester (Summer)			
Hospital Extern. Pract. 1	RAD 91	0	+ 40	12
	Sixth Semester			
Hospital Extern. Pract. II	RAD 92	0	+ 40	12
	Seventh Semester			
Hospital Extern. Pract. III	RAD 93	0	+ 40	12

*(Coordinator's permission required)

Real Estate

The real estate program prepares persons to handle the sales of private residences, apartments buildings, industrial and commercial property and unimproved land. Students also are prepared in finance, real property management, advertising, appraising, site developing, urban renewal, public housing and the rehabilitation of property.

Training in real estate is offered through a one-semester basic and a two-semester advanced certificate program, and also a two-year Associate of Applied Science degree program.

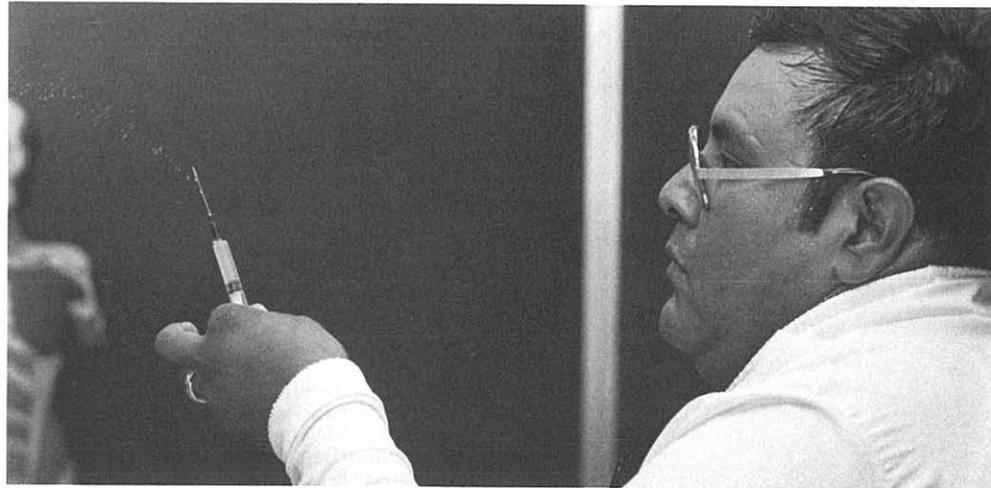
The basic certificate program, intended for the selling agent, qualifies students to take the state licensing exam. Persons interested in becoming brokers should take the advanced certificate program. However, three years of experience in real estate also is required to take the state license examination 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 when selecting courses at Pima.

**Basic Certificate
For Direct Employment**

Required Courses	Cr. Hrs.
Prin. of Accounting I	ACC 101 3
Business Law I	BUS 200 3
Math (based on placement test)	MTH 3
Writing I or Practical Communications	WRT 101 3 WRT 150 3
Real Estate Principles	RLS 101 3
	15

**Advanced Certificate
For Direct Employment**

Required Courses	Cr. Hrs.
Basic Certificate Requirements	15
Real Estate Finance	FIN 205 3
Salesmanship	MKT 113 3
Real Estate Practices	RLS 102 3
Real Estate Law	RLS 201 3
Bus. & Prof. Communication	SPE 120 3
	30



**Associate of Applied Science Degree
For Direct Employment**

Required Courses (60)	First Semester	Cr. Hrs.
Prin. of Accounting I	ACC 101	3
Real Estate Principles	RLS 101	3
Math (based on placement test)	MTH	3
Writing I or Practical Communications	WRT 101 WRT 150	3 3
Elective**		3
		<hr/> 15
	Second Semester	
Business Law I	BUS 200	3
Intro. to Microeconomics	ECO 100	3
Bus. & Prof. Communication	SPE 120	3
Real Estate Practices	RLS 102	3
Salesmanship	MKT 113	3
		<hr/> 15
	Third Semester	
Intro. to Macroeconomics	ECO 101	3
Real Estate Finance	FIN 205	3
Human Relations	MAN 110	3
Elective*		3
Elective**		3
		<hr/> 15
	Fourth Semester	
Small Business Mgmt. or Prin. of Accounting II	MAN 124 ACC 102	3 3
Real Estate Law	RLS 201	3
Real Estate Appraisals	RLS 202	3
Elective*		3
Elective**		3
		<hr/> 15

*Electives should be selected from history, humanities, psychology, sociology, philosophy, political science or anthropology.

**Electives should be chosen from courses above the 100 level which are related to the real estate industry.

Recreation

Recreation, or the use of leisure time, is becoming one of the fastest growing facets of American life. With the increased interest in recreation is a need for trained recreation personnel—trained not only in the technical aspects of the field, but in leadership as well.

Recreational programs at Pima Community College are divided into three areas: degree programs for recreational leader and natural resource recreation, with both aimed at direct employment; and the pre-professional transfer program. Students enrolled in the programs will be able to enter the career ladder at any stage, functioning as a recreation attendant, park aide, activity specialist, facility manager or natural resource technician. With increased education and recreational experience, the student will be able to enter positions requiring more responsibility on the career ladder approach.

Graduates planning to enter positions with state, municipal or federal agencies will be required to take Civil Service examinations.

**Natural Resource Recreation
Recreation Leader**

**Associate of Applied Science Degree
For Direct Employment**

Required Courses (62-72)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Mathematics of Business	BUS 51	3
Intro. to Parks & Recreation	REC 101	3
Ecology I	LSC 150	4
Option A or B		<hr/> 3-5
		16-18
	Second Semester	
Writing II or Technical Communications	WRT 102 WRT 154	3 3
Business & Professional Comm.	SPE 120	3
Outdoor Recreation-Education	REC 115	3
Survival	REC 118	2
Ecology II	LSC 151	4
Option A or B		<hr/> 1-3
		16-18
	Third Semester	
Recreation Admin. & Finance	REC 103	3
Public Relations & Communigraphics	REC 74	3
Survey of Western Flora	LSC 171	3
Geology of the Western U.S.	ESC 110	3
Option A or B		<hr/> 3-6
		15-18
	Fourth Semester	
Group Leadership	REC 102	2
Cons. of Natural Resources	LSC 170	3
Western Land Vertebrates	LSC 172	3
Cooperative Recreation Training	REC 299	3
Option A or B		<hr/> 4-7
		15-18

Note:

A. NATURAL RESOURCE RECREATION majors should select electives from Option A to bring their total program to 62-72 semester hours.

B. RECREATION LEADER students should select electives from Option B to bring their total program to 62-72 semester hours.

Option A—Natural Resource Recreation

Employment requirements vary depending upon the degree of responsibility. Among employment possibilities are park attendant, guide, wrangler, outdoor recreation facilities manager, conservation technician, campground caretaker, game protector, fish warden, wildlife aide and hunter safety coordinator.

			Cr. Hrs.
Federal Lands & Mgmt.	LSC	76	1
Federal Lands & Urbanization	LSC	77	1
Fed. Lands & Fire Control Pol.	LSC	78	2
Fed. Lands & Visitor Sefv.	LSC	79	1
Intro. to Game Management	LSC	173	3
Human Relations	MAN	110	3
Recreation Systems & Mgmt.	REC	52	3
Park Administration	REC	59	3
Water Recreation & Resources	REC	75	3
Facilities for Phys. Ed. & Rec.	PED	120	2
Camping & Hiking and/or Adv. Trapshooting	REC	150	1–2

Option B—Recreation Leader

Employment possibilities include youth organization, community centers, commercial recreation areas, playgrounds, amusements, camp sites, sports specialist, crafts specialist, life guard, industrial plants and camp counselors.

			Cr. Hrs.
Stagecraft & Production I	DRA	120	3
Child Development	ECE	117	3
Dance	PED	144	2
Sports Officiating	PED	145	2
Recreation Arts & Crafts	REC	51	3
Program Planning	REC	114	3
Recreation for Special Groups	REC	116	3
Recreational Games	REC	119	2
Facilities for Phys. Ed. & Rec.	PED	120	2
First Aid	REC	121	2
Camping & Hiking and/or Adv. Trapshooting	REC	150	1–2

Pre-Professional Recreation For Transfer

Students should follow the program of the institution to which they plan to transfer, but they may take any of the following courses:

			Cr. Hrs.
Intro. to Parks & Recreation	REC	101	3
Group Leadership	REC	102	2
Administration & Finance	REC	103	3
Survival	REC	118	2
Outdoor Recreation Ed.	REC	115	3
Program Planning & Org.	REC	114	3
Recreational Games	REC	119	2
			18

General Education Requirements:

Writing I-II	WRT	101–102	6
Public Speaking	SPE	110	3
College Algebra	MTH	150	3
Ecology I-II	LSC	150–151	8
Electives			30
			50

Respiratory Therapy

This curriculum provides the theoretical and practical preparation to qualify graduates for immediate employment as Respiratory Therapists in hospitals, clinics, medical offices or for transfer into specialized four-year programs.

The total program consists of two semesters of supportive course work followed by a summer session and two semesters of major curriculum work. Students having successfully completed all required prerequisites will be scheduled to enter the hospital portion of their practicum beginning with the first semester of the major curriculum. Graduates will be qualified for the Associate of Science degree in Respiratory Therapy. Students who have completed an Associate degree or higher need only complete the required courses listed under the third, fourth and fifth semester to qualify for an advanced certificate in Respiratory Therapy.

Acceptance Into Program (Major Curriculum):

- Completion of college and allied health programs acceptance requirements.
- Receipt of high school or college level transcripts to indicate the student—
Has successfully completed the support course work, or
Is a registered nurse; or
Is a college graduate holding a degree in a biological science, or
Is a college graduate holding a degree in liberal arts.
- Receipt of placement examination results in math and reading comprehension.
- Personal interview and recommendation by the program coordinator.
- Approval by selections committee.

General Requirements:

- Total credit:
CERTIFICATE—44 credit hours.
ASSOCIATE DEGREE—78 credit hours.
- Work in residence: minimum 44 credit hours of major (RTH) courses to be completed in residence.

Restriction:

- Correspondence study: maximum 6 credit hours.
- Extension study: maximum 34 credit hours (including correspondence study).

Minimal Grade Achievement:

"C" level.

**Associate of Science Degree
For Direct Employment**

Required Courses (78)		First Semester	Lec.	Lab	Cr. Hrs.
Intro. to Health Care	HCA 154	3	+	0	3
Human Ana. & Phys. I	LSC 120	3	+	3	4
Algebra I	MTH 70	3	+	0	3
Fund. Chemistry I	CHM 110	3	+	3	4
Writing I	WRT 101	3	+	0	3
					<u>17</u>
Second Semester					
Writing II	WRT 102	3	+	0	3
Human Ana. & Phys. II	LSC 121	3	+	3	4
Fund. Chemistry II	CHM 111	3	+	3	4
Intro. to Psychology I	PSY 100	3	+	0	3
Humanities Elective		3	+	0	3
					<u>17</u>
Third Semester (Summer)					
Intro. to Respiratory Therapy	RTH 71	3	+	6	5
Respiratory Physiology	RTH 82	5	+	0	5
					<u>10</u>
Fourth Semester					
Diseases I	RTH 86	4	+	0	4
Clinical Medicine	RTH 73	3	+	0	3
Respiratory Care I	RTH 83	4	+	3	5
Clinical Procedures I	RTH 91	0	+	15	5
					<u>17</u>
Fifth Semester					
Diseases II	RTH 89	4	+	0	4
Respiratory Care II	RTH 84	4	+	3	5
Clinical Procedures II	RTH 92	0	+	24	8
					<u>17</u>

Note: Students who have received an Associate degree or higher need only complete the required courses listed under the third through fifth semester (for 44 credit hours) to qualify for an advanced certificate in Respiratory Therapy.

Sheet Metal

Students are provided conditions similar to industry through a fully equipped sheet metal laboratory and learn to calculate, size, lay-out and fabricate duct work for use in air-conditioning installations. The students, in addition, are taught how to adapt to other areas of the sheet metal industry.

A person majoring in a sheet metal curriculum may find Cooperative Education offers an ideal way of gaining additional skills-application experience while attending classes. Consult a Cooperative Education teacher-coordinator for details.

**Fundamentals of Sheet Metal Fabrication
Basic Certificate
For Direct Employment**

Required Courses	Cr. Hrs.	
Sheet Metal I-II	SML 110, 120	8
Sheet Metal Pattern Layout I	SML 130	3
Technical Math I-II	MTH 110, 120	6
Technical Drafting I	DFT 150	3
Human Relations	MAN 110	3
		<u>23</u>

**Sheet Metal Layout and Fabrication
Technical Certificate
For Direct Employment**

Required Courses	Cr. Hrs.	
Sheet Metal I-II	SML 110, 120	8
Architectural Sheet Metal	SML 220	3
Sheet Metal Pattern Layout I-III	SML 130, 135, 210	9
Technical Math I-II	MTH 110, 120	6
Technical Drafting I	DFT 150	3
Practical Communications	WRT 150	3
Technical Communications	WRT 154	3
Human Relations	MAN 110	3
Air Conditioning Fundamentals	ACD 101	3
Combination Welding	WLD 110	3
		<u>44</u>

**Air Conditioning and Sheet Metal Technology
Associate of Applied Science Degree
For Direct Employment**

Required Courses (75)		
	First Semester	Cr. Hrs.
Air Conditioning Fundamentals	ACD 101	3
Air Conditioning Phase I	ACD 120	4
Technical Math I	MTH 110	3
Sheet Metal I	SML 110	4
Technical Drafting I	DFT 150	3
		<hr/> 17
Second Semester		
Sheet Metal Pattern Layout I	SML 130	3
Air Conditioning Phase II	ACD 125	4
Technical Math II	MTH 120	3
Sheet Metal II	SML 120	4
Practical Communications	WRT 150	3
Combination Welding	WLF 110	3
		<hr/> 20
Third Semester		
Air Conditioning Phase III	ACD 210	4
Human Relations	MAN 110	3
Technical Physics I	PHY 101	3
Sheet Metal Pattern Layout II	SML 135	3
Technical Communications	WRT 154	3
Estimating I	ACD 250	3
		<hr/> 19
Fourth Semester		
Air Conditioning Phase IV	ACD 220	4
Sheet Metal Pattern Layout III	SML 210	3
Architectural Sheet Metal	SML 220	3
Estimating II	ACD 260	3
Technical Physics II	PHY 102	3
Elective in Humanities, Psych., Sociology or Philosophy		3
		<hr/> 19

Social Services

The Social Services program qualifies students for employment in a variety of community service agencies which deal with mental health, welfare, child care, education, retardation, counseling and community organization. Agencies offering job possibilities are connected with city, county, state and school governments; religious groups; private organizations; neighborhood councils; and other social action groups.

The Associate degree graduate is a relatively new addition to the human services team, but the field currently is expanding on the local and national level due to a concentrated effort to approach social problems on a more human and individual basis. Job responsibilities for the graduate include working directly with clients, handling initial interviews, collecting data, making home visits, making recommendations for staff action, and easing communication channels between the professional worker and the client.

Various study programs have been designed to meet the different needs of students. Both a one-year certificate program and a two-year Associate of Arts program are available.

Students planning to transfer to four-year colleges or universities can satisfy their freshman and sophomore requirements at Pima, but should check the first two-year requirements of the university they plan to attend. (See section below, on university transfer programs.)

A subspecialty in drug counseling is available within the Social Services program. This course of study includes units on various treatment modalities, the physiological and psychological effects of drugs, current legislation and legal aspects of the drug situation in this country, case management of clients, and other topics important for the effective functioning of the counselor.

The various study programs require that students receive at least six units of field experience in a social service agency as part of the study process during the second year. It is important to take courses in sequence.

**Social Services
Basic Certificate
For Direct Employment**

Required Courses (30)		
	First Semester	Cr. Hrs.
Intro. to Social Welfare	SSE 133	3
Intro. to Psychology I	PSY 100	3
Writing I	WRT 101	3
Electives		6
		<hr/> 15
Second Semester		
Group Work	SSE 235	3
Community Organ. & Dev.	SSE 216	3
Casework Methods	SSE 134	3
Writing II	WRT 102	3
Elective		3
		<hr/> 15

**Social Services (Subspecialty in Drug Counseling)
Advanced Certificate**

Follow the schedule for the Social Services Basic Certificate for Direct Employment (one year), but omitting the electives, and adding the following:

	First Semester	Cr. Hrs.
Drugs in American Society	SSE 115	3
Political and Legal Aspects of Drug Use	SSE 127	3
	Second Semester	
Treatment of the Drug Abuser	SSE 218	3
Evaluation and Support of the Drug Abuser	SSE 217	3
		<hr/> 12

**Social Services
Associate of Arts Degree
For Direct Employment**

Required Courses (60)	First Semester	Cr. Hrs.
Introduction to Social Welfare	SSE 133	3
Writing I	WRT 101	3
Introduction to Psychology I	PSY 100	3
Electives		<hr/> 6
		15
	Second Semester	
Casework Methods	SSE 134	3
Writing II	WRT 102	3
Introduction to Sociology	SOC 100	3
Electives		<hr/> 6
		15
	Third Semester	
Group Work	SSE 235	3
Oral Communication	SPE 102	3
SSE Field Experience	SSE 290	3
Electives		<hr/> 6
		15
	Fourth Semester	
Community Organ. & Dev. Electives	SSE 216	3
Social Service Elective		<hr/> 3
		15

Note: SSE 290 is required for students seeking the Associate of Arts degree for direct employment. It is recommended for transfer students. It is not required or recommended for the Basic Certificate for direct employment.

**Social Services (Subspecialty in Drug Counseling)
Associate of Arts Degree
For Direct Employment**

Follow the Associate of Arts Degree for Direct Employment (two years), but substitute the following courses for one elective in each semester:

	First Semester	Cr. Hrs.
Dugs in American Society	SSE 115	3
	Second Semester	
Political & Legal Aspects of Drug Use	SSE 127	3
	Third Semester	
Treatment of the Drug Abuser	SSE 218	3
	Fourth Semester	
Evaluation & Support of the Drug Abuser	SSE 217	3

University Transfer Programs:

Students interested in relating their Social Services studies at Pima Community College to a baccalaureate (four-year) program in Arizona could consider transferring into one of the following:

U of A—College of Business and Public Administration (with one of the majors in public administration);

College of Education (with major in rehabilitation);

College of Liberal Arts (with major in sociology);

ASU—College of Liberal Arts (with major in sociology or social welfare);

NAU—College of Public and Environmental Service (with one of the majors in sociology).

In each case, the student considering transfer must check the specific lower division (freshman-sophomore) catalog requirements at the institution being considered, and then identify equivalent courses offered at Pima Community College. An advisor in Social Services can assist students in this.

Suggested Electives (not necessarily for transfer)

There are many courses at Pima that would be helpful to students in Social Services. The following are just a few:

		Cr. Hrs.
Crisis Intervention—		
Theory Techniques	SSE 236	3
Introduction to Health Science	HED 136	3
History and Culture of the Mexican-American	HIS 149	3
American National Government & Politics	POL 110	3
American State and Local Government & Politics	POL 111	3
Intro. to Cultural Anthropology	ANT 110	3
Fundamentals of Crime & Delinquency	AJS 260	3
Juvenile Justice Procedures	AJS 212	3
Current U.S. Social Problems	SOC 101	3
Drugs in American Society	SSE 115	3
Introduction Social Psychology	PSY 102	3
Police Community & Human Relations	AJS 210	3
Intro. to Administration of Justice Systems	AJS 101	3
Understanding the Young Child	ECE 116	3

Speech

The two-year degree program assists students preparing for careers requiring extensive interaction with the public: business, law, education, politics, public relations, sales and theology. The student who plans to transfer to a four-year institution will find the program includes courses generally required of a Speech major in the first four semesters of study. However, the student should check the specific requirements of the institution to which he plans to transfer.

The speech curriculum is designed to improve the student's skills in public address, interpersonal and group communication, and to develop his understanding of communication behavior in social and career situations.

Associate of Arts Degree For Transfer

Suggested Semester Sequence (68)

	First Semester	Cr. Hrs.
Intro. to Oral Communications	SPE 102	3
Forensics	SPE 125	1
Writing I	WRT 101	3
Foreign Language		4
Science Elective		4
Elective		3
		<hr/> 18
	Second Semester	
Public Speaking	SPE 110	3
Writing II	WRT 102	3
Foreign Language		4
Science Elective		4
Intro. to Logic as a suggested elective	PHI 120	3
		<hr/> 17
	Third Semester	
Voice and Diction	SPE 105	2
Humanities I	HUM 110	4
Intro. to Psychology I	PSY 100	3
Foreign Language		4
Small Group Discussion as a suggested elective	SPE 130	3
		<hr/> 16
	Fourth Semester	
Oral Interp. of Literature	SPE 136	3
Humanities II	HUM 111	4
Intro. to Psychology II	PSY 101	3
Foreign Language		4
Elective		3
		<hr/> 17

Wastewater Technology

The Wastewater Technology certificate and degree programs have been designed to train competent wastewater plant operators and maintenance personnel. These operators will have the capability of working and communicating directly with engineers, chemists and supervisory personnel. Currently, the State of Arizona, through the Department of Health Services, Bureau of Water Quality Control, certifies operators for employment through grade level examinations. This curriculum covers both the technical and practical aspects necessary to assist in the preparation for taking these examinations at grade levels I, II, III, and IV.

Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Intro. to Water & Wastewater Technology	WWT 101	3
Small Treatment Plants	WWT 103	1
Quality Monitoring	WWT 105	1
Hydraulics of Water	WWT 107	2
Technical Mathematics I	MTH 110	3
Practical Communications	WRT 150	3
Cooperative Education	WWT 199	3
		<hr/> 16

Advanced Certificate For Direct Employment

Required Courses		Cr. Hrs.
Basic Certificate Requirements		16
Sewage System Maintenance	WWT 110	1
Chemical Control Processes	WWT 112	1
Inter. Biological Wastewater Treatment	WWT 115	3
Applied Chemistry in Water and Wastewater	WWT 203	2
Technical Communications	WRT 154	3
Supervision	MAN 122	3
Cooperative Education	WWT 199	3
		<hr/> 32

**Associate of Applied Science Degree
For Direct Employment**

Required Courses (65)	First Semester	Cr. Hrs.
Intro. to Water & Wastewater Tech.	WWT 101	3
Small Treatment Plants	WWT 103	1
Quality Monitoring	WWT 105	1
Hydraulics of Water	WWT 107	2
Technical Mathematics I	MTH 110	3
Practical Communications	WRT 150	3
Cooperative Education	WWT 199	3
		16
	Second Semester	
Sewerage System Maintenance	WWT 110	1
Chemical Control Processes	WWT 112	1
Wastewater Plant Safety	WWT 114	1
Inter. Biological Wastewater Treatment	WWT 115	3
Technical Communications	WRT 154	3
Supervision	MAN 122	3
Cooperative Education	WWT 199	3
		15
	Third Semester	
Adv. Biological Wastewater Treatment	WWT 201	3
Applied Chemistry in Water and Wastewater	WWT 203	2
Wastewater Collection Systems	WWT 209	3
Applied Chemical and Microbiological Analysis	WWT 215	3
Technical Mathematics II	MTH 120	3
Cooperative Education	WWT 299	3
		17
	Fourth Semester	
Wastewater Treatment Processes	WWT 205	2
Wastewater Hydraulics	WWT 220	3
Physical-Chemical Sewage Treatment	WWT 225	3
Wastewater Treatment Plant and Collection System Design and Construction	WWT 235	3
Human Relations	MAN 110	3
Cooperative Education	WWT 299	3
		17

Welding

The facilities for this program at Pima Community College are among the best in the Southwest. Students in these programs gain invaluable experiences through classroom and laboratory settings similar to those found in industry.

A person majoring in a welding curriculum may find Cooperative Education offers an ideal way of gaining additional skills-application experience while attending classes. Consult a Cooperative Education teacher-coordinator for details.

**Basic Certificate
For Direct Employment**

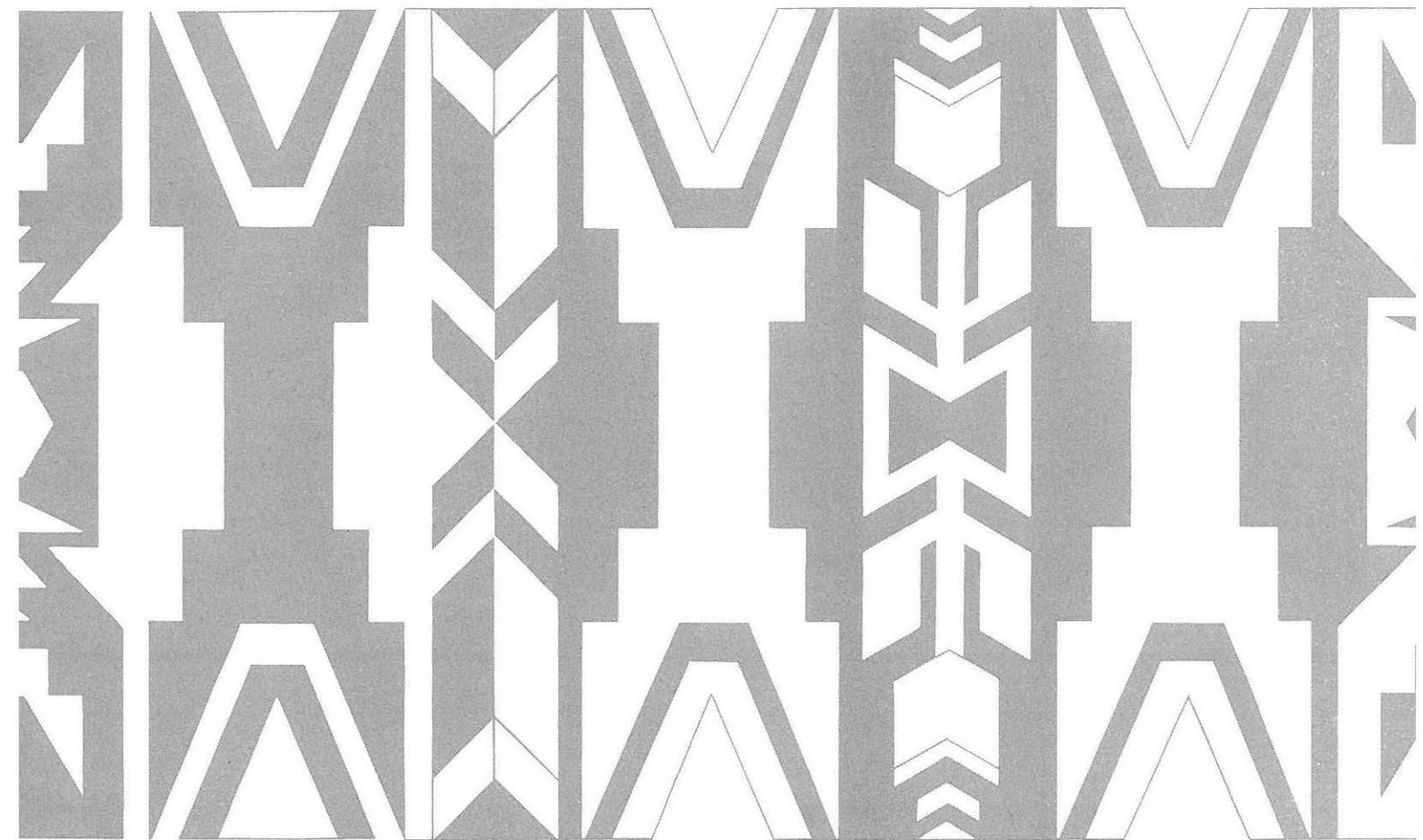
Required Courses		Cr. Hrs.
Oxy-Acetylene Welding	WLD 150	4
Ar Welding	WLD 160	4
Technical Drafting I	DFT 150	3
Technical Math I	MTH 110	3
Basic Metallurgy	MAC 130	3
Blueprint Reading	WLD 115	3
		20

**Technical Certificate
For Direct Employment**

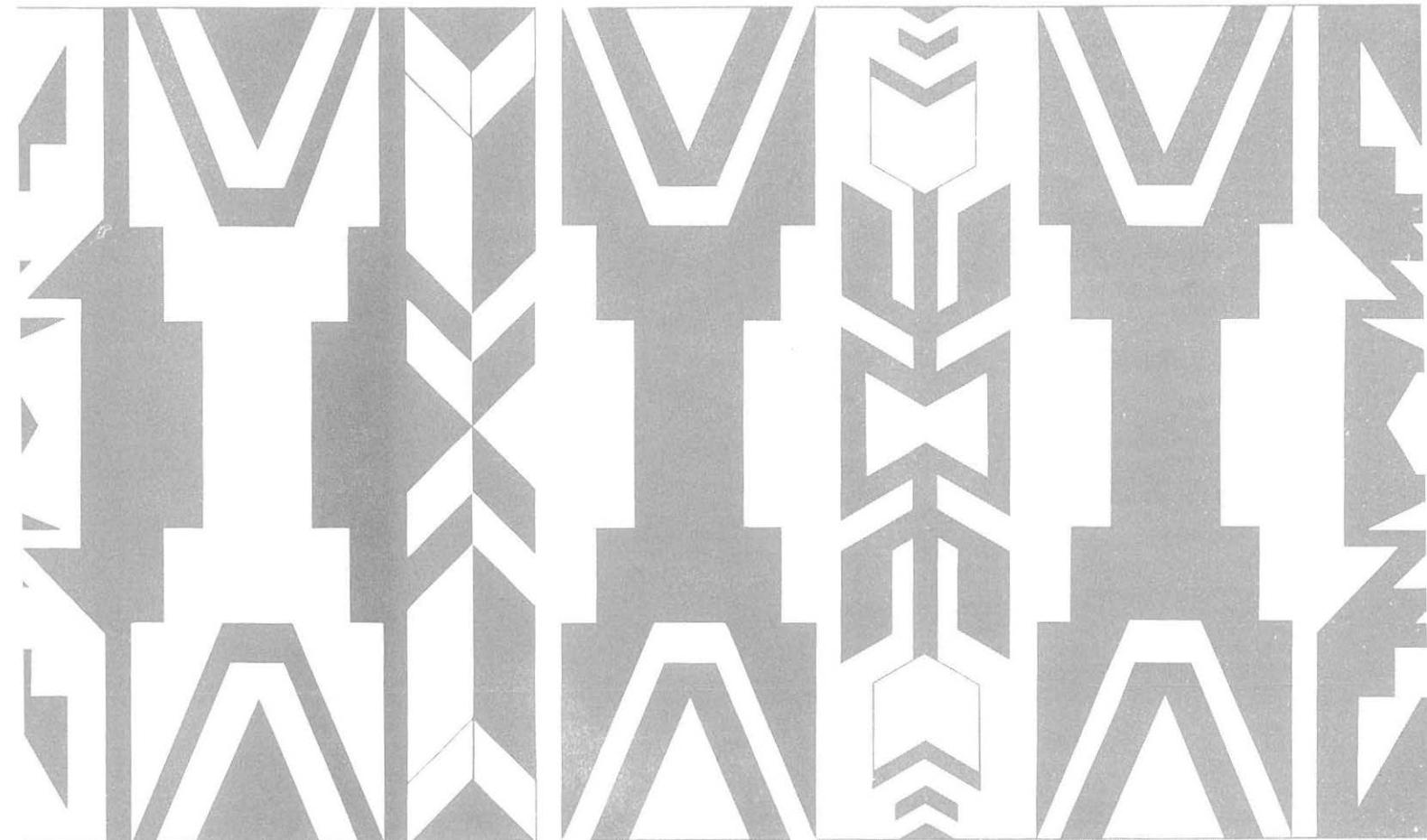
Required Courses		Cr. Hrs.
Oxy-Acetylene Welding	WLD 150	4
Arc Welding	WLD 160	4
Pipe Welding	WLD 250	4
Inert Gas Welding	WLD 260	4
Technical Drafting I	DFT 150	3
Technical Math I-II	MTH 110, 120	6
Basic Metallurgy	MAC 130	3
Physical Metallurgy	MAC 135	3
Blueprint Reading	WLD 115	3
Practical Communications	WRT 150	3
Human Relations	MAN 110	3
Machine Shop I	MAC 110	4
Sheet Metal Layout I	SML 130	3
		47

**Associate of Applied Science Degree
For Direct Employment**

Required Courses (68)	First Semester	Cr. Hrs.
Oxy-Acetylene Welding	WLD 150	4
Basic Metallurgy	MAC 130	3
Blueprint Reading	WLD 115	3
Technical Math I	MTH 110	3
Sheet Metal Layout I	SML 130	3
		<hr/>
		16
	Second Semester	
Arc Welding	WLD 160	4
Physical Metallurgy	MAC 135	3
Technical Drafting I	DFT 150	3
Technical Math II	MTH 120	3
Sheet Metal Layout II	SML 135	3
		<hr/>
		16
	Third Semester	
Pipe Welding	WLD 250	4
Technical Physics I	PHY 101	3
Machine Shop I	MAC 110	4
Sheet Metal Layout III	SML 210	3
Practical Communications	WRT 150	3
Humanities, Psychology, Sociol. or Philosophy Elective		3
		<hr/>
		20
	Fourth Semester	
Inert Gas Welding	WLD 260	4
Technical Physics II	PHY 102	3
Human Relations	MAN 110	3
Estimating I	ACD 250	3
Technical Communications	WRT 154	3
		<hr/>
		16



Courses



PIMA COMMUNITY COLLEGE DISTRICT
SUBJECT AREAS BY LOCATION*

SUBJECT AREAS		WEST CAMPUS	DOWNTOWN CAMPUS	COMMUNITY CAMPUS	EAST EDUCATION CENTER
Accounting	ACC	X	X	X	X
Administration of Justice	AJS	X	X	X	X
Advertising Art	ADA		X		
Air Conditioning	ACD		X		
Anthropology	ANT	X	X	X	X
Art	ART	X			
Art for Personal Development	APD			X	
Astronomy	AST	X			
Automotive Technology	AUT		X		
Aviation Mechanics	AVM		X		
Biology (See Life Science: LSC)					
Business	BUS	X	X	X	X
Career Development	CDE	X	X		
Chemistry	CHM	X	X		
Computer Science	CSC	X	X	X	X
Cooperative Education (See Each Subject Area)					
Data Entry (See Computer Science: CSC)					
Dental Assisting	DAT	X			
Dental Laboratory Technology	DLT	X			
Design	DES	X			
Drafting	DFT	X	X		
Drama	DRA	X			
Early Childhood Education	ECE	X		X	X
Earth Sciences	ESC	X		X	
Ecology (See ESC 115 or LSC 115)					
Economics	ECO	X	X	X	X
Electronics	ETR	X	X	X	
Emergency Medical Technology	EMT	X		X	
Engineering	ENG	X	X		
English as a Second Language	ESL	X	X	X	X
Exploratory	EXP	X	X	X	
Fashion Design and Clothing	FDC	X		X	
Fast Food Industry	FFI		X		
Finance	FIN	X	X	X	
Fire Science	FSC	X			
Food Science and Nutrition	FSN	X	X	X	
French	FRE	X	X		
General Business	GEB	X	X	X	
General Machine Shop	GMC		X	X	
General Office Education	GOE	X	X	X	
General Technology	GTC		X	X	
Geography (See Earth Sciences: ESC)					
Geology (See Earth Sciences: ESC)					
German	GER	X			
Graphic Technology	GRA		X		
Graphics	GRC			X	
Health	HCA	X	X	X	X
Health Continuing Education	HCE	X	X	X	X
Health Education	HED	X	X	X	X
History	HIS	X	X	X	X
Home Economics	HEC	X	X	X	X
Hotel/Motel Management	HMM	X	X	X	X
Housekeeping-Executive	HSK		X		
Humanities	HUM	X	X	X	X
Journalism	JRN	X	X		

SUBJECT AREAS		WEST CAMPUS	DOWNTOWN CAMPUS	COMMUNITY CAMPUS	EAST EDUCATION CENTER
Leisure Time	LTS	X		X	
Library Technology	LMT	X			
Life Sciences	LSC	X	X	X	X
Literature	LIT	X	X	X	X
Machine Tool Technology	MAC		X		
Management	MAN	X	X	X	X
Marketing	MKT	X	X	X	X
Mathematics	MTH	X	X	X	X
Media Technology	MET	X			
Military Science (Air Force)	MLA	X	X	X	
Military Science (Army)	MSC	X	X	X	
Music	MUS	X	X		
Nursing	NRS	X	X		
Office Education	OED	X	X	X	X
Ophthalmic Dispensing	ODT	X			
Papago	PGO	X			
Personal Development	PDP	X	X		
Philosophy	PHI	X	X	X	X
Photography (See ART)					
Physical Distribution	PYD		X		
Physical Education	PED	X			
Physics	PHY	X	X		
Political Science	POL	X	X	X	X
Professional Development	PRD		X	X	X
Psychology	PSY	X	X	X	X
Public Administration	PAD	X	X	X	
Public Building Maintenance	PBM			X	
Radiologic (X-Ray) Technology	RAD	X			
Reading	REA	X	X	X	X
Reading ALC	RDG	X	X		
Real Estate	RLS	X	X	X	X
Recreation	REC	X			
Religion, Comparative	REL	X			
Respiratory Therapy	RTH	X			
Secretarial (See Office Education: OED)					
Sheet Metal	SML		X		
Sign Language	SLG	X			
Social Services	SSE	X		X	
Sociology	SOC	X	X	X	X
Spanish	SPA	X	X	X	X
Special Education	SED	X			
Speech	SPE	X	X	X	X
Swahili	SWA	X			
Wastewater Technology	WWT		X		
Travel and Tourism Industry	TVL		X		
Welding	WLD		X		
Writing	WRT	X	X	X	X

*All courses in each subject area are not offered at each location. See schedule of classes for each semester for specific course offerings by location.

COURSE NUMBERING SYSTEM AND PREREQUISITES

In general, courses numbered from 001–099 are those unique to the community college and are not anticipated to be transferable.

Courses numbered 100–199 generally have no prerequisite and are considered to be on the freshman level.

Courses numbered 200–299 may have prerequisites and may be considered to be on the sophomore level.

Sample Course Listing

ACC course prefix	101 course number	Principles of Accounting course title	3 cr. hrs. semester hours of credit	3 periods hours of lecture &/or lab per week*
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*Unless otherwise indicated the total periods per week will be assumed to consist of lecture periods only. When total periods per week consist of lecture and laboratory periods, the number of each are designated in parentheses: 6 periods (3 lec., 3 lab).

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.

ACCOUNTING

ACC 50 Payroll and Applied Accounting Systems 3 cr. hrs. / 3 periods

An evaluation and development of accounting systems for small businesses, designed to meet reporting requirements for owners and governmental units. Study of payroll accounting, fringe benefits and payroll taxes.

ACC 101 Principles of Accounting I / 3 cr. hrs. / 3 periods

This is an introduction to financial accounting with emphasis on the following: the communication of relevant financial information to external parties, 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.

ACC 101 Principio de Contabilidad I / 3 cr. hrs. / 3 periods

Este curso es una introducción a la Contabilidad Financiera con énfasis especialmente en: la comunicación de la información financiera relevante a los grupos interesados, el sistema básico de Contabilidad, el proceso de evaluación y la clasificación y terminología que son tan esenciales para la interpretación y uso efectivo de los estados financieros.

ACC 102 Principles of Accounting II / 3 cr. hrs. / 3 periods

This is an introduction to managerial accounting. Course content provides management with the necessary criteria and tools for planning, directing day-to-day operations, and controlling. Topics include full cost, differential and responsibility accounting.

ACC 173 Accounting for Government Agencies 3 cr. hrs. / 3 periods

Conventional accounting principles are combined with conventional fund accounting material to provide government and institution employes, having no accounting background, with some knowledge of what is going on in accounting in their offices.

ACC 201 Intermediate Accounting I / 3 cr. hrs. / 3 periods

Prerequisite: ACC 102.

Study of accounting theory and practice applicable to current assets, fixed assets, liabilities, sources and application of funds. This course is for those who plan to specialize in accounting.

ACC 202 Intermediate Accounting II / 3 cr. hrs. / 3 periods

Prerequisite: ACC 201.

Accounting theory and practice applicable to corporate net worth accounts, investments, reserves and income. This course is for those who plan to specialize in accounting.

ACC 203 Cost Accounting / 3 cr. hrs. / 3 periods

Prerequisite: ACC 102.

Interpretation, use and analysis of cost data for management planning, coordination and control; the application of theories and concepts which underlie cost accounting and budgeting.

ACC 204 Tax Accounting / 3 cr. hrs. / 3 periods

Prerequisite: ACC 101.

Course includes the study of personal income tax and tax on business operations.

ACC 299 Cooperative Accounting Training / 3 cr. hrs. 15 periods (lab)

A supervised cooperative work program for students in an accounting occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

ADMINISTRATION OF JUSTICE

AJS 12 Defensive Tactics / 2 cr. hrs. / 2 periods

The theory of rough and tumble fighting, fundamentals and 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 71 Patrol Procedures / 3 cr. hrs. / 3 periods

Prerequisite: AJS 172, 101 or 204, or consent of instructor.

Patrol as one of the primary police operations; conspicuous presence as a means of suppressing crime and preserving peace; organization and functions of police patrol; methods, techniques and responsibility in patrol operations; use of special equipment; application of laws on arrest, search and seizure.

AJS 101 Introduction to Administration of Justice Systems 3 cr. hrs. / 3 periods

The history and philosophy of administration of justice in America; recapitulation of the system; identifying the various sub-systems, role expectations, and their interrelationships; theories of crime, punishment and rehabilitation; ethics, education and training for professionalism in the system; career opportunities related to local criminal justice agencies.

AJS 106 Traffic Safety Functions—Vehicle Code 3 cr. hrs. / 3 periods

Traffic law enforcement and the policeman's role in overseeing the movement of vehicles and pedestrians. An introduction to the fundamentals of accident investigation and reporting, traffic court procedures, and public education for traffic safety against a background of Arizona law.

AJS 152 Beginning Marksmanship / 1 cr. hr. / 2 periods (1 lec., 1 lab)

A lecture-lab course introducing students to firearms. Moral and legal aspects of firearms are emphasized along with firearms safety. Course includes range practice. (Same as Recreation 152.)

AJS 163 Introduction to Institutional Youth Care / 3 cr. hrs. 3 periods

Surveys the roles a youth care specialist plays in supervising and working with children in a controlled setting, including detention and residential facilities for youth. (formerly AJS 63)

AJS 172 Criminal Law I / 3 cr. hrs. / 3 periods

The historical development and philosophy of law, and constitutional provisions; 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 204 Criminal Investigation and Report Preparation
3 cr. hrs. / 3 periods**

Prerequisite: AJS 172, 101 or consent of instructor.
Introduction to the fundamentals of modern criminal investigation; 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; report-writing requirements for administration and court use.

AJS 208 Police Administration / 3 cr. hrs. / 3 periods

Prerequisite: AJS 101 or consent of instructor.
An introduction to the principles of police organization, administration and service. All phases of police matters are discussed including recruitment, training, promotion, complaints, records and communications.

**AJS 210 Police Community and Human Relations
3 cr. hrs. / 3 periods**

Prerequisite: AJS 101 and sophomore standing or consent of instructor.
The police officer's role in getting and maintaining public support is reviewed; also, the recognition and understanding of community problems, community action programs, methods of coping with crisis situations, ethnic and minority cultures, environments and police operations in relation to these.

AJS 212 Juvenile Justice Procedures / 3 cr. hrs. / 3 periods

A study of the organization, functions and jurisdiction of juvenile agencies and courts; Arizona juvenile statutes, detention, court procedures and case disposition; custody and treatment of the offender; crime prevention methods and reporting procedures applicable to juvenile offenders.

AJS 214 Firearms / 2 cr. hrs. / 4 periods (1 lec., 3 lab)

Prerequisite: Student must be a law enforcement major with previous firearms training.
Use of firearms, the moral aspects, legal provisions, safety precautions and restrictions; combat procedures for police, target analysis and range drill procedures. This course is taught on the range. Students must furnish their own pistols and ammunition.

**AJS 216 Criminal Justice Procedures
3 cr. hrs. / 3 periods**

Prerequisite: AJS 101 or consent of instructor.
An in-depth study of the role and responsibilities of each segment within the administration of justice systems; law enforcement, judicial and corrections; a past, present and future exposure to each sub-system procedure from initial entry to final disposition; and the relationship each segment maintains with its system members.

**AJS 218 Crime Scene Technology I—Fingerprinting
3 cr. hrs. / 3 periods**

Prerequisite: AJS 204 or consent of instructor.
A survey of technical terms used in fingerprinting, pattern interpretations, classification of fingerprints, searching and filing procedures. The student also learns procedures for taking fingerprints.

AJS 220 Organized Crime Investigation / 3 cr. hrs. / 3 periods

Prerequisite: AJS 101 or consent of instructor.
A comprehensive historical and social evolutionary survey of organized crime, with emphasis on its origin and its effect on the United States. The development of organized crime, its modus operandi, and its effect upon society are included.

AJS 240 Detention Supervision Methods / 3 cr. hrs. / 3 periods

Prerequisite: Second year major in AJS or corrections, AJS 101 and/or consent of instructor.
An examination of institutional staff member functions with special emphasis on the correctional officer; plus a review of institutional procedures including reception, classification, program assignment, security and release procedures.

AJS 245 Institutional and Field Services / 3 cr. hrs. / 3 periods

Prerequisite: AJS 101 and/or consent of instructor.
The philosophy and history of correctional services; plus a survey of the correctional sub-systems or institutions by type and function, parole operations and community based services.

**AJS 260 Fundamentals of Crime and Delinquency
3 cr. hrs. / 3 periods**

Prerequisite: PSY 100 or SOC 100 recommended.
Course surveys the nature and extent of crime and delinquency; theory and approaches to causation; prevention and treatment; and current problems of dealing with crime and delinquency as an attempt to understand man in relation to these.

AJS 272 Criminal Law II—Evidence / 3 cr. hrs. / 3 periods

Prerequisite: AJS 172 or consent of instructor.
The origin, development, philosophy and constitutional basis of evidence; 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 273 Crime Scene Technology II—Physical Evidence
3 cr. hrs. / 3 periods**

Prerequisite: AJS 218 or consent of instructor.
Advanced procedures in the scientific identification of evidence, crime scene recording, collecting and preserving evidence; also casting and analysis of physical evidence.

**AJS 276 Criminalistics—Evidence and the Laboratory
3 cr. hrs. / 3 periods**

Prerequisite: AJS 204 or consent of instructor.
A study and examination of the criminalistics field with concentration on the crime lab. Also a study of documents, ballistics, polygraphic techniques and comparative micrography.

AJS 277 Advanced Criminalistics / 3 cr. hrs. / 3 periods

Prerequisite: AJS 276 or consent of instructor.
Examined are the fields of firearms identification, pathology, toxicology, related matters and courtroom procedures.

**AJS 290 Administration of Justice Field Experience
3 cr. hrs. / 15 periods (lab)**

Prerequisite: Consent of instructor.
Provides participation in community administration of justice agencies so students gain exposure to and experience in the practical application of classroom knowledge. Bi-weekly seminars are conducted to discuss theory and practice pertinent to the agency experience. Course may be taken two times for a maximum of six credit hours.

**AJS 299 Cooperative Administration of Justice Training
3 cr. hrs. / 15 periods (lab)**

A supervised cooperative work program for students in a law enforcement occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

ADVERTISING ART

ADA 101 Advertising Art I / 3 cr. hrs. / 4 periods (3 lec., 1 lab)

The history, development, philosophies, objectives and opportunities of advertising art plus the broad fundamentals of advertising. The course, in addition, gives students the opportunity of observing and comparing advertising media throughout the country.

ADA 102 Advertising Art II / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ADA 101.

The production procedures for various types of media including TV, direct mail, magazines; newspaper make-up and production; sizing an ad; working with different type; proofreading; basic production procedures and paste-up.

ADA 103 Drawing and Composition / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

The basic essentials of good drawing techniques are presented along with light, shading and form. Students learn to observe, then draw what they see. Product oriented projects are stressed.

ADA 110 Advertising Design I / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

The fundamentals of layout design for publications, packaging, book jackets, etc.; the use of artists' media including commercial pastels, layout and lettering; type faces, and use of photography in ad design. Students design layouts for newspapers, direct mail, magazine, TV and billboard advertising.

ADA 111 Production Techniques and Processes I 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Covers techniques and processes used in preparing advertising and graphic art for the printer. Problem solving includes paste-up, type specifications, scaling and color separation.

ADA 120 Advertising Design II / 3 cr. hrs. 5 periods (2 lec., 3 lab)

Prerequisite: ADA 110.

Continued practice and skill development in layout design; pastels and lettering for advertising through newspapers, direct mail, magazines, TV and billboard.

ADA 203 Advertising Illustration / 3 cr. hrs. 5 periods (2 lec., 3 lab)

Basic drawing, rendering and composition for technical illustration as used in industry and publications; use of drawing instruments with rendering in all media including ink, wash, air brush and acrylics; product illustration, photo re-touching, color separation, and pen and ink illustration.

ADA 204 Advanced Design for Advertising / 3 cr. hrs. 5 periods (2 lec., 3 lab)

Prerequisite: ADA 103, 110, 111.

Course is project oriented and covers the advanced stages of drawing for black and white and colored media, plus the theory and practices of shading and shadows. Students learn to design for specific media as TV, billboard, magazine or newspaper.

ADA 205 Advertising Drawing / 3 cr. hrs. 5 periods (2 lec., 3 lab)

Prerequisite: ADA 103, 110, 111.

The purpose of this class is to help students develop ease in depicting the human figure for use in advertising illustrations. Training is provided for illustrators, designers, fashion artists and students of advertising arts with all mediums used, including pop art, air brush and caricature.

ADA 221 Production Techniques and Processes II 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Continued practice and skill development in production. This course also is project oriented with students compiling a portfolio.

ADA 230 Advertising Design III / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ADA 110, 120.

Continued practice and skill development in layout design.

ADA 231 Production Techniques and Processes III 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ADA 111, 221.

Continued practice and skill development in production. This class also is project oriented with students compiling a portfolio.

ADA 299 Cooperative Advertising Art Training 3 cr. hrs. / 15 periods (lab)

A supervised cooperative work program for students in an advertising art occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours (6 credit hours maximum for program requirements). Course objectives differ each semester.

AIR CONDITIONING

ACD 101 Air Conditioning Fundamentals / 3 cr. hrs. 3 periods

Emphasis is on detail and specific treatment of air conditioning and problem solving techniques. Areas covered are psychrometry, ventilation, heating and cooling load calculations, dew point determination and precision measurement of air temperatures, quantities and velocities.

ACD 120 Air Conditioning Phase I / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: Or concurrent with ACD 101, MTH 110.

Emphasis is on cooling and heating components and application; basic electricity; tools in heating and cooling maintenance; service and maintenance of electronic air cleaners and electronic humidifiers.

ACD 125 Air Conditioning Phase II / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: ACD 120.

Course covers the control of electrical circuits, use of electrical test instruments, troubleshooting of gas and electric cooling.

ACD 210 Air Conditioning Phase III / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: ACD 125.

Concentration is on light commercial equipment including gas-electric packages, heat pumps and three-phase power. Live equipment is used to teach service and repair work.

ACD 220 Air Conditioning Phase IV / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: ACD 210.

Stress is on the more complicated larger units including multizone and single-zone rooftop pieces of equipment, and controls on these units. Also included is an introduction to pneumatic controls as used on some models of equipment.

ACD 250 Air Conditioning Estimating I / 3 cr. hrs. 3 periods

Prerequisite: MTH 110.

The basic concepts of computing material costs from actual construction drawings through use of handbooks and formulas; pricing of all items associated with sheet metal products and air conditioning units.

**ACD 260 Air Conditioning Estimating II / 3 cr. hrs.
3 periods**

□ Prerequisite: ACD 250.

Bid preparation and procedures including material quantity, make-up sheets, equipment usage, manpower requirements, labor rates, amount of contract work, progress reports, material ordering procedures, overhead and profits.

**ACD 270 Air Movement and Design / 4 cr. hrs. / 6 periods
(3 lec., 3 lab)**

□ Prerequisite: ACD 210, MTH 120, SML 110.

Residential area includes load calculation, duct sizing and equipment selection. Commercial area includes specialized types of equipment such as make-up air units and exhaust air.

**ACD 299 Cooperative Air Conditioning Training / 3 cr. hrs.
15 periods (lab)**

A supervised cooperative work program for students in an air conditioning occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

ANTHROPOLOGY

**ANT 100 Human Origins and Pre-history / 3 cr. hrs.
3 periods**

An exploration of the cultural and biological evolution of the human species from its earliest origins, based on our understanding of the archaeological and fossil record.

**ANT 110 Introduction to Cultural Anthropology / 3 cr. hrs.
3 periods**

A survey of cultural anthropology and linguistics; and an introduction to the comparative study of cultures. Emphasis is on non-literate cultures.

**ANT 140 Contemporary Indian Groups of the Southwest
3 cr. hrs. / 3 periods**

A study of contemporary Indian cultures of the Southwest with emphasis on Arizona.

**ANT 141 Archaeology of the Southwest / 3 cr. hrs.
5 periods (2 lec., 3 lab)**

A survey of the archaeological heritage of the Southwest through its ancient settlements. Field trips are included.

**ANT 144 The Mexican-American in Transition / 3 cr. hrs.
3 periods**

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 145 Papago History and Culture / 3 cr. hrs. / 3 periods

Where have the Papago people been, who are they, where are they, where are they going? In answering these questions, the class examines the history and culture of the Papago. (Same as History 145.)

**ANT 146 Culture and Personality of the Mexican-American
3 cr. hrs. / 3 periods**

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**

Origin and distribution of native populations of North America; and the historical development and interrelations of cultures. (Same as History 148.)

**ANT 149 History and Culture of the Mexican-American
in the Southwest I / 3 cr. hrs. / 3 periods**

Who is the Mexican-American? What is his cultural heritage, and what has happened to it in the United States? (Same as History 149.)

**ANT 150 Afro-American History and Peoples / 3 cr. hrs.
3 periods**

What does the Afro-American have to face because he is a Black in American society? His past, present and future are examined. (Same as History 150.)

**ANT 160 History and Peoples of Latin America I / 3 cr. hrs.
3 periods**

The history of Latin America from the pre-Colombian period to the present with emphasis on the evolution of nationalism through the struggles for economic, cultural, political and social freedoms. (Same as History 160.)

**ANT 170 History and Peoples of Africa / 3 cr. hrs.
3 periods**

A survey of the political and cultural history of Africa, south of the Sahara. (Same as History 170.)

ANT 210 Cultural Anthropology / 3 cr. hrs. / 3 periods

□ Prerequisite: ANT 110.

An in-depth exploration of methods used in studying and comparing cultures, with particular attention given to anthropological theory and methods. Selected topics will be pursued.

ANT 215 The Nature of Language / 3 cr. hrs. / 3 periods

An introduction to the basic concepts of linguistics and their implications for the study of human culture.

ANT 220 Physical Anthropology / 3 cr. hrs. / 3 periods

An in-depth inquiry into the origin, evolution and future of the human species. The course centers on a comprehensive study of human evolution, including the topics of human variability, heredity and environment, mechanisms of evolution, race and racism, and non-human primates.

**ANT 223 The Anthropology of Music & Dance in
Contemporary Society / 3 cr. hrs. / 3 periods**

□ Prerequisites: Sophomore standing and prior course work in the social sciences, or consent of instructor.

An in-depth study of the diverse structure of American society focusing on the music (ethnomusicology) and dance styles (ethnochoreography) present in the subcultures of the Southwest.

ANT 225 Archaeology / 3 cr. hrs. / 3 periods

The history of archaeological research plus a survey of the concepts and methods used for studying prehistoric cultures. Students also learn how archaeologists reconstruct human history from materials found in the field.

**ANT 250 Archaeology Laboratory / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

□ Prerequisite: ANT 110 or 220.

Students have an opportunity to receive research and field experience in the various sub-fields of anthropology. Emphasis is on applying the tools and methodology used by anthropologists in solving research problems designed by the students.

**ANT 275 Archaeological Field Methods / 4 cr. hrs.
8 periods (2 lec., 6 lab)**

Techniques of archaeological survey mapping, excavation and recording. Includes archaeological field experience in this area.

ANT 277 Advanced Archaeological Excavation / 3 cr. hrs. / 7 periods (1 lec., 6 lab)

Prerequisite: ANT 275 or consent of instructor.
Scientific excavation of an archaeological site. Emphasis is on excavation procedures, specialized field techniques and equipment, interpretation of sites and recording of archaeological information.

ANT 290 Individual Studies in Anthropology / 1-3 cr. hrs. / 1-3 periods

Prerequisite: ANT 100 or 110.
The student independently pursues his or her further development in anthropology with the help of a faculty member.

ART

ART 60 Principles of Lapidary / 3 cr. hrs. / 3 periods (1 lec., 2 lab)

A practical laboratory course in the identification, polishing and mounting of semi-precious materials. (Same as Earth Sciences 60.)

ART 100 Basic Design / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

An introduction to design and the study of light, color, pattern, space and operation of the sensory receptors. Students may work with graphics and model construction.

ART 110 Drawing I / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ART 100 or concurrent enrollment.
An exploration of visual experience and communication, and also an introduction to the problems of drawing and concept, offering extensive studio practice and experimentation.

ART 115 Color and Design / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

An extension of design principles introduced in ART 100 with emphasis on color theory and relationships. Classroom projects utilizing various media are offered.

ART 120 Three-Dimensional Design / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

A study of processes utilized for design in three dimensions. Materials used are wax, plaster, wood, stone, aluminum and bronze.

ART 130 Art and Culture I / 3 cr. hrs. / 3 periods

Slide and lecture discussions of art forms from prehistoric art to the Renaissance. May be taken as a humanities elective.

ART 131 Art and Culture II / 3 cr. hrs. / 3 periods

Slide and lecture discussions of art forms from the Renaissance to the Nineteenth Century. ART 130 is not a prerequisite to ART 131. May be taken as a humanities elective.

ART 132 Art of the 20th Century / 3 cr. hrs. / 3 periods

A course in the appreciation of modern art forms via the art developments of the 19th and early 20th centuries. Perception of the development of abstract art through the unfolding of various thematic ideas and "schools" of art. May be taken as a humanities elective.

ART 140 Photography I / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ART 100 or concurrent enrollment.
The basic principles and techniques of photography. Emphasis is on photography as a means of communication and self-expression. Includes developing, printing, enlarging, image concepts and critiques.

ART 141 Photography II / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ART 140 or consent of instructor.
An expansion of still photography and/or film experience. Individual or group projects involve slides, book production, 8mm motion pictures and video-tape presentations.

ART 143 Commercial Photography / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ART 141.
Designed for the advanced student, the course includes camera techniques, film characteristics and printing techniques. Students, after completing the basic part, may select an in-depth study of any phase of the photographic process such as flash, filters, composition, advanced printing techniques, toning, hyperfocal distance, supplementary lenses and portraits.

ART 160 Ceramics I / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ART 100 or concurrent enrollment.
An introduction to ceramics with a study of wheel and hand built forms. A basic study of glazing is included.

ART 170 Metalwork / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ART 100 or concurrent enrollment.
An exploration of the basic tools and techniques used in the fabrication of jewelry and other metalwork. Includes enameling, casting and hollow-ware.

ART 180 Weaving I D 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ART 100 or concurrent enrollment.
The study of finger weaving, rigid heddle loom, needle weaving and two shed frame loom; drafting of textiles; and analyzing of fabrics.

ART 181 Fabric Design I / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: Art 100 or concurrent enrollment.
Provides an understanding of creative and practiced aspects of fabric design through the study of texture, color application and cultural emphasis as evidenced in ethnic costumes. Applique, patchwork, embroidery, braids and trims are considered.

ART 190 Leatherwork / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Provides an understanding of various properties of leathers and the development of skills in the use of basic leatherworking tools. Projects are selected to meet individual interests and levels of skill development.

ART 210 Drawing II / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ART 100, 110.
Advanced study of graphic media in two dimensions with emphasis on various techniques and materials.

ART 212 Printmaking / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ART 100, 110 or consent of instructor.
A study of printmaking processes for synthesis into a form of personal expression. Emphasis is on monotypes, etching, intaglio, block printing and silk screen processes. 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 and 110 recommended.
Proficiency is stressed in drawing the human figure, using the two dimension concept, as a graphic vehicle of expression. Students have opportunities of working in various media.

ART 215 Painting / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ART 110 and 115 recommended.
A studio course dealing with basic painting techniques and processes.

ART 220 Sculpture / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

This course offers experiences in three dimensional concepts and media. Students select projects in any of the following media: plaster, clay, cement, welded steel, stone, wood, plastic, lost wax casting or mixed media.

ART 230 History of Photography / 3 cr. hrs. / 3 periods

An in-depth study of the history of photography from its inception to the present, and an analysis of its impact on the visual arts and society. Technical developments, aesthetic concerns and individual photographers are studied.

ART 231 History, Philosophy, Psychology of Art and Design / 3 cr. hrs. / 3 periods

A study of particular movements, periods, ideas and problems in art and design are arranged each semester by separate sections or for individual study, according to need.

ART 260 Ceramics II / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ART 160 or consent of instructor.

Further development of wheel and hand built forms as well as glazes and color blends.

ART 261 Ceramics III / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisites: Art 160, 260. Advanced study for students who demonstrate mastery of skills and principles taught in Ceramics I and II. Study includes clay composition, glaze calculations and advanced design problems.

ART 299 Cooperative Art Training / 3 cr. hrs. / 15 periods (lab)

A supervised cooperative work program for students in an art occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

ART FOR PERSONAL DEVELOPMENT**APD 10-53 Art for Personal Development / 2 cr. hrs. 4 periods (1 lec., 3 lab)**

A series of non-transfer workshop courses designed to develop skill in various media.

APD 10 Drawing

APD 12 Photography

APD 13 Advanced Photography

APD 14 Oil Painting

APD 16 Water Color Painting

APD 20 Ceramics

APD 22 Weaving

APD 24 Sculpture

APD 26 Silversmithing

APD 40 Introduccion A La Escultura (Introduction to Sculpture)

APD 41 La Pintura Mural En Mexico (Mural Painting in Mexico)

APD 42 Pasteleria Creativa I (Creative Baking I)

APD 43 Pasteleria Creativa II (Creative Baking II)

APD 50 Musica Para Gozar (Music for Everyone)

APD 51 Musica de Mariachi (Mariachi Music)

APD 52 Baile Espanol I (Spanish Dance I)

APD 53 Baile Espanol II (Spanish Dance II)

ASTRONOMY**AST 101 Introduction to Astronomy I / 3 cr. hrs. 3 periods***

A descriptive introduction to the science of astronomy covering observational and historical aspects and also astronomical tools. Special emphasis on the solar system.

AST 102 Introduction to Astronomy II / 3 cr. hrs. 3 periods*

Continuing an introductory description of astronomy with special emphasis on stars and stellar properties, galaxies, cosmology and current theories.

*AST 101 and AST 102 may be taken as a lecture course only by general interest students. Students taking astronomy for the Liberal Arts science requirement should take both lecture and laboratory.

AST 111 Introduction to Astronomy I Laboratory / 1 cr. hr. 3 periods (lab)

Laboratory for AST 101.

AST 112 Introduction to Astronomy II Laboratory / 1 cr. hr. 3 periods (lab)

Laboratory for AST 102.

AUTOMOTIVE TECHNOLOGY**AUT 101 Automotive Maintenance / 2 cr. hrs. / 3 periods (1 lec., 2 lab)**

For those who have little or no automotive service experience.

Covered are the proper techniques of routine vehicle maintenance.

AUT 101 Mantenimiento de Automóviles / 2 cr. hrs. / 3 periods (1 lec., 2 lab)

Para el estudiante que no tiene ningún conocimiento o que tiene conocimientos limitados del mantenimiento de automóviles. Se enseñan las técnicas más convenientes para el mantenimiento rutinario del vehículo.

AUT 111 Automotive Body and Fender Repair / 3 cr. hrs. 4 periods (2 lec., 2 lab)

The fundamentals of sheet metal repair, using basic metal-working 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)

Construction, design, operation principles, diagnosis procedures and common repairs of modern internal combustion engines. Stress is on the interrelationship of various engine systems.

AUT 121 Automotive Engine Rebuilding / 4 cr. hrs. 5 periods (3 lec., 2 lab)

Prerequisite: AUT 120.

The diagnosis, measuring, estimating, repairing and machining of the automotive engine.

AUT 122 Automotive Engine Service Repair / 3 cr. hrs. 5 periods (2 lec., 3 lab)

Prerequisite: AUT 120.

Students learn procedures for removing and replacing camshafts, crankshafts, timing chains, insert bearings, piston rings and short blocks, as well as the procedures for valve grinding at the job entry level as part of the certificate program in Automotive Engine Repair.

AUT 125 Automotive Engine Tune-Up / 4 cr. hrs. / 5 periods (3 lec., 2 lab)

Prerequisite: AUT 120 and 128; AUT 128 may be taken concurrently.

The interpretation and application of electric test equipment results to maintain engine efficiency and exhaust emission. Proper tune-up procedures are stressed.

AUT 128 Automotive Electricity I / 3 cr. hrs. / 4 periods (2 lec., 2 lab)

The fundamentals of electricity and electrical circuits as applied to the automobile.

AUT 129 Automotive Electricity II / 3 cr. hrs. / 4 periods (2 lec., 2 lab)

Prerequisite: AUT 128.

Diagnosis and repair of automotive electrical systems, using modern diagnostic equipment.

AUT 132 Automatic Transmission Removal and Replacement / 4 cr. hrs. / 5 periods (3 lec., 2 lab)

Students learn in-car repairs, adjustments, transmission removal and replacement, and tear-down of automatic transmissions in popular use today with factory flat-rate time and to factory specifications. This course is part of the basic certificate program in power transmissions for job entry.

AUT 133 Automatic Transmission Rebuilding / 4 cr. hrs. / 5 periods (3 lec., 2 lab)

This course is designed around the duties of an automatic transmission builder. Students learn the duties of a builder by overhauling automatic transmissions in popular use today within a specified length of time. These transmissions then are tested against factory specifications. This course is part of the power transmissions basic certificate program for job entry.

AUT 136 Automotive Drive Line / 4 cr. hrs. / 5 periods (3 lec., 2 lab)

The construction, operation, diagnosis and repair of manual shift transmissions, clutches, universal joints and differentials.

AUT 138 Automotive Chassis / 4 cr. hrs. / 5 periods (3 lec., 2 lab)

Front wheel alignment, wheel balancing, suspension overhaul, manual and power steering gears.

AUT 140 Automotive Brakes / 4 cr. hrs. / 5 periods (3 lec., 2 lab)

The diagnosis and repair of automotive brakes. Includes hydraulic systems, drum and disc brakes and power brakes.

AUT 142 Automotive Air Conditioning / 3 cr. hrs. / 4 periods (2 lec., 2 lab)

Fundamentals of refrigeration and automotive application of refrigeration. Stressed are system operation and diagnosis.

AUT 200 Performance Engines / 3 cr. hrs. / 3 periods

Prerequisite: Second year level in automotive program or proven ability to diagnose and repair standard vehicles; sound math background is helpful.

Engine design theory and construction, and modifications used to improve power output. Course also covers related drive train and suspension and suspension modifications necessitated by increased power.

AUT 299 Cooperative Automotive Training / 3 cr. hrs. / 15 periods (lab)

A supervised cooperative work program for students in an automotive occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

AVIATION MECHANICS

AVM 88 Preventive Maintenance for Pilots / 3 cr. hrs. / 3 periods

Topics include engine design and function, aircraft design and function, safety aspects in the operation of aircraft, federal aviation regulations, and an examination of the industry.

AVM 220 Airframe Mechanics / 6 cr. hrs. / 6 periods

Prerequisite: 30 months' experience concurrently performing the duties of airframe and powerplant maintenance; or 18 months of experience performing the duties appropriate to this rating. Covered are aircraft rigging, weight and balance, woodwork, welding, fabric coverings, sheet metal, hydraulics, aircraft electrical systems, environmental systems, instrumentation and federal aviation regulations.

AVM 230 Powerplant Mechanics / 5 cr. hrs. / 6 periods (5 lec., 1 lab)

Prerequisite: 30 months' experience concurrently performing the duties of airframe and powerplant maintenance; or 18 months performing the duties appropriate to this rating.

Reciprocating and jet engine design and function, electrical systems, fuel systems, induction systems, lubrication systems and propellers.

BUSINESS

BUS 51 Mathematics of Business / 3 cr. hrs. / 3 periods

Prerequisite: MTH 60.

Basic mathematical procedures are applied to business problems. Includes mark-up, payroll, simple and compound interest.

BUS 100 Introduction to Business / 3 cr. hrs. / 3 periods

A survey of fundamental characteristics and functions of modern business involving business principles, marketing, record keeping and risks; and a historical review of business development including the viewpoint of various ethnic groups.

BUS 160 Personal and Family Financial Security / 3 cr. hrs. / 3 periods

Stress is on personal and family financial affairs including budget, saving, credit, installment buying, insurance, home ownership, investment and estate planning. (Same as Home Economics 160.)

BUS 200 Business Law I / 3 cr. hrs. / 3 periods

Covered are such legal topics as the nature and sources of business law, the judicial system, law of contracts, torts, agency, consumer credit protection and sales.

BUS 201 Business Law II / 3 cr. hrs. / 3 periods

Prerequisite: BUS 200.

A continuation of BUS 200 covering such legal topics as 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

Prerequisite: MTH 170 or concurrent enrollment.

Introduces student to statistical techniques and their application to economic business decision making. Covers data structures, frequency distributions, linear regression, probability and probability distributions, and sampling.

BUS 206 Statistical Methods in Economics and Business II / 3 cr. hrs. / 3 periods

Prerequisite: BUS 205.

Continuation of BUS 205. Covers the testing of hypotheses, Chi-Square distributions, analysis of variance, regression and correlation, non-parametric statistics, sample survey methodology, and Bayesian inference.

CAREER DEVELOPMENT

CDE 100 Self and Career Exploration / 1 cr. hr. / 1 period

Students are helped in identifying personal strengths, values and motivations in career decisions by structured activities and inventories for developing career goals and self direction.

CDE 101 Career Development / 1 cr. hr. / 1 period

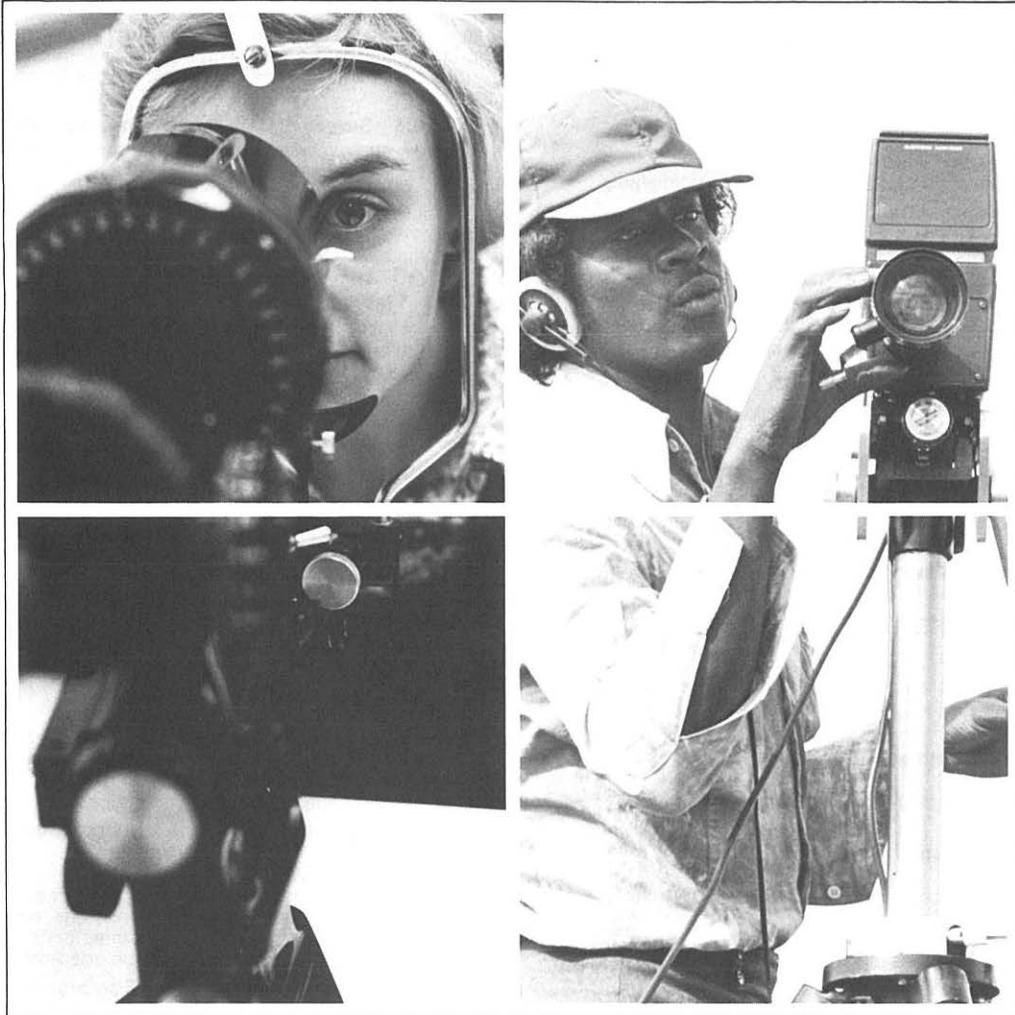
Prerequisite CDE 100 or consent of instructor.

Aids the student in understanding the world of work and in determining if the personal career decision is appropriate to the manpower needs of tomorrow.

CDE 102 Job Seeking Skills / 1 cr. hr. / 1 period

Prerequisite: CDE 101 or consent of instructor.

Focuses on the development of personal skills and confidence necessary to successfully obtain, maintain and/or improve employment opportunities.



CHEMISTRY

CHM 101 Introductory Chemistry I / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Basic chemistry and its relationship to everyday experiences; classification and structure of matter along with basic principles of chemical reactions and their environmental and societal impacts. Designed to meet the needs and interests of non-science majors.

CHM 102 Introductory Chemistry II / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Continuation of CHM 101. Organic chemistry as it relates to consumer products and pollution of our environment; biochemistry and physiochemistry and their relationship to medicines, drugs, health and food products.

CHM 110 Fundamentals of Chemistry I / 4 cr. hrs. 6 periods (3 lec., 3 lab)

The classification, structure and general chemical behavior of inorganic matter as a basis for the study of some life processes. Adapted to the needs of nursing and other allied health programs.

CHM 111 Fundamentals of Chemistry II / 4 cr. hrs. 6 periods (3 lec., 3 lab)

The classification, structure and general chemical behavior of organic biochemical systems as a basis for the study of some important life processes. Adapted to the needs of nursing and other allied health programs.

CHM 112 Chemistry for Education Majors / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

The study of basic concepts in chemistry and their applications. For elementary, early childhood and special education majors. (formerly CHM 130)

CHM 120 General Chemistry I / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: MTH 130 or consent of instructor.

This course includes a development of atomic structure and bonding with some historical input, fundamental chemical and scientific relationships, chemical reactions and energy, states of matter and solutions.

CHM 121 General Chemistry II / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: CHM 120.

A continuation of CHM 120 with emphasis on certain chemical concepts such as equilibrium, kinetics, acids and bases, complexions and oxidation-reduction.

CHM 196 Independent Studies in Chemistry / 1-4 cr. hrs. 3-12 periods (lab)

Subject matters and approaches vary with students' interests and reasons for enrolling.

CHM 240 Organic Chemistry I / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: CHM 121 or consent of instructor.

An integrated course in the fundamentals of organic chemistry covering classification, occurrence, synthesis, analysis and reaction mechanisms of important classes of organic compounds. Alkanes, Alkenes, Aromatics and Arenes are classes stressed in the first semester.

CHM 241 Organic Chemistry II / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: CHM 240 or consent of instructor.

A continuation of CHM 240 with emphasis shifting to synthesis, and the use of instrumentation as a means of identification. The remaining classes of organic compounds are discussed with minimal emphasis on biochemistry.

CHM 299 Cooperative Chemistry Training / 3 cr. hrs. 15 periods (lab)

A supervised cooperative work program for students in a chemistry occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

COMPUTER SCIENCE

CSC 100 Introduction to Computers / 3 cr. hrs. / 4 periods (3 lec., 1 lab)

Establishes the relationship of computer to manual, mechanized and unit-record systems. Introduces concepts of computer configurations, stored program, flow charting, block diagramming and documentation. Business problems are programmed in a simple language.

CSC 105 Survey of Data Processing / 3 cr. hrs. / 3 periods

A history and overview of data processing with emphasis on the use of computers as tools and their applications in business, industry, social and natural sciences. Students are introduced to at least one computer language and are acquainted with the social impact of man's relationships to computers. Not for programming or engineering majors.

CSC 110 Data Entry and Procedures / 3 cr. hrs. / 4 periods (3 lec., 1 lab)

Prerequisite: Some typing ability needed; speed not essential.

Entering and verifying simulated production data from several types of source documents utilizing buffered devices and key punch machines. Emphasis on low error rate production.

CSC 115 Advanced Data Entry / 3 cr. hrs. / 4 periods (3 lec., 1 lab)

Prerequisite: CSC 110.

Advanced training at the job entry level in the operation of data entry devices and in related job functions. Emphasis on high volume and low error rate production.

CSC 140 Fortran IV Programming / 3 cr. hrs. / 4 periods (2 lec., 2 lab)

Application of programming to the numerical solution of problems. Includes flow charting, block diagramming, documentation and writing of programs. Problems are suited to business, engineering or math, depending upon students' objectives.

CSC 150 Computer Operations / 3 cr. hrs. / 4 periods (3 lec., 1 lab)

Instruction and lab experience in computer operations covering tape, disk, printer, reader-punch, console and in-house role of the operations section including scheduling of jobs. Hands-on training in at least one operating system is required.

CSC 155 Systems Operations and Procedures / 3 cr. hrs. 4 periods (3 lec., 1 lab)

Prerequisite: CSC 100, 150.

A study of control statements and functions needed for computer operation. Multi-programming considerations, system flow, device assignment, labels on tape and disk, directories, text editors and utility programs are covered. Hands-on operation required.

CSC 160 COBOL Programming / 3 cr. hrs. / 4 periods (3 lec., 1 lab)

Prerequisite: CSC 100 or consent of instructor.

Comprehensive study and practice of writing programs in COBOL, standard business language. Proper documentation and programming standards are included as are programming techniques to utilize auxiliary storage devices.

**CSC 170 RPG Programming / 3 cr. hrs. / 4 periods
(2 lec., 2 lab)**

Prerequisite: CSC 100 or consent of instructor.

Students are introduced to the solutions of business oriented problems through writing and execution of Report Program Generator Programs. RPG is the primary language of most small scale computers.

CSC 195 Job Entry Procedures / 1 cr. hr. / 1 period

Applying for employment, letter and resume writing, interviewing and related topics.

**CSC 196 Work Standards and Job Attitudes / 1 cr. hr.
1 period**

Includes ethics, work relationships and human relations using role playing.

**CSC 197 Key Punch for Programmers and Operators
1 cr. hr. / 1 period**

Students learn the keyboard, functions of special keys, use of program drum cards to punch programs, and procedures to correct error cards.

CSC 198 Data Processing Projects I / 2 cr. hrs. / 6 periods

Prerequisite: Consent of instructor.

Credit is given for practical work experience on assigned data processing projects in data entry, controls and operations.

**CSC 250 Introduction to Numerical Control / 3 cr. hrs.
3 periods**

Prerequisite: MTH 120, MAC 120.

The student is introduced to numerical control and its application to machines, processes and manufacturing processes. The basics of manual programming for point-to-point and absolute position machines are covered. Occupational opportunities also are reviewed. (Same as Machine Tool Technology 250.)

**CSC 255 Numerical Controlled Machines / 3 cr. hrs.
4 periods (2 lec., 2 lab)**

Prerequisite: MAC 120, 250.

This course starts continuous path programming and computer aided programming. Calculations are made manually and by computer for two and three axis numerical control machines. Numerical control languages are taught. (Same as Machine Tool Technology 255.)

**CSC 260 Advanced COBOL and File Management
4 cr. hrs. / 6 periods (4 lec., 2 lab)**

Prerequisite: CSC 160.

Advanced COBOL programming techniques and languages are thoroughly explored. Report writer, sort verbs, file organization, debugging aids and interaction with the operating system are included.

**CSC 270 Fundamentals of Assembly Language Programming
3 cr. hrs. / 4 periods (3 lec., 1 lab)**

Prerequisite: CSC 160 or consent of instructor.

A study of an assembly level language and its relationship to machine language. Emphasis is on standard and decimal instruction sets, sub-routine control and linkage. Debugging techniques and basic input/output control system applications are covered. Includes lab experience.

**CSC 274 MACRO-10 Assembly Language / 4 cr. hrs.
6 periods (4 lec., 2 lab)**

Prerequisite: CSC 260, 270, or consent of instructor.

A study of fixed word machine language formats with emphasis on binary arithmetic instructions, variations of logical and control instructions and word-bit-byte manipulations. File creation using sequential and random organizations also are covered. Students, in addition, use interactive terminal input/output, conversing with a DEC-10 to test their programs, and various debugging techniques.

CSC 280 Systems Analysis / 3 cr. hrs. / 3 periods

Prerequisite: CSC 160 or consent of instructor.

Tools of systems analysis to be covered include documentation methods (systems flowchart, decision table, etc.), user communication, record layout, code design, file design (batch and on-line data base concepts), documentation design (source and printed output). Selected business systems applications are used to apply the above tools.

CSC 281 Systems Design / 3 cr. hrs. / 3 periods

Prerequisite: CSC 280.

Application of the tools of systems analysis covered in CSC 280 are used to design a total system. The case study approach is used. A feasibility study is prepared to present alternatives, or a systems proposal is prepared to recommend a course of action.

**CSC 290 Systems Programming Theory / 3 cr. hrs.
4 periods (3 lec., 1 lab)**

Prerequisite: CSC 274 or consent of instructor.

The writing of compilers, operating systems and utility programs. Sorting and timing techniques included.

**CSC 294 Current Topics in Computer Science / 3 cr. hrs.
4 periods (3 lec., 1 lab)**

Prerequisite: CSC 274, 281 or consent of instructor.

Covered are selected topics which reflect the most current technological and systems software concepts in the field of computer science. Topics such as teleprocessing, data base concepts, structured programming and mini-computers may be covered.

**CSC 296 Operating Systems / 3 cr. hrs. / 4 periods
(3 lec., 1 lab)**

Prerequisite: CSC 270, 274, or consent of instructor.

A study of the design and functions of a computer's operating system. Emphasizes system generation as affected by computer size, configuration, needed library routines and macros. Students work through an actual generation of an operating system.

**CSC 298 Data Processing Projects II / 3 cr. hrs.
4 periods (2 lec., 2 lab)**

Prerequisite: Consent of instructor.

Students are assigned to selected projects at computer installations in the community. Instruction and practice is provided in: preparing project proposals; project management; interface with potential users of a system; design, programming, implementation, and documentation of a project.

**CSC 299 Cooperative Computer Science Training
3 cr. hrs. / 15 periods (lab)**

A supervised cooperative work program for students in a computer science occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

DENTAL ASSISTING

**DAT 61 Introduction to Dental Assisting / 4 cr. hrs.
4 periods**

Prerequisite: Consent of program coordinator.

Component I—Designed to help students understand the history of the profession and the variety of areas of dental practice. Also included are health and grooming, dental hygiene, job opportunities and demands. Component II—The object of this course is to enable students to develop a knowledge of basic science as it relates to dentistry; body structure, tissue and tooth development; methods of sterilization; how to select and perform sterilization of instruments and equipment.

**DAT 62 Dental Assisting I / 2 cr. hrs. / 4 periods
(1 lec., 3 lab)**

Prerequisite: Consent of program coordinator.
Students learn dental terminology and morphology of the human dentition; prepare patients for operative procedures; select instruments used in various operative procedures; learn to demonstrate and maintain proper care of dental and laboratory equipment.

**DAT 63 Oral Radiography / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

Prerequisite: Consent of program coordinator.
Students learn the importance of dental roentgenography as a diagnostic aid; develop knowledge of safety factors when exposing radiograms; learn to expose, process, mount, label and file radiographs; and learn to recognize radiographs that are acceptable for diagnosis.

**DAT 64 Dental Materials / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

Prerequisite: Consent of program coordinator.
Course enables students to understand the chemical and physical properties of dental materials; the use of materials in specific operative procedures; units of measure and use of various measuring devices; use and maintenance of all related equipment.

DAT 65 Clinical Procedures I / 3 cr. hrs. / 9 periods (lab)

Prerequisite: Consent of program coordinator.
Students apply their acquired skill of routine and special procedures in dental assisting under the direct supervision of a dentist and the faculty.

**DAT 66 Dental Assisting II / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

Prerequisite: Satisfactory completion of DAT 61 through 65.
Students learn to administer first aid in emergency situations; classifications of drugs and methods of administration; normal effects of drugs and anesthetics used in dentistry; etiology and control of dental caries; an understanding of common developmental anomalies of the human dentition; an understanding of nutrition and how it affects total dental health.

**DAT 67 Dental Assisting III / 5 cr. hrs. / 9 periods
(3 lec., 6 lab)**

Prerequisite: Satisfactory completion of DAT 61 through 65.
Students demonstrate the use of armamentaria for specialty procedures; identify terminology characteristics of each area of dental practice; maintain dental office records and manage appointment schedules; learn to order and keep a running inventory of supplies.

DAT 68 Clinical Procedures II / 5 cr. hrs. / 16 periods (lab)

Prerequisite: Satisfactory completion of DAT 61 through 65.
Students apply advanced skills in private offices under the direct supervision of the dentist and instructor.

DENTAL LABORATORY TECHNOLOGY

**DLT 101 Dental Morphology / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

Prerequisite: Consent of coordinator.
A study of the development of teeth, including the outlines of hard, bony and soft areas of the jaws, as related to denture construction. Stress is 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 Non-Metallic Dental Materials / 3 cr. hrs. / 3 periods

Prerequisite: Consent of coordinator.
A study of the 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. / 12 periods (lab)

Prerequisite: Consent of coordinator.
Course provides a complete understanding 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 in methyl-methacrylate acrylic.

**DLT 104 Dental Laboratory I / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

Prerequisite: DLT 101, 102, 103.
A study of the chemistry and metallurgy of dental alloys, the compositions of plating solutions and principles of electro-plating. Wrought metal bars and clasps, as related to laboratory procedure, are discussed and analyzed. Required will be a full complement of teeth carved from plaster blocks, and a full complement of natural size teeth sculptured from wax ivory blocks, set up to occlusion.

**DLT 105 Partial Dentures Reconstruction / 4 cr. hrs.
12 periods (lab)**

Prerequisite: DLT 101, 102, 103.
Construction of wrought metal lingual bars and clasps; investing and soldering techniques of bilateral appliances; processing partial dentures in acrylic in three techniques—the bank, the split and the carry-over; fabrication of dies of inlays and abutments; repair, relines and reconstruction of dentures.

**DLT 201 Dental Laboratory II / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

Prerequisite: Satisfactory completion of first year courses.
Principles of fixed bridgework, abutments, inlays and crowns; the theory of spanning spaces with various types of artificial teeth in complete fixed and cantilever bridgework; the importance of stress, function and aesthetics in the design of fixed bridgework; the handling of wax patterns, investments, casting techniques, making of dies from impressions; techniques in waxing, investing, casting of inlays, three-quarter crown, full crown and veneers. Tooth carvings taught in previous semester are used.

DLT 202 Dental Metallurgy I / 3 cr. hrs. / 3 periods

Prerequisite: Satisfactory completion of first year courses.
A study of precious metals used by the dental technician. Topics include 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. / 12 periods (lab)

Prerequisite: Satisfactory completion of first year courses.
Waxing, investing and finishing of simple and complex inlays, full crowns, veneers and three-quarter crowns; construction of bridges of various designs utilizing metal, porcelain and plastic, separately or in conjunction with one another.

**DLT 204 Dental Laboratory III / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

Prerequisite: DLT 201, 202, 203.
The principles of surveying, the design of cast partials, and the technical applications of metallurgy and engineering principles; the composition and physical properties of gold and chrom-cobalt alloys and their working qualities. All types of known designs and principles of retention are used in the construction of removable bridgework.

**DLT 205 Dental Metallurgy II / 4 cr. hrs. / 8 periods
(2 lec., 6 lab)**

□ Prerequisite: DLT 201, 202, 203.

A study of cast gold alloys, abnormal castings, base metal casting alloys used by the technician, and metallographic techniques. Skills are developed in casting gold and non-ferrous metals. Upper and lower partial frame structures will be constructed in cast gold and cast chrom-cobalt alloy.

DLT 206 Ceramics / 2 cr. hrs. / 6 periods (lab)

□ Prerequisite: DLT 201, 202, 203.

Skills are developed in porcelain and porcelain on gold techniques with emphasis placed on low and high fusing porcelains, their vitrification, control of form, control of color, design of metal structure, and application of stain and glaze. Composition and physical properties, as well as the fundamentals of manipulating porcelain and gold are discussed and demonstrated.

DESIGN

**DES 111 Industrial Graphics / 3 cr. hrs. / 4 periods
(3 lec., 1 lab)**

Course concentrates on the representation of products, equipment and exteriors/interiors through shaded and line drawings in several media.

**DES 150 Functional Design I / 3 cr. hrs. / 4 periods
(3 lec., 1 lab)**

Designs of objects and systems are studied and solutions then developed to satisfy the problems encountered. Students select their own area of design interest.

**DES 151 Light-Weight Structure Design / 3 cr. hrs.
4 periods (3 lec., 1 lab)**

Study of design concepts and application of various types of practical and inexpensive methods of shelter, including domes, pre-stressed membranes, inflatables and other innovative types of shelter.

DES 155 Home Furnishings / 3 cr. hrs. / 3 periods

The study of furnishings both in the functional sense and with respect to social, aesthetic, economic and psychological effects on individuals.

DES 156 Interior Design I / 3 cr. hrs. / 3 periods

A study of the basic principles of functional interior design and their application. This course is designed for the career oriented interior design student as well as the student who wishes to decorate his or her own surroundings.

**DES 211 Commercial Graphics / 3 cr. hrs. / 4 periods
(3 lec., 1 lab)**

Offers training in composition, layout, typography, color selection and design of logos, catalogs and brochures. Emphasis is on preparation for the advertising and graphics industry.

**DES 250 Functional Design II / 3 cr. hrs. / 4 periods
(3 lec., 1 lab)**

An extended study of design with emphasis on solutions to problems in fabrication and reproducibility of various products.

DES 255 Interior Design II / 3 cr. hrs. / 3 periods

□ Prerequisite: DES 156.

A further study of the principles of functional interior design and the application of these principles. For the serious interior design student.

DES 256 Interior Design III / 3 cr. hrs. / 3 periods

□ Prerequisite: DES 255.

Advanced theory and practice of interior design. Course deals with needs of the student seeking career preparation in interior design; customer-client relationships and financial problems. Custom and built-in furnishings are studied as well as home entertainment equipment.

DRAFTING

**DFT 110 Construction Drafting I / 3 cr. hrs. / 6 periods
(3 lec., 3 lab)**

An introduction to drafting and blueprint reading. Plot plans, floor plans, elevations, sections, details, and structural plans are involved in developing an understanding of construction drawings and drafting techniques.

DFT 112 Fundamentals of Electro-Mechanical Blueprint Reading / 3 cr. hrs. / 3 periods

A blueprint reading course involving many areas of trade and industry including industrial electricity, electronics, industrial controls (including logic circuits), piping drawings, fluid power, pneumatics, hydraulics and electro-mechanical devices.

**DFT 114-115 Construction Determinants I, II / 3-3 cr. hrs.
3 periods**

An introduction to architecture and construction with emphasis on materials, methods of construction, building equipment systems, codes and standards, contract documents, office procedures, ethics, architectural practice and estimating.

**DFT 120 Construction Drafting II / 3 cr. hrs. / 6 periods
(3 lec., 3 lab)**

□ Prerequisite: DFT 110 or three years of high school drafting. Introduces the development of a set of residential and wood frame construction working drawings from a given sketch.

**DFT 123 Building Utilities and Site Work / 3 cr. hrs.
6 periods (3 lec., 3 lab)**

□ Prerequisite: DFT 120.

The basic concepts for building service support systems and site development.

**DFT 130 Construction Drafting III / 3 cr. hrs. / 6 periods
(3 lec., 3 lab)**

□ Prerequisite: DFT 120.

A continuation of DFT 120, developing construction drawings for a masonry and wood frame residence from house sketches selected by students.

**DFT 140 Construction Drafting IV / 3 cr. hrs. / 6 periods
(3 lec., 3 lab)**

□ Prerequisite: DFT 130.

A continuation of DFT 130, developing construction details and drawings for a medium size steel and concrete building.

**DFT 149 Independent Study in Drafting / 1-3 cr. hrs.
3-9 periods (lab)**

Independent study of a special project not included in regular courses. The student is required to obtain a sponsoring instructor in this area, establish objectives and a method of procedure and a method of evaluation.

**DFT 150 Technical Drafting I / 3 cr. hrs. / 6 periods
(3 lec., 3 lab)**

The student proceeds through problems he will meet in his association with engineers and designers, and becomes familiar with drafting tools, sketching, lettering, geometric construction, orthographic projection, dimensioning, isometrics, sections and auxiliary views using military standards and specifications as a guide.

**DFT 150 Dibujo Técnico I / 3 cr. hrs. / 6 periods
(3 lec., 3 lab)**

Consiste en conocimientos de los instrumentos de dibujo y su uso. Práctica de letras y composiciones geométricas. Conocimientos de líneas y acotaciones. Proyección ortográfica e isométricas. El estudiante estudiará esto y demás problemas que se encuentran al trabajar con ingenieros o diseñadores.

**DFT 150A Technical Drafting I—Basic Procedures / 1 cr. hr.
5 periods (2 lec., 3 lab)**

Students are introduced to drafting tools, free hand sketching, lettering, simple dimensioning and geometric construction.

**DFT 150B Technical Drafting I—Dimensioning and
Multi-Views / 1 cr. hr. / 5 periods (2 lec., 3 lab)**

Prerequisite: DFT 150A.

The basics of dimensioning plus an intensive use of orthographic projection. Use of isometric sketches included to assist in solving three view layout problems.

**DFT 150C Technical Drafting I—Drawing Sectional and
Auxiliary Views / 1 cr. hr. / 5 periods (2 lec., 3 lab)**

Prerequisite: DFT 150B.

The student's knowledge of orthographic representation is extended through the use of auxiliary views and sectional drawings. ANSI standards are used.

**DFT 151 Technical Drafting II / 3 cr. hrs. / 6 periods
(3 lec., 3 lab)**

Prerequisite: DFT 150.

A continuation of DFT 150, furthering the student's skills. First course procedures are reviewed with the following topics occurring for problem solution: dimensioning, tolerancing, detail and assembly drawings, and hardware selection with Mil Standards and Specifications as the guide.

**DFT 151 Dibujo Técnico II / 3 cr. hrs. / 6 periods
(3 lec., 3 lab)**

Una continuación de DFT 150, ampliando las pericias de los estudiantes. Los procedimientos del primer curso se estudian para encontrar soluciones de otros problemas técnicos de esta materia.

**DFT 152 Technical Drafting III / 3 cr. hrs. / 6 periods
(3 lec., 3 lab)**

Prerequisite: DFT 151.

This course follows DFT 151 and covers additional problems in mechanical drafting. The student is given more advanced problems, typical of industry, to develop skill, accuracy and speed.

DFT 153 Tool Design / 4 cr. hrs. / 6 periods (4 lec., 2 lab)

Prerequisite: DFT 152.

Introduction to the problems of tool design, drill jigs, radius dies, fixtures, welding jigs and assembly jigs. Drawings are prepared concurrently with the study of related shop practices, mathematics, geometry, materials and basic tools of jig and fixture fabrications.

**DFT 154 Electronic Drafting / 3 cr. hrs. / 6 periods
(3 lec., 3 lab)**

Prerequisite: DFT 150, ETR 1.

Offered primarily for the drafting technician student. Instruction stresses schematics, logic diagrams, printed circuit and integrated circuit layout, including taping.

**DFT 155 Electro-Mechanical Design I / 3 cr. hrs.
6 periods (3 lec., 3 lab)**

Prerequisite: DFT 152, 154.

Practical packaging problems, common to the electronics industry, are studied. Includes electrical, mechanical, environmental, functional and manufacturing involvement in the design of electro-mechanical gear.

**DFT 156 Drafting for Machine Technology I / 3 cr. hrs.
6 periods (3 lec., 3 lab)**

Course provides the information and skill needed for an understanding of the tooling trade related to numerical control. The student will demonstrate his knowledge by preparing reports and drawings pertaining to basic tools (fixtures and jigs) for machine operator's documents.

**DFT 299 Cooperative Drafting Training / 3 cr. hrs.
15 periods (lab)**

A supervised cooperative work program for students in a drafting occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

DRAMA

**DRA 51 Theater Practice for the Serious Amateur
3 cr. hrs. / 5 periods (2 lec., 3 lab)**

A course in techniques of acting and theatrical presentation for beginning actors of all ages. Designed to stimulate participation in various types of community theatrical presentations.

**DRA 105-106 Introduction to Acting I, II / 3-3 cr. hrs.
5 periods (3 lec., 2 lab)**

Prerequisite: DRA 105 for DRA 106.

Introduction to performance techniques and the development of physical skills for effective performance; techniques of acting and characterization, and the actor's relationship to all aspects of theatrical production.

DRA 115 Make-Up / 1 cr. hr. / 3 periods (1 lec., 2 lab)

The study and practice of straight and character make-up under various conditions. Also, the history of make-up and masks in various cultures.

**DRA 120 Stagecraft and Production I / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

A study and experience in the operation and effect of various types of stages and stage scenery; the drafting and construction of stage scenery; and the history and construction of costumes and properties. (DRA-120-121 need not be taken in sequence.)

**DRA 121 Stagecraft and Production II / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

A study and experience in theatrical organization and stage management, lighting design and operation, and scene painting.

**DRA 201 Independent Studies in Drama / 1-4 cr. hrs.
3-12 periods (lab)**

Students work at various assigned tasks in theatrical productions under the guidance of an instructor. Other projects which students design may at times be approved by instructors.

DRA 240 History of Theater I / 3 cr. hrs. / 3 periods

A study of theater, drama and audiences from ancient Greece to the late 18th century.

DRA 241 History of Theater II / 3 cr. hrs. / 3 periods

A study of theater, drama and audiences from the 18th century to the present, including a brief survey of Oriental and African theater.

**DRA 248 Intermediate Acting I / 3 cr. hrs. / 4 periods
(3 lec., 1 lab)**

Prerequisite: DRA 105 and 120 (DRA 120 may be taken concurrently with DRA 248).

The theories and experiences of creating sustained and logical character portrayals, using all types of dramatic literature from various cultures.

**DRA 249 Intermediate Acting II / 3 cr. hrs. / 4 periods
(3 lec., 1 lab)**

□ Prerequisite: DRA 121 and either DRA 106 or 248; DRA 121 may be taken concurrently with DRA 249.

A continuation of the theories and experiences of creating sustained and logical character portrayals, using all types of dramatic literature from various cultures.

EARLY CHILDHOOD EDUCATION

ECE 106 The Growing Years / 3 cr. hrs. / 3 periods (3 lec.—on campus) 30 periods (30 lec.—telecourse)

The principle theme is the interplay of biological factors, human interaction and social structure in shaping the growing child from earliest womb environment through early childhood into adolescence.

**ECE 107 Human Development and Relations / 3 cr. hrs.
3 periods**

An interdisciplinary and intercultural approach to human development and interpersonal relationships.

**ECE 108 Literature for the Young Child / 3 cr. hrs.
3 periods**

History and development of young children's literature; survey of materials, principles and techniques in the selection and presentation of various types of materials.

ECE 108 Literatura Infantil / 3 cr. hrs. / 3 periods

La historia y el desarrollo de la literatura infantil; estudios de materiales, principios, metodología y técnicas en la selección y presentación de distintas clases de materiales.

**ECE 110 Language Arts for the Young Child / 3 cr. hrs.
3 periods**

Investigation of language development of the young child; principles, methodology and techniques surveyed for the purpose of curriculum development.

**ECE 111 Introduction to the Exceptional Child / 3 cr. hrs.
3 periods**

A survey of the trends and procedures 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 for the Young Child / 3 cr. hrs. / 3 periods

The role of music for the young child; presentation of materials, activities and procedures for teaching music to young children.

ECE 112 Música Para el Niño / 3 cr. hrs. / 3 periods

El papel de la música para el niño; presentación de materiales, actividades y procedimientos para enseñar música a los niños.

ECE 114 Effective Parenthood / 3 cr. hrs. / 3 periods

Discussion of specific behavior problems related to personality development. Background for understanding parent-child relationships.

**ECE 116 Understanding the Young Child / 3 cr. hrs.
3 periods**

Intensive study of increased understanding of the young child's behavior, guidance, social and cultural influence.

**ECE 117 Child Growth and Development / 3 cr. hrs.
3 periods**

A study of the growth, development and acculturation of the child from conception through adolescence.

ECE 118 Pre-school Education / 3 cr. hrs. / 3 periods

A study of various philosophies, theories and methodologies of curriculum for early childhood education with supervised field experience.

**ECE 120 Supervision and Administration / 3 cr. hrs.
3 periods**

A study of all administrative responsibilities and duties of management, and supervision within all areas of Early Childhood Education.

ECE 122 Community Resources / 3 cr. hrs. / 3 periods

A study of the local early childhood education community resources and agencies through investigation and field work.

**ECE 124 Math and Science for the Young Child / 3 cr. hrs.
3 periods**

Concepts, methods and materials in teaching math and science to the young child; techniques in the presentation and use of teacher-made materials.

**ECE 124 Matemáticas y Ciencia Para El Niño / 3 cr. hrs.
3 periods**

Conceptos, métodos y materiales en la enseñanza de matemáticas y ciencias para el niño; técnicas de la presentación y el uso de materiales hechos por los profesores (profesoras) mismos.

**ECE 126 Techniques for Teacher Aides / 3 cr. hrs.
3 periods**

A course designed primarily for the development of skills of the teacher aide. A thorough investigation of special duties and the role of the teaching staff. Supervised field work is a part of the course.

ECE 128 Planning for Play / 3 cr. hrs. / 3 periods

Conflicting theories of play and the educational implications of each in a curriculum. Selected observation assignments are required.

**ECE 130 Current Trends in Early Childhood Education
3 cr. hrs. / 3 periods**

Current trends and the history of the pre-school movement; philosophy underlying pre-schools; surveys of the contemporary pre-school programs; and evaluation of various teaching methods.

**ECE 240 Early Childhood Education Practicum / 3 cr. hrs.
15 periods (lab)**

Participation in community pre-schools for the purpose of gaining experience in program planning for the growth and learning of children up to six years of age. Weekly seminars are conducted to discuss theory and practice pertinent to the involvement of the pre-schools.

**ECE 299 Cooperative Early Childhood Education Training
3 cr. hrs. / 15 periods (lab)**

A supervised cooperative work program for students in an early childhood education occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

EARTH SCIENCES

**ESC 60 Principles of Lapidary / 3 cr. hrs. / 3 periods
(1 lec., 2 lab)**

A practical laboratory course in the identification, polishing and mounting of semi-precious materials. (Same as ART 60.)

**ESC 101 Physical Geography: Weather and Climate
4 cr. hrs. / 6 periods (3 lec., 3 lab)**

The physical elements—weather, climate, vegetation and soils—are interrelated and form patterns of great importance to man. This course is about those elements, their interrelationships, the resulting patterns and why they are important.

**ESC 102 Physical Geography: Oceanography and Land Forms
4 cr. hrs. / 6 periods (3 lec., 3 lab)**

□ Prerequisite: ESC 101 suggested but not required.

Topics include geographic characteristics of the major types of land forms plus an introduction to the oceans of the world and their relationship to man.

**ESC 103 Cultural Geography / 4 cr. hrs. / 6 periods
(3 lec., 3 lab)**

This course is about people, where and how they live and some of the reasons why they live as they do. Race, language, religion and the physical environment are interwoven and changed by time to produce many different economic and settlement patterns.

**ESC 110 Geology of the Western United States / 3 cr. hrs.
4 periods (2 lec., 2 lab)**

This course provides an introduction to physical and historical geology using samples from the western United States, including national parks and monuments.

**ESC 112 Geology for Education Majors / 3 cr. hrs.
4 periods (2 lec., 3 lab)**

Prerequisite: Majoring in education.
The processes, characteristics, origin and evolution of the earth; development of life; and man's dependence upon the earth. Applicability to elementary education is stressed. Credit is not allowed for ESC 112 if student has credit for either ESC 120 or 121.

**ESC 115 Human Ecology / 4 cr. hrs. / 5 periods
(3 lec., 2 lab)**

Focus is on the question of survival for mankind and other life forms, exploring both present problems and alternatives for the future. Included are lectures, discussions and field trips. (Same as Life Sciences 115.)

**ESC 120 Introductory Geology I / 4 cr. hrs. / 6 periods
(3 lec., 3 lab)**

An introduction to the physical aspects of the earth's crust; rock and minerals, their relationship to one another; and the surface and subsurface processes that operate on and in the earth.

**ESC 121 Introductory Geology II / 4 cr. hrs. / 6 periods
(3 lec., 3 lab)**

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.

**ESC 299 Cooperative Earth Sciences Training / 3 cr. hrs.
15 periods (lab)**

A supervised cooperative work program for students in an earth sciences occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

ECONOMICS

**ECO 100 Introduction to Microeconomics / 3 cr. hrs.
3 periods**

The role of prices in the allocation of economic resources with an emphasis on how individual consumers and producers make economic decisions.

**ECO 101 Introduction to Macroeconomics / 3 cr. hrs.
3 periods**

The determinants of the level of national income, employment and the price level are analyzed from the viewpoint of an economic policy maker.

**ECO 298 Topics in Contemporary Economics / 3 cr. hrs.
3 periods**

Prerequisite: ECO 100 or 101.
Supervised individual study of economic topics determined by student interest.

ELECTRONICS

**ETR 1 Introduction to Electronics / 4 cr. hrs. / 6 periods
(2 lec., 4 lab)**

Prerequisite: MTH 70 series or concurrent enrollment.
A pre-program course for students who have not had previous training in electronics or for those who require some knowledge of electronic principles to support their major program. Includes DC circuits, use of multimeters, oscilloscopes and basic radio theory.

**ETR 50 FCC Amateur License Preparation / 3 cr. hrs.
4 periods (3 lec., 1 lab)**

This course prepares the student for the Federal Communications Commission amateur radio examination at the novice or general levels. Areas covered are history of amateur radio and its use as a public service, fundamentals of electronics, sending and receiving morse code, equipment installation and maintenance, and operation of receiver and transmitter. This course does not satisfy major requirements in the electronics program.

**ETR 100 Fundamentals of Electronics / 6 cr. hrs.
8 periods (4 lec., 4 lab)**

Prerequisite: ETR 1 or equivalent, and MTH 130 or 115, or concurrent enrollment.
Topics include fundamentals of direct current and alternating current, passive circuit elements and their interaction with active circuit devices such as diodes, transistors and vacuum tubes.

**ETR 105 Electronics Circuits and Systems I / 6 cr. hrs.
8 periods (4 lec., 4 lab)**

Prerequisite: ETR 100 and MTH 150 or 125, or concurrent enrollment.
The fundamentals of circuit analysis; power supplies; regulators; class A, B, AB and C amplifiers; introduction to feedback amplifiers. May be taken concurrently with ETR 110.

**ETR 110 Digital Electronics / 3 cr. hrs. / 4 periods
(2 lec., 2 lab)**

Prerequisite: ETR 100 and MTH 150 or 125, or concurrent enrollment.
The fundamentals of digital electronics, binary, octal and hexadecimal arithmetic, digital logic, discrete and integrated circuits; and programming of PDP-8L computer in the BASIC language. May be taken concurrently with ETR 105.

**ETR 140 Television Repair I (Black and White) / 6 cr. hrs.
8 periods (4 lec., 4 lab)**

Prerequisite: ETR 100 and MTH 115 or 130, or equivalent.
The fundamentals of television circuits, tubes and transistors; theory, alignment and repair of black and white television receivers.

**ETR 145 Television Repair (Color) / 6 cr. hrs. / 8 periods
(4 lec., 4 lab)**

Prerequisite: ETR 140 or practicing TV technician.
Color television theory, alignment and repair; picture tube convergence, IF amplifiers, tuner alignment, remote control automatic tuning, sync and high-voltage circuits.

**ETR 150 Home Entertainment Equipment Repair / 6 cr. hrs.
8 periods (4 lec., 4 lab)**

Prerequisite: ETR 140.
The repair of home entertainment equipment other than television receivers. Course includes theory and repair of audio amplifiers, AM-FM-MPX receivers, tape decks, cassette decks, turntables, dolby and other noise reduction devices.

**ETR 230 Advanced Circuits and Systems / 6 cr. hrs.
8 periods (4 lec., 4 lab)**

Prerequisite: ETR 105 and 110, plus MTH 155 or 205, or concurrent enrollment.

Advanced circuit analysis, primary signal sources, filters, R.F. amplifiers, Am and FM modulation systems.

**ETR 235 Communications / 6 cr. hrs. / 8 periods
(4 lec., 4 lab)**

Prerequisite: ETR 230.

Communications systems from low through microwave frequencies; FM, AM and PM modulation and multiplexing methods and antenna systems; troubleshooting and system alignment techniques.

**ETR 250 Digital Devices / 4 cr. hrs. / 6 periods
(2 lec., 4 lab)**

Prerequisite: ETR 105 and 110 or equivalent experience; plus MTH 155 or 205 or concurrent enrollment.

Digital integrated circuit applications, construction and maintenance; specific applications of TTL logic family in a multiplexed digital communications system.

**ETR 255 Digital Systems / 6 cr. hrs. / 8 periods
(4 lec., 4 lab)**

Prerequisite: ETR 250.

Minicomputer maintenance, interfaces, assembly and machine languages, MOS logic, operational amplifiers, A/D-D/A converters, pulse modulation, modems, digital transmission lines, unijunction transistors and SCR/TRIAC control of AC circuits.

**ETR 275 Industrial Electronics and Instrumentation
6 cr. hrs. / 8 periods (4 lec., 4 lab)**

Prerequisite: ETR 230.

Principles of industrial electronics, pneumatics and hydraulics, transducers, control devices and feedback loops.

**ETR 290 Second Class F.C.C. License / 3 cr. hrs.
6 periods**

Prerequisite: ETR 230 or equivalent experience.

Preparation for Federal Communications Commission second class radiotelephone license examination and review of circuit analysis, laws and regulations.

**ETR 299 Cooperative Electronics Training / 3 cr. hrs.
15 periods (lab)**

A supervised cooperative work program for students in an electronics occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

EMERGENCY MEDICAL TECHNOLOGY

**EMT 51 Emergency Medical Technology / 5 cr. hrs.
6 periods (4 lec., 2 lab)**

Prerequisite: Consent of instructor.

A 114-hour course covering all techniques of emergency medical care currently considered as responsibilities of the emergency medical technician. Skills are developed in recognizing symptoms of illness and injuries and proper procedures of emergency care.

**EMT 58 Refresher Training for EMT / 2 cr. hrs. / 3 periods
(1 lec., 2 lab)**

Prerequisite: EMT 51 or equivalent, and must have graduated from the basic course at least one year prior to the semester offered.

For students in the Emergency Medical Technology field who must meet Arizona Corporation Commission refresher training requirements.

ENGINEERING

**ENG 110 Construction Surveying / 3 cr. hrs. / 6 periods
(2 lec., 4 lab)**

Prerequisite: MTH 110 or consent of instructor.

Course covers the 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: DFT 150 or equivalent.

Freehand technical sketching, instrument working drawings, principles of projection, descriptive geometry, applications to engineering space problems.

**ENG 130 Elementary Surveying / 3 cr. hrs. / 6 periods
(2 lec., 4 lab)**

Prerequisite: MTH 150 and 155, or MTH 160.

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**

Prerequisite: PHY 210, MTH 215—may be taken concurrently.

Vector algebra, equilibrium, momentum, couples, centroids, trusses, machines, friction and equivalent force systems.

**ENG 220 Engineering Mechanics-Dynamics / 3 cr. hrs.
3 periods**

Prerequisite: ENG 210.

Rectilinear motion, curvilinear motion, kinetics of particles, energy and momentum methods, kinematics of rigid bodies, plane motion of rigid bodies, and mechanical vibrations.

ENG 230 Mechanics of Materials / 3 cr. hrs. / 3 periods

Prerequisite: ENG 210.

Material behavior, external forces on rigid and elastic bodies, stress, strain, load analysis and design factors.

**ENG 240 Basic Circuits and Electronics / 5 cr. hrs.
8 periods (4 lec., 4 lab)**

Prerequisite: PHY 216 or PHY 132 and concurrent enrollment in MTH 2; Steady state AC and DC circuit analysis, natural response of first order systems, introduction to magnetic circuits, basic digital logic design computer organization and coding.

**ENG 299 Cooperative Engineering Training / 3 cr. hrs.
15 periods (lab)**

A supervised cooperative work program for students in an engineering occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

ENGLISH AS A SECOND LANGUAGE

ESL 50 Series is offered for foreign and bilingual students. The ESL program is a special program designed for bilingual and foreign students in order to develop proficiency in oral and written English. Students will be placed in the program according to language test results.

Placement tests and teacher evaluation determine each student's entry level. ESL is an intensive study for acquiring and improving basic skills in listening, speaking, reading and writing Americanized English.

**ESL 50 Elementary Grammatical Patterns / 6 cr. hrs.
8 periods / (6 lec., 2 lab)**

This course has, as its main goal, the development of listening and speaking skills in the frequently used patterns of American English. Reading and written exercises are introduced to reinforce these patterns.

**ESL 51 Intermediate Grammatical Patterns—Levels I and II
3 cr. hrs. / 4 periods (3 lec., 1 lab)**

The main goal is the development of listening and speaking skills in the frequently used patterns of American English. Reading and writing are introduced to reinforce these patterns.

**ESL 52 Intermediate ESL Reading and Writing—Levels I and II
3 cr. hrs. / 4 periods (3 lec., 1 lab)**

Level I—The reading component stresses vocabulary development and the development of cultural awareness gained from reading various types of American literature written on a low intermediate level. Basic word recognition, comprehension and study skills are introduced. The writing component stresses skills in writing basic word order, certain tenses and parts of speech, and mechanics in various types of writing. Level II—Reading and writing components are on a more advanced intermediate level.

**ESL 53 Advanced Grammatical Patterns / 3 cr. hrs.
4 periods (3 lec., 1 lab)**

The main goal of the course is the development of listening and speaking skills in the frequently used patterns of American English. Reading and writing are introduced to reinforce these patterns.

ESL 54 Advanced Reading / 3 cr. hrs. / 4 periods (3 lec., 1 lab)

Vocabulary development and the development of cultural awareness are gained from reading various types of American literature written on an advanced level. More advanced word recognition, comprehension and study skills are introduced.

ESL 55 Advanced Writing / 3 cr. hrs. / 4 periods (3 lec., 1 lab)

Skills are developed in writing advanced sentence patterns, using advanced word order, certain tenses, parts of speech and basic methods of paragraph development in various types of writing.

ESL 57 Composition I / 3 cr. hrs. / 3 periods

This is a first semester English composition course, at the freshman level, designed to help the foreign and bilingual student with special needs. It offers possible equivalence with WRT 101.

ESL 58 Composition II / 3 cr. hrs. / 3 periods

This is a second semester freshman composition course designed to help foreign and bilingual students with special needs. It offers possible equivalence with WRT 102.

EXPLORATORY

EXP 51 Social Science Survey / 4 cr. hrs. / 4 periods

Includes units from the social or behavioral sciences selected by the student.

EXP 60 People / 1 cr. hr. / 1 period

Learning teams give members a chance to explore ideas and experiences in many different areas of study, work, cultural awareness and community development.

EXP 60 La Gente / 1 cr. hr. / 1 period

Grupos de aprendizaje ofrecen a los participantes la oportunidad de explorar nuevas ideas y experiencias en las áreas del estudio, trabajo, conocimiento cultural y participación en la comunidad.

EXP 87 Music Appreciation / 3 cr. hrs. / 3 periods

This course is for non-music majors and surveys the formal development of musical ideas and their relationship to culture.

EXP 88 Political Involvement / 3 cr. hrs. / 3 periods

Survey of local, state and national government campaigns, running for political office, and effective campaign management. To aid persons who wish to become involved in the political process.

EXP 89 Funding Projects / 3 cr. hrs. / 3 periods

A practical course designed to assist agency and business employees in the preparation of proposals for federal funds and an analysis of United States government interests and federal agencies. The student will be able to write elementary proposals for federal grants.

**EXP 90 Picture Framing / 2 cr. hrs. / 3 periods
(1 lec., 2 lab)**

A basic course in selecting molding, matte materials, and construction of picture frames; and instruction in the safe operation of power and hand tools. This course is intended for students who are employed or seek employment in galleries or framing shops.

**EXP 91 Professional Modeling / 0 cr. hrs. / 3 periods
(2 lec., 1 lab)**

This basic course in professional modeling includes instruction in beauty care, body carriage, and personality projection; and capitalizing on the individual's natural assets. Techniques of fashion and photographic modeling are emphasized.

EXP 99 How to Study / 3 cr. hrs. / 3 periods

Course emphasizes skills necessary for effective reading, note-taking, remembering, report writing, listening, preparing for and taking exams, and planning your study time.

FASHION DESIGN AND CLOTHING

**FDC 111 Clothing Construction—Beginning I / 3 cr. hrs.
5 periods (2 lec., 3 lab)**

The fundamental principles of clothing construction, selection of fabrics and styles, using commercial patterns. A proficiency test is permitted.

**FDC 111 Costura / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

Construcción básica de ropa sencilla usando patrones comerciales y las bases fundamentales para construir ropa, estudio de textiles selección y cuidado de telas.

**FDC 112 Alteration and Designing / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

The coordinated method of flat pattern alterations and basic principles of alterations on ready-to-wear.

FDC 121 Applied Dress Design / 3 cr. hrs. / 3 periods

The flat pattern method of pattern making is taught with emphasis on engineering, not fashion design.

FDC 122 History of Fashion / 3 cr. hrs. / 3 periods

The evaluation of fashion is combined with historical events and trends.

**FDC 126 Textiles / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

The technology of textile fibres, yarns, construction and cost, based on social, aesthetic and individual needs.

FDC 131 Clothing Selection / 3 cr. hrs. / 3 periods

A consumer analysis of clothing design, construction and cost, based on social, aesthetic and individual needs.

FDC 132 Psychology of Dress / 3 cr. hrs. / 3 periods

A study of human behavior in relationship to clothing; the formal and informal aspects of dress; purposes and forces of society relative to dress.



FDC 141 Fashion Design I / 3 cr. hrs. / 3 periods

The theory of fashion design; a profile of the designer at work; the application of fine art principles to garment design; and the study of fabric behavior and support notions.

FDC 142 Alteration and Repair / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Techniques for lengthening the life and use of garments; methods of changing, minor fitting, repairing, reconditioning and restoring clothes.

FDC 211 Clothing Construction—Advanced II / 3 cr. hrs. 5 periods / (2 lec., 3 lab)

Prerequisite: FDC 111 or consent of instructor or proficiency exam.

Advanced clothing construction techniques, 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 or proficiency exam.

Course stresses custom and semi-commercial tailoring techniques with an emphasis on natural fibres. Experiments with recent developments in construction methods are included.

FDC 241 Fashion Design II / 3 cr. hrs. / 3 periods

Prerequisite: FDC 111, 121, 141.

Students design a pattern, select materials and construct an original garment.

FDC 299 Cooperative Fashion Design Training / 3 cr. hrs. 15 periods (lab)

A supervised cooperative work program for students in the fashion design and clothing area for an average of 15 hours per week on job training. Course may be taken four times for a maximum of twelve credit hours. Course objectives differ each semester.

FAST FOOD INDUSTRY**FFI 101 Restaurant Operations and Sanitation / 3 cr. hrs. 3 periods**

Analysis of the restaurant and fast food industry techniques of control in sanitation, quality, time, and cost management. Developing positive attitudes toward the product by employees and customers is stressed. Emphasis is on the contribution to profitability by the individual employee. Student learns required material and may sit for Food Sanitation Certificate test at mid term (administered by Pima County Health, fee required).

FFI 102 Cash Register Operations / Inventory Control for Restaurants / 3 cr. hrs. / 3 periods

Prerequisite: MTH 60 or concurrent enrollment or equivalent.

Analysis of the restaurant and fast food industry techniques of control in cash register transactions, records, materials, and profit margins. Emphasis is on the contribution by the employee to profitability.

FINANCE**FIN 101 Savings and Loan Business Operations / 3 cr. hrs. 3 periods**

A view of the role of savings associations in the country's economy; also, a detailed exposure of the asset-liability structure as well as the needs and uses of accounting and other statistical reports. Course content includes association tax regulations, using reports to analyze savings flows and lending processes, savings associations and the social environment.

FIN 102 Principles of Bank Operations / 3 cr. hrs. 3 periods

The fundamentals of bank functions are given in a descriptive fashion to help the beginning banker view his profession in a broad perspective.

FIN 103 Savings and Time Deposit Banking / 3 cr. hrs. 3 periods

Reviewed are the economics of the savings process, clarifying differences between savings by individuals or organizations and real savings that appear as capital formation; and the different types of financial savings.

FIN 104 Insurance of Savings Accounts / 3 cr. hrs. 3 periods

Course content includes insurance of accounts, proxies, loans secured by savings accounts, decedent accounts, liquidity, terminology, policy regarding legal advice, classification of ownership and basic theory of savings.

FIN 105 Fundamentals of Bank Data Processing / 3 cr. hrs. 3 periods

A broad and non-technical explanation of electronic data processing as applied to banks.

FIN 106 Teller Operations—Public Relations / 3 cr. hrs. 3 periods

Course develops the teller to provide accurate and efficient service, and introduces fundamental principles of public relations. Topics include handling of cash and checks, savings accounts, how images are created, public relations practices and reports on attitudes and customer relations.

FIN 131 Credit Union Basics / 3 cr. hrs. / 3 periods

The credit union idea is explained in detail. Course also provides information and training to prepare persons as credit union executives. Students learn details of credit union operations, how to conduct an annual meeting and what preparations are needed, and how to present the credit union idea at a public meeting.

FIN 132 Credit Union Management / 3 cr. hrs. / 3 periods

Prerequisite: FIN 131.

Designed for the potential credit union office manager. Topics include policy formulation, personnel practices, growth management, counseling and lending, account servicing, fund management, and the responsibilities of elected and appointed officials.

FIN 133 Individual Life and Health Insurance / 3 cr. hrs. 3 periods

Prerequisite: An insurance agent's license or a general insurance course.

Students receive a thorough knowledge of life and health insurance, and how to apply the knowledge to actual family and business situations. Content includes the role of insurance in meeting economic security needs, types of individual and special life and annuity contracts, individual health insurance contracts, and life insurance as related to premiums, reserves, non-forfeiture values, surplus and dividends. This course is part of a series preparing the licensed agent for a Chartered Life Underwriters' qualification examination.

FIN 134 Life Insurance Law & Company Operations 3 cr. hrs. / 3 periods

Content includes: legal aspects of contract formation; policy provisions; assignments; ownership rights; creditor rights; beneficiary designations; disposition of life insurance proceeds; settlement options. Also, types of insurers, risk selection, temporary investments, financial statements, and regulation and taxation of companies.

FIN 135 Business Insurance / 3 cr. hrs. / 3 periods

Prerequisite: An insurance agent's license or a general insurance course.

The course develops a working understanding of the business uses of health and life insurance. Studied are proprietorship, partnership and corporation continuation problems, and their solution through use of buy-sell agreements properly funded to preserve and distribute business values. Other business uses of health and life insurance, such as key man insurance, non-qualified deferred compensation plans and split-dollar plans also are covered. Human behavior and business ethics are included. This course is part of a series preparing the licensed agent for a Chartered Life Underwriters' qualification examination.

FIN 136 Investments & Family Financial Management 3 cr. hrs. / 3 periods

Students receive a broad understanding of investment and family financial management concepts and practices. Included are the subjects of yields, limited income securities, growth factors, and analysis of financial statements. Other topics include family budgeting, property insurance, mutual funds, variable annuities, and aspects of other investment media.

FIN 137 Group Insurance and Social Insurance / 3 cr. hrs. 3 periods

Prerequisite: A basic background in life insurance, such as an agent's license or a general insurance course.

An analysis of group life and health insurance including marketing, underwriting, re-insurance, premiums and reserves. There also is an introduction to socio-economic problems related to old age, unemployment and disability, and various plans that have been developed to meet these problems. This course is part of a series preparing the licensed agent for a Chartered Life Underwriter's qualification examination.

FIN 138 Pension Planning / 3 cr. hrs. / 3 periods

Prerequisite: A basic background in life insurance, such as an agent's license or a general insurance course.

Considered in detail are tax considerations, cost factors and funding instruments involved in private pensions, profit sharing plans and tax-deferred annuities. This course is part of a series preparing the licensed agent for a Chartered Life Underwriter's qualification examination.

FIN 202 Trust Functions and Services / 3 cr. hrs. 3 periods

Designed for personnel of trust departments in commercial banks and trust companies, the course presents a complete picture of services offered by institutions engaged in the trust business.

FIN 203 Bank Management / 3 cr. hrs. / 3 periods

A working knowledge of bank management is provided along with new trends which have emerged in the philosophy and practice of management. Case study also is introduced.

FIN 204 Credit Administration / 3 cr. hrs. / 3 periods

Aimed at the executive level, this course reviews factors influencing and determining loan policy. Discussed are credit investigation and analysis, credit techniques, specific credit problems, and regular and unusual types of loans.

FIN 205 Real Estate Finance / 3 cr. hrs. / 3 periods

The viewpoint of the home mortgage loan officer is taken in this course. The mortgage market picture is presented first, then the acquisition of a mortgage portfolio; also mortgage plans and procedures, mortgage loan processing and servicing, and obligations of the mortgage loan officer.

FIN 206 Bank Public Relations and Marketing / 3 cr. hrs. 3 periods

The basis of public relations, both internal and external, is discussed.

FIN 207 Bank Letters and Reports / 3 cr. hrs. / 3 periods

For bank officers, supervisors and employees who dictate or review correspondence: not only mechanical forms of bank letters, but psychological principles that help the writer achieve best results. The course covers letter forms, different kinds of bank letters, and principles underlying modern correspondence.

FIN 208 Installment Credit / 3 cr. hrs. / 3 periods

Presented are techniques of installment lending with emphasis on credit, obtaining and checking information, servicing the loan and collecting amounts due. Other topics covered are inventory financing, special loan programs, business development and advertising, and the public relations aspect of installment lending.

FIN 210 Money and Banking / 3 cr. hrs. / 3 periods

Stressed are practical aspects of money and banking, and the basic monetary theory needed by banking students. Emphasis also is on economic stabilization, types of spending, the role of gold, limitations of central bank control, government fiscal policy, balance of payments and foreign exchange.

FIN 211 International Banking / 3 cr. hrs. / 3 periods

The basic framework and fundamentals of international banking are introduced along with how money is transferred from one country to another, how trade is financed, what the international agencies are and how they supplement the work of commercial banks, and how money is changed from one currency to another.

FIN 212 Financial Institutions / 3 cr. hrs. / 3 periods

Content includes the role of finance, money and the money supply, banking, monetary roles of the Federal Reserve and Treasury, financial objects of corporate organization, the financing of business, securities, markets, small business finance, farm credit institutions and capital markets.

FIN 213 Business Finance / 3 cr. hrs. / 3 periods

Prerequisite: ACC 102.

A basic course dealing with the methods of securing and managing fixed and working capital funds of individual business units. Special problems encountered by minority enterprises in obtaining funds are highlighted.

FIN 216 Insurance / 3 cr. hrs. / 3 periods

Prerequisite: BUS 200.

This course explores the theory of risk and reviews the insurable risks faced by business and individuals. Content includes risk and insurance, contracts, property and liability insurance, homeowner's programs, general liability insurance programs, excess and umbrella liability contracts, special multi-peril contracts, planning and buying insurance.

FIN 217 Analyzing Financial Statements / 3 cr. hrs. 3 periods

Characteristics of financial statements and their analysis are covered. There also is a review of basic accounting principles for those who have studied accounting. For those who have not, there is a minimum accounting background provided for financial statement analysis.

FIN 218 Formulation of a Commercial Loan Decision 3 cr. hrs. / 3 periods

Prerequisite: Lending officer experience.

This course is for the professional lending officer who wishes to improve his ability to critically analyze a commercial loan application. The development of a formal written recommendation is stressed.

FIN 219 Management of Commercial Bank Funds / 3 cr. hrs. / 3 periods

Prerequisite: ACC 101 or a working knowledge of bank asset and equity accounts.

This course is for those who have had previous study and/or work experience in banking and wish to further professionalize their banking knowledge and skills. Students will analyze, in detail, the composition of a commercial bank's asset accounts and, to some extent, the supporting equity accounts. Emphasis is on optimizing of bank profit while maintaining adequate liquidity and safety within the constraints imposed by law, regulation and the interests of the community.

FIN 221 Mortgage Loan Servicing / 3 cr. hrs. / 3 periods

Prerequisite: ACC 101.

For those whose work or management responsibilities involve mortgage loan servicing. Topics include payments, escrow accounts, real estate taxes, insurance, contract changes, delinquent loans, foreclosure, FHA and VA mortgages, and the secondary mortgage market.

FIN 223 Federal Reserve System / 3 cr. hrs. / 3 periods

An examination of the operations and policies of the Federal Reserve System during critical periods over the past 60 years. The approach taken is topical rather than chronological, thereby enabling students to compare and contrast Federal Reserve policies dealing with similar problems at different periods in time. Attention is given to international monetary affairs and economic developments affecting the American fiscal system. The course is fundamental to American banking and considered highly desired for current and potential career bankers.

FIN 224 Advanced Installment Credit / 3 cr. hrs. / 3 periods

Prerequisite: FIN 208.

This course is designed for lending officers and other supervisory personnel involved with installment loan departments and activities. Topical areas include: organizing and managing an installment credit department, federal and state credit legislation, rate structuring and yield determination, indirect lending, financial statement analysis and interpretation, leasing of consumer goods, and marketing credit services. Complex case studies emphasize the more difficult aspects of installment credit.

FIN 225 Bank Credit Cards / 3 cr. hrs. / 3 periods

This course presents an overview of the bank card industry with the objective of developing the student's understanding of the economic role of the bank card as well as the basic operational problems involved in the successful management of a bank card plan. This course is designed for those currently employed or anticipating employment in commercial banks or related financial institutions.

FIN 231 Credit Union Operations / 3 cr. hrs. / 3 periods

Prerequisite: FIN 132 and ACC 101 or consent of instructor or advisor.

This course, which is for developing or improving job skills, provides the in-depth knowledge and skills desired in a credit union manager. Topics include accounting systems, analysis of financial and statistical reports, data processing in credit unions, loss prevention and risk management, and the development of operating efficiencies.

FIN 232 Credit Union Advanced Management / 3 cr. hrs. / 3 periods

Prerequisite: FIN 231.

For students who completed extensive course work in the financial area or who had diversified work experience in credit unions or other financial institutions. Topics include future of credit unions in a changing society, organizing for growth, long-range planning, developing management leadership, decision making functions of the funds manager, and legislative trends. The course prepares students for management positions.

FIN 233 Intermediate Banking Operations / 3 cr. hrs. / 3 periods

Prerequisite: Two years banking experience.

A study of bank operations at a level appropriate for students who possess an overview knowledge. Relationships among departments and their functions are stressed. The creation of credit and the need for external controls are reviewed in depth.

FIN 234 Loan Officer Development / 3 cr. hrs. / 3 periods

Students are prepared to perform the various critical functions of a commercial loan officer. Topical content includes the initial interview, loan development decisions and techniques, documentation for the credit file, problem loans, conveying unpleasant information, and in-basket and loan portfolio games.

FIRE SCIENCE

FSC 50 Basic Training—Fire Fighter / 3 cr. hrs. / 10 periods (1 lec., 9 lab)

Prerequisite: Employment with Tucson Fire Department.

At least 12 weeks of classroom and field practice is spent at the Tucson Fire Department Training Center under the direction of instructors and in close liaison with the college's fire science coordinator.

FSC 51 Introduction to Fire Science / 3 cr. hrs. / 3 periods

A historical and scientific background of the fire protection field; its development and future in America; governmental, industrial and private fire protection organizations and agencies; employment and promotional opportunities.

FSC 52 Fundamentals of Fire Prevention / 3 cr. hrs. / 3 periods

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 53 Hazardous Materials I / 3 cr. hrs. / 3 periods

Prerequisite: FSC 52, MTH 70 or consent of instructor.

A study of basic chemical concepts and their applications to the field of fire science.

FSC 54 Advanced Fire Prevention / 3 cr. hrs. / 3 periods

Fire prevention in high risk and industrial occupancies; 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 violations.

FSC 55 Fire Investigation: Origin & Recognition of Arson / 3 cr. hrs. / 3 periods

A basic course designed for minimum and uniform training in fire investigation for those private sector agencies, fire service and governmental agencies at state and local level—with or without police powers—who have direct responsibility for fire investigation; and to provide technical assistance to higher education levels.

FSC 61 Hazardous Materials II / 3 cr. hrs. / 3 periods

Prerequisite: FSC 53 or consent of instructor.

A study of chemical use expansion in the field of fire science; how to identify, classify, research and handle under hazardous and safe conditions most flammable, explosive, reactive and toxic materials; where they are likely to be found, shipped, used, and the special problems they cause.

FSC 62 Hydraulics and Fire Suppression / 3 cr. hrs. 3 periods

Prerequisite: MTH 70. PHY 101 recommended.

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 63 Fire Apparatus and Equipment / 3 cr. hrs. 3 periods

Prerequisite: PHY 101 recommended.

Automotive apparatus; pumpers, aerial ladders, lift platforms, water towers, hose wagons, transports and utility vehicles; heavy auxiliary mechanical equipment and appliances; generators, compressors, rescue and forcible entry tools and cutting torches.

FSC 64 Fire Protection Systems / 3 cr. hrs. / 3 periods

Portable and fixed fire extinguishing equipment, automatic sprinkler and deluge systems; rate of temperature rise and smoke detecting devices and alarm systems.

FSC 65 Building Construction for Fire Protection / 3 cr. hrs. 3 periods

How building design affects fire travel; relation of fire load to propagation of flame; non-conforming structures, application of building codes.

FSC 66 Fire Suppression, Strategy and Tactics / 3 cr. hrs. 3 periods

Planning an attack to fit the problem; revising the plan of attack to meet changing situations.

FSC 67 Rescue Practices and First Aid / 3 cr. hrs. 3 periods

Basic training in handling emergency situations.

FSC 68 Special Hazard Tactical Problems / 3 cr. hrs. 3 periods

This course teaches experienced fire fighters tactical problems and specific hazards not normally encountered. Included are characteristics and specific hazardous materials under fire conditions.

FSC 71 Public Safety Laws / 3 cr. hrs. / 3 periods

Laws relating to the public safety profession; legal duties and responsibilities of public safety employees.

FSC 299 Cooperative Fire Science Technician Training 3 cr. hrs. / 15 periods (lab)

A supervised cooperative work program for students in a fire science technician occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

FOOD SCIENCE AND NUTRITION**FSN 55 International Cuisine / 3 cr. hrs. / 5 periods (2 lec., 3 lab)**

A study of international foods, accompanied by preparation and appropriate service; an appreciation of the art of the various cultures through their foods.

FSN 113 Food Study / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

The composition and structure of foods, using scientific principles in handling food, enhancement and/or quality.

FSN 114 Nutrition / 3 cr. hrs. / 3 periods

The principles of human nutrition and its relationship to diet, health and cultural patterns.

FSN 124 Foods for Children / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

The selection, preparation and serving of foods, considering the basic nutritional principles and child development theories for parents and day care personnel, and using a multicultural child centered approach.

FSN 213 Meal Management / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: FSN 113 or consent of instructor.

The planning, preparation and serving of meals with emphasis on food economics, nutritional needs and management of resources.

FSN 214 Professional Food Services / 3 cr. hrs. / 3 periods

Prerequisite: FSN 113 or consent of instructor.

Quality food service methods and techniques as applied to institutions. Special emphasis is on equipment and management of time.

FRENCH**FRE 110-111 Elementary French, I, II / 4-4 cr. hrs. 4 periods**

An oral approach to French taught primarily through conversation. Reading and writing are introduced only after listening and speaking skills have been acquired. Only French is used.

FRE 210-211 Intermediate French I, II / 4-4 cr. hrs. 4 periods

Prerequisite: FRE 110-111.

A review of basic French skills supplemented by regular assignments of compositions, in French, and a variety of readings. As in the introductory course, only French is used.

GENERAL BUSINESS**GEB 53 Hotel-Motel Management-Law / 3 cr. hrs. 3 periods**

Students learn about basic legislation passed in Arizona relating to the hotel-motel industry. Contracts, torts and employee laws are discussed. Students study landmark cases and discuss them in class.

GEB 55 Hospitality Information Processing / 3 cr. hrs. 3 periods

The principles of communication, oral and written, as applied to hotel-motel management.

GEB 60 Planning Your Retirement / 3 cr. hrs. / 3 periods

Course surveys the psychological aspects of retirement, health care, legal affairs, money management, benefits for the retired, community services, leisure-time planning, and continuing education for senior citizens.

GEB 70 Fundamentals of Freight Transportation / 3 cr. hrs. 3 periods

A survey of freight transportation procedures and regulations with emphasis on the application of classification systems, freight rates, routing and claims.

GEB 84 Public Relations / 3 cr. hrs. / 3 periods

All categories of public relations problems and practices are covered: corporate, business, association, government, education and other agencies. Includes good media relations as well as writing news releases, newsletters, speeches, memos and the step-by-step operation of a public relations campaign. Course also provides an understanding of the place of public relations in an efficient organization.

GEB 86 Tax Problems of the Independent Businessman 3 cr. hrs. / 3 periods

Emphasis is on tax problems common to small businesses and industries: retail, service and manufacturing. Course also surveys accounting systems beneficial to the small businessman.

GEB 96 Applied Accounting / 3 cr. hrs. / 3 periods

A basic course with emphasis on establishing and maintaining records of accounts receivable and payable, preparing operating statements, balance sheets and tax forms. Prepares students for entry level jobs requiring some bookkeeping knowledge.

GEB 97 Television Advertising / 3 cr. hrs. / 3 periods

An introduction to the principles of television advertising with emphasis on the use of visual and oral techniques in preparing advertisements. Prepares students for entry level jobs in the television advertising field.

GEB 99 The Stock Market / 3 cr. hrs. / 3 periods

The study of stocks, bonds, speculative investments, mutual funds and commodities.

GENERAL MACHINE SHOP**GMC 50 General Machine Shop / 3 cr. hrs. / 4 periods (1 lec., 3 lab)**

The student is taught to safely use the engine lathe, horizontal and vertical mill, horizontal grinder, drill press, and power saw.

GENERAL TECHNOLOGY**GTC 1 Fire Operations I / 3 cr. hrs. / 4 periods (2 lec., 2 lab)**

Specialized classroom and practical experiences concerned with the practices and techniques of firefighting. Instruction covers the chemistry of fire fighting; the use of water and other materials in fighting fires; the various types of fire fighting equipment and aids, and their uses, such as extinguishers, pumps, hoses, rope ladders and gas masks.

GTC 2 Fire Operations II / 3 cr. hrs. / 4 periods (2 lec., 2 lab)

Prerequisite: GTC 1.
Specialized classroom and practical experiences concerned with the practices and techniques of firefighting. Instruction covers principles of community fire defense; methods of entry; rescue principles, practices and equipment; salvage equipment and work; hydraulics and fire extinguishment.

GTC 5 First Aid and Safety Practices / 2 cr. hrs. 3 periods (1 lec., 2 lab)

Emergency first aid procedures; the care and transportation of those with accidental injuries.

GTC 36 Techniques for Teacher Aides of Emotionally Handicapped / 2 cr. hrs. / 2 periods

This course emphasizes the role of the teacher aide in working with the emotionally handicapped child and includes the use of psychological and educational behavioral checklists and evaluation methods.

GTC 38 Techniques for Teacher Aides: Characteristics of Learning Disability / 2 cr. hrs. / 2 periods

This course is for teacher aides working with professional teachers of students with learning disabilities. Includes identification of learning disabilities and assistance to teachers through utilization of prescribed techniques and materials.

GTC 40 Techniques for Teacher Aides of Mentally Handicapped Students / 2 cr. hrs. / 2 periods

This course is for teacher aides working with professional teachers in training mentally handicapped students. Includes methods and procedures of assisting teachers in the education of mentally handicapped students utilizing prescribed techniques and materials.

GTO 60 Building Materials / 3 cr. hrs. / 3 periods

A study of the properties, grading and cost of materials, hardware and supplies commonly used in the construction of commercial and residential structures.

GTC 61 Buildings and Materials Cost Estimating / 3 cr. hrs. 3 periods

Prerequisite: GTC 60.
Fundamentals of construction blueprint reading and methods of cost estimating materials, labor and equipment.

GTC 62 Occupational Safety and Health Act (OSHA) 3 cr. hrs. / 3 periods

A practical approach to the requirements of OSHA, its application in the workplace, and its impact upon the employee and employer. Students develop an awareness of safety and health programs essential in the workplace for compliance with the Act.

GTC 65 Basic Construction Principles / 3 cr. hrs. 3 periods

A study of general basic construction principles; choice of materials and their application to select structural systems; and components in concrete and wood.

GTC 66 Introduction to Water Treatment / 3 cr. hrs. 3 periods

A survey of water treatment and distribution which includes basic math, chemistry, micro aeration, sedimentation, chlorination, pumps, valves, regulations and standards. Prepares operators for Grade II water certification.

GTC 68 General Welding / 2 cr. hrs. / 4 periods (1 lec., 3 lab)

The techniques and practices of joining metals by electric arc welding as applied to the ironworker trade.

GTC 83 Equine Animal Science / 3 cr. hrs. / 3 periods

Course includes anatomy and physiology, reproduction, health maintenance, disease prevention, and general care of horses. Course prepares persons for entry level jobs with large animal veterinarians.

GTC 85 Aviation Ground School—Private / 3 cr. hrs. 3 periods

An introductory civil aviation ground school course which provides the necessary background in theory of flight, weather, navigation and procedures for the student to become a private pilot.

GTC 87 Aviation Ground School—Instruments / 3 cr. hrs. 3 periods

A lecture course designed to familiarize the student with various aircraft instruments. Emphasis is on instrument flight rules.

GTC 88 Aviation Ground School—Commercial / 3 cr. hrs. 3 periods

This civil aviation ground school course provides the necessary background in theory of flight, weather, navigation and procedures to become a commercial pilot.

✓ **GTC 90 Landscape Gardening / 3 cr. hrs. / 3 periods**
Problems in design, elementary principles of botany, environmental considerations and commonly used materials with special emphasis on landscaping in the Southwest.

✓ **GTC 92 Woodshop I / 3 cr. hrs. / 5 periods (2 lec., 3 lab)**
Techniques of wood preparation and finishing with emphasis on functional design, drawing and reading project plans. Course includes safety practices and use of shop equipment. Prepares students for custom woodworking.

✓ **GTC 93 Elementary Television Repair / 3 cr. hrs. 6 periods (2 lec., 4 lab)**
A basic course in television repair designed to assist students in diagnosing common television receiver difficulties. Instruction includes simple tests to locate common receiver malfunctions, fundamentals of reading electronic circuit blueprints, and safety practices in routine repair. This course can be used for exploring the electronics field. More serious electronics students should select other courses.

✓ **GTC 94 Introduction to Motorcycle Safety & Maintenance 3 cr. hrs. / 6 periods (3 lec., 3 lab)**
An introductory course acquainting students with safe operational procedures plus evasive and defensive techniques. Routine maintenance and emergency repairs are taught with emphasis on diagnosing two and four cycle engine malfunctions.

✓ **GTC 95 Furniture Upholstery Techniques / 3 cr. hrs. 4 periods (2 lec., 2 lab)**
Students learn the techniques and procedures for upholstering furniture: methods of constructing frames, the use of power sewing machines, pattern making and selecting fabrics.

✓ **GTC 97 Woodshop II / 3 cr. hrs. / 4 periods (2 lec., 2 lab)**
Students are taught the fundamentals of cabinet making and furniture construction: wood preparation, finishing, cabinet and furniture design, and cost estimating.

✓ **GTC 98 Animal Genetics / 3 cr. hrs. / 3 periods**
Primarily for persons interested in breeding small animals. Emphasized are the practical applications of genetic principles. This is a general interest course.

✓ **GTC 99 Blueprint Reading / 3 cr. hrs. / 3 periods**
The study of symbols and language of blueprints to provide students with the ability of interpreting construction and engineering drawings.

GERMAN

✓ **GER 110-111 Elementary German, I, II / 4-4 cr. hrs. 4 periods**
 Prerequisite: GER 110 or one year high school German for GER 111.
Simple conversations, reading and writing short compositions introduce the beginner to the German language. Readings and audio-visual materials are selected on the basis of revealing the life and culture of German-speaking countries. Qualified students may register for GER 111.

✓ **GER 210-211 Intermediate German I, II / 4-4 cr. hrs. 4 periods**
 Prerequisite: GER 111 or equivalent for GER 210, GER 210 or equivalent for GER 211.
Intensive reading, small group discussions and instruction are used to develop a deeper understanding of the German language and culture.

✓ **GER 240 Independent Study in German / 1-4 cr. hrs. 1-4 periods (lab)**
 Prerequisite: Consent of instructor.
Students pursue independent study in literature and grammar under the guidance of a faculty member.

GRAPHIC TECHNOLOGY

✓ **GRA 101 Graphic Technology I / 3 cr. hrs. / 4 periods (3 lec., 1 lab)**
The various concepts of graphic reproduction and their application; and the position held by the graphic communications industry in today's economy. Students will complete either a term paper or a laboratory experiment relating to an individual reproduction interest.

✓ **GRA 102 Graphic Technology II / 3 cr. hrs. / 5 periods (2 lec., 3 lab)**
 Prerequisite: GRA 101.
A survey of the graphic arts industry: fundamental printing processes of offset lithography, silkscreen, electrostatics, gravure, design, copy preparation, bindery operations, phototypographic techniques, and composite paste-up for camera ready copy. Field trips to local printing plants are included.

✓ **GRA 103 Binding and Finishing Processes / 3 cr. hrs. 5 periods (2 lec., 3 lab)**
Students become familiar with a variety of modern binding equipment and also develop proficiency in the use of the commercial power cutter, folder, paper drill, stitcher, perforator and collators. The organization, administration and operation of plant finishing processes are discussed and demonstrated.

✓ **GRA 104 Offset Photography—Stripping and Platemaking 3 cr. hrs. / 5 periods (2 lec., 3 lab)**
Stress on the use of the process camera, and the theory and practice of producing quality line negatives. Content includes the use of various light sensitive materials, darkroom chemistry, use of filters, stripping techniques, practice in stripping simple jobs for offset duplicators, basic tools, equipment and types of layouts. (formerly GRA 201)

✓ **GRA 201 Color Theory and Practice / 3 cr. hrs. / 5 periods (2 lec., 3 lab)**
 Prerequisite: GRA 104.
The theory and practice of matching and mixing ink for the offset process, the proper selection and use of photographic filters and their darkroom application—with difficult camera copy and experience in the production of uncorrected 3-color process separations. (formerly GRA 104)

✓ **GRA 202 Offset Presswork / 3 cr. hrs. / 5 periods (2 lec., 3 lab)**
The theory, operation and minor maintenance of small offset duplicators.

✓ **GRA 203 Estimating of Printing and Materials / 3 cr. hrs. 3 periods**
 Prerequisite: GRA 101 or equivalent work experience.
Students gain experience in estimating costs involved in reproduction and are exposed to the importance of paper and ink, their uses, storage and problems.

✓ **GRA 221 Advanced Stripping and Platemaking for Color 3 cr. hrs. / 5 periods / (2 lec., 3 lab)**
 Prerequisite: GRA 104, 201.
Students learn techniques used in publication and color stripping, and also have an opportunity to do layout by using various types of impositions.

✓ **GRA 222 Advanced Offset Presswork / 3 cr. hrs.
5 periods / (2 lec., 3 lab)**

Prerequisite: GRA 202.

A continuation of presswork to become more adept at applying theory and techniques related to the successful operation of large offset presses.

✓ **GRA 232 Offset Operations and Maintenance / 3 cr. hrs.
5 periods / (2 lec., 3 lab)**

Prerequisite: GRA 202, 222.

Course includes printing half-tones, close register work, color ink mixing, multi-color printing, technical problems and minor maintenance of large offset presses.

✓ **GRA 299 Cooperative Graphic Technology / 3 cr. hrs.
15 periods (lab)**

A supervised cooperative work program for students in a printing occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours (6 credit hours maximum for program requirements). Course objectives differ each semester.

GRAPHICS

✓ **GRC 70 Offset Printing / 3 cr. hrs. / 5 periods (2 lec., 3 lab)**

Practical experience in offset layout, camera work, stripping, platemaking, press work and bindery work.

✓ **GRC 85 Silkscreen Printing / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

Principles of silkscreening for commercial purposes with emphasis on hand-cutting film and photographic film. Students learn to work on various materials including fabric, metal and cardboard. Students successfully completing the course will be qualified for apprenticeship in the silkscreening industry.

HEALTH CARE

✓ **HCA 99 Independent Studies in Health Sciences
1-6 cr. hrs. / 3-18 periods (lab)**

For special health-related projects, permitting students to conduct research and experimental work. Results of projects must be presented in manuscript form.

✓ **HCA 150 Skills for Allied Health Services / 5 cr. hrs.
11 periods (2 lec., 9 lab)**

A one semester course providing training in skills for various health services. Upon completion, students may seek employment at a beginning level in health care facilities as a nurse's aide, nurse's assistant, etc.

✓ **HCA 154 Introduction to Health Care / 3 cr. hrs. / 3 periods**

Prerequisite: Consent of Instructor.

An introductory health course representing the nucleus of the health sciences programs. It spans the entire pattern of the health care delivery system and how it relates to the patient as a person. Students also learn health science fundamentals.

HEALTH CONTINUING EDUCATION

✓ **HCE 55 School Health Aide Practicum / 3 cr. hrs. / 3 periods**

An examination of advanced first aid and emergency care practices including poisoning, drowning, specific injuries, sudden illness and emergency childbirth.

✓ **HCE 100A Assessment and Identification of Practical Nurse Educational Needs / 1 cr. hr. / individualized instruction**

This is the first module in a series of practical nurse updates. Students may reality-validate the educational needs of nursing content and competence under simulated mini-review examinations and evaluations. The opportunity for assessment and counseling is provided students to ascertain individualized vocational update needs. This module must be taken by all students prior to the selection of one or all of the following modules.

✓ **HCE 100B The Body as an Integrated Whole / 1 cr. hr.
individualized instruction**

Prerequisite: HCE 100A.

This module stresses the body as an integrated whole with emphasis on the erect and moving body, coupled with the hazards of immobility on the body systems and nursing care of the client/patient with disorders of the musculo-skeletal systems. Foundations for the preparation and administration of drugs and solutions of each system are incorporated into the module.

✓ **HCE 100C Maintenance and Metabolism of the Body—
Cardiovascular and Gastro-Intestinal Systems / 1 cr. hr.
individualized instruction**

Prerequisite: HCE 100A.

This module stresses the maintenance and metabolism of the body with emphasis on the cardiovascular and gastro-intestinal systems. Assessment of the development of nutritional patterns and therapies related to the target systems are incorporated in the module objectives. Foundations of the preparation and administration of drugs and solutions of each system are an integral part of the module.

✓ **HCE 100D Maintenance and Metabolism of the Body—
Respiratory and Excretory Systems / 1 cr. hr.
individualized instruction**

Prerequisite: HCE 100A.

This module stresses maintenance and metabolism of the body with emphasis on the respiratory and excretory systems. Foundations for the preparation and administration of drugs and solutions of each system are incorporated in the module.

✓ **HCE 100E Practical Nurse Update: Maternity / 1 cr. hr.
2 periods (.5 lec., 1.5 lab)**

Prerequisite HCE 100A

This module offers the necessary information to allow a practical nurse to update theory, skills and practicum in maternity nursing.

✓ **HCE 100F Practical Nurse Update: Pediatric / 1 cr. hr.
2 periods (.5 lec., 1.5 lab)**

Prerequisite HCE 100A

This module offers the necessary information to allow a practical nurse to update theory, skills and practicum in pediatric nursing.

✓ **HCE 100G Practical Nurse Update: Psychiatric / 1 cr. hr.
2 periods (.5 lec., 1.5 lab)**

Prerequisite HCE 100A

This module offers the necessary information to allow a practical nurse to update theory, skills and practicum in psychiatric nursing.

✓ **HCE 110 Approaches to Long-Term Care: An Overview
3 cr. hrs. / 3 periods**

Health care providers, social workers and others gain knowledge and limited experience in caring for disabled adults and/or aged persons outside of institutions. Course content includes the aspects and processes of aging, common health problems and disabilities, adaptations to aging and disability, and resources available for long-term care of disabled adults.

- ✓ **HCE 121 Registered Nurse Refresher / 8 cr. hrs. / 16 periods (4 lec., 12 lab)**
 - Prerequisite: Registration as a nurse in the State of Arizona.
 - Class open only to those who have not practiced for five years.
 - An opportunity for registered nurses to review and update their nursing knowledge and skills. Direct nursing care can be administered to patients upon completion of the course. Included is a review of team leadership, pediatric, maternity and psychiatric nursing.

HEALTH EDUCATION

- ✓ **HED 136 Introduction to Health Science / 3 cr. hrs. 3 periods**

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**
 - 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.

HISTORY

- ✓ **HIS 76 Ghost Towns of the Southwest / 3 cr. hrs. 3 periods**

A survey of the socio-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 101–102 Introduction to Western Civilization I, II 3-3 cr. hrs. / 3 periods**

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**

The totality of Chicano life since 1848 and the struggle for self-determination.
- ✓ **HIS 106 Introduction to Chicano Studies II / 3 cr. hrs. 3 periods**

A review of the cultural, social and historical life of Chicanos as it developed from its ancient roots in Indo-America to the present.
- ✓ **HIS 141–142 History of the United States I, II / 3-3 cr. hrs. 3 periods**

A review of 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 143–144 American Civilization I, II / 3-3 cr. hrs. 3 periods**

A broad look, through many units, at the American experience with an emphasis on the cultural aspects.
- ✓ **HIS 145 Papago History and Culture / 3 cr. hrs. / 3 periods**

Where have the Papago people been, who are they, where are they going? In answering these questions, the class examines the history and culture of the Papago. (Same as Anthropology 145.)
- ✓ **HIS 147 History of Arizona / 3 cr. hrs. / 3 periods**

A look at Arizona history as a part of the Arizona-Sonoran Desert area, moving from the pre-Colombian 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**

Origin and distribution of native populations of North America; and the historical development and interrelations of cultures. (Same as Anthropology 148.)
- ✓ **HIS 149 History and Culture of the Mexican-American in the Southwest / 3 cr. hrs. / 3 periods**

Who is the Mexican-American? What is his cultural heritage, and what has happened to it in the United States? (Same as Anthropology 149.)
- ✓ **HIS 150 Afro-American History and Peoples / 3 cr. hrs. 3 periods**

What does the Afro-American have to face because he is a Black in American society? His past, present and future are examined. (Same as Anthropology 150.)
- ✓ **HIS 151 Roots—History of American Blacks / 3 cr. hrs. 3 periods (3 lec.—on campus) 3 cr. hrs. / 12 periods (12 lec.—telecourse)**

A History of American Blacks based on the book "Roots", by Alex Haley, which traces an American family through 200 years of history.
- ✓ **HIS 160 History and Peoples of Latin America I / 3 cr. hrs. 3 periods**

The history of Latin America from the pre-Colombian period to the present with emphasis on the evolution of nationalism through the struggles for economic, cultural, political, and social freedoms. (Same as Anthropology 160.)
- ✓ **HIS 161 History and Peoples of Latin America II / 3 cr. hrs. 3 periods**

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**

The student moves from the pre-Colombian era, through the Spanish conquest and a century of political and social upheaval, to the nation of social and economic stability.
- ✓ **HIS 165–166 Historia de Mexico I, II / 3-3 cr. hrs. 3 periods**

Historia de Mexico. Se estudia una panorámica de la época precolonial, colonial y contemporánea.
- ✓ **HIS 170 History and Peoples of Africa / 3 cr. hrs. 3 periods**

A survey of the political and cultural history of Africa, south of the Sahara. (Same as Anthropology 170.)
- ✓ **HIS 175 History and Culture of the Yaqui People / 3 cr. hrs. 3 periods**

A survey of the cultural heritage of the Yaqui people and the history of their struggles to protect Yaqui land and culture.
- ✓ **HIS 180 Women in Western History / 3 cr. hrs. / 3 periods**

A 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**

A three-module course encompassing military history, fact and folklore of the west, and lifestyle of the western people. Areas covered are frontier army life, military exploration of the west, lost mines, myths and realities of western heroes, transportation, ranching, establishment of cattle empires, and life of the cowboy.
- ✓ **HIS 190A Military History of the American West / 1 cr. hr. 1 period**

Military history covers frontier army life, military exploration of the west, development of the military strategy and tactics of the western frontier, army life in the field and major military leaders of the American west.

HIS 190B Fact and Folklore of the American West / 1 cr. hr. 1 period

Fact and folklore covers lost mines in the west, the myths and realities of western heroes, and transportation: the pony express.

HIS 190C Lifestyle in the American West / 1 cr. hr. 1 period

Lifestyle covers ranching, motives for establishment of cattle empires, the range life of the cowboy, town life including gold, silver and copper camps, social life, town merchants and tradesmen.

HIS 195 History of Technology / 3 cr. hrs. / 3 periods

Made up of the following three modules.

HIS 195A Early Development of Technology 1 cr. hr. / 1 period

An examination of technical science in the early stages of development as it responds to the growing complexity of human society. Areas covered are the nature, scope and impact on the technical sciences.

HIS 195B Comparative Development of Technology 1 cr. hr. / 1 period

An examination of the fundamental principles which contribute to the subsequent invention and innovation of the technical sciences. Areas covered are the approach to science, the adoption of chemicals, and the extension of technology.

HIS 195C Fundamental Development in Technical Sciences 1 cr. hr. / 1 period

An examination of major factors contributing to the present condition of technical programs including welding, machine tool, air conditioning, sheet metal and automotive mechanics.

HIS 201 Independent Studies in History / 2-4 cr. hrs. 6-12 periods (lab)

Prerequisite: Consent of instructor.
Independent history studies or projects arranged by the instructor.

HIS 201 Estudios Independientes en Historia / 2-4 cr. hrs. 6-12 periods (lab)

Prerequisite: Consentimiento del instructor.
Consiste este curso, en estudios de historia, independientes, o proyectos de acuerdo con el instructor.

HIS 205 The Adams in U.S., 1750-1900 / 3 cr. hrs. 3 periods

Prerequisite: A first year course in U.S. history recommended.
A 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 249 Mexican-American Culture and Thought / 3 cr. hrs. 3 periods

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."

HIS 249 Pensamiento y Cultura del Mexico Americano 3 cr. hrs. / 3 periods

Historia del pensamiento del Mexico Americano desde su pasado Náhuatl y Europeo hasta el presente. Trae, hasta el presente, la evolución de ambas culturas hasta los actuales conceptos de "Raza de Bronce" y "Aztlán."

HOME ECONOMICS

HEC 99 Independent Studies in Home Economics 4 cr. hrs. / 18 periods (lab)

Prerequisite: Consent of instructor.
Students pursue independent study under the guidance of an instructor.

HEC 117 Home Management / 3 cr. hrs. / 3 periods

A study of individual and family resources designed for students interested in problems of management and the application to personal and family living.

HEC 127 Marriage and the Family / 3 cr. hrs. / 3 periods

A study of the functions of the family and the effect of relationships within the family on the development of individuals in the home and community. (Same as Sociology 127.)

HEC 128 Home Economics Profession / 3 cr. hrs. 3 periods

The history of home economics, its purposes and trends plus an explanation of professional opportunities in the field.

HEC 137 Today's World / 3 cr. hrs. / 3 periods

A broad look at current issues on the international, national and local levels, and the relationship to the individual and selected career area.

HEC 160 Personal and Family Financial Security / 3 cr. hrs. 3 periods

Stress is on personal and family financial affairs including budget, saving, credit, installment buying, insurance, home ownership, investment and estate planning. (Same as Business 160)

HEC 299 Cooperative Home Economics Training / 3 cr. hrs. 15 periods (lab)

A supervised cooperative work program for students in any home economics occupation for an average of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

HOTEL-MOTEL MANAGEMENT

HMM 100 Introduction to Hotel-Motel Management / 3 cr. hrs. 3 periods

For students having a career interest in the hotel-motel industry and for those wishing to develop or improve their job skills. Topics include the history, structure, social and economic backgrounds of the industry; the lodging market; the organization of hotel-motel operations; and career opportunities.

HMM 101 Front Office Procedures / 3 cr. hrs. / 3 periods

For students who need to develop and improve job skills. Topics include guest services and creating a pleasant atmosphere; salesmanship aspects; accounting and control; and some legal aspects of innkeeping.

HMM 102 Hotel-Motel Accounting / 3 cr. hrs. / 3 periods

For students who need greater job skills. Topics include posting transactions; special journals and financial statements; and uniform system of accounts of the American Hotel and Motel Association.

HMM 103 Supervisory Housekeeping / 3 cr. hrs. / 3 periods

An introduction to the fundamentals of housekeeping management. Topics include employe training, record keeping, organization of the department, work methods, laundry equipment, cleaning materials and procedures, room design and linens, and safety.

HMM 104 Food and Beverage Management Service / 3 cr. hrs. 3 periods

A complete survey of food and beverage operations from purchasing through service. Topics include menu planning; receiving, sorting and issuing; food production; food and beverage service; bar operations; budgeting and pre-control; operational analysis; sanitation; equipment layout and selection; and maintenance.

HMM 110 Hotel-Motel Operations / 3 cr. hrs. / 3 periods

Course provides an understanding of problem areas, basic management responsibilities and administrative techniques. Topics cover sales promotion, guest relations, space utilization, accounting record keeping, operational controls, legal aspects, insurance, labor-management relations, and ethics.

HMM 199 Cooperative Hotel-Motel Training / 3 cr. hrs. 15 periods (lab)

A supervised cooperative work program for students in hotel-motel occupations for a minimum of 15 hours per week. Course may be taken two times for a maximum of six credit hours. Course objectives differ each semester.

HMM 202 Advanced Hotel-Motel Accounting / 3 cr. hrs. 3 periods

Course develops a more comprehensive knowledge and skills in accounting practice and procedures for hotel-motel bookkeepers, accountants and managers. Topics include accounting concepts, principles and practices of financial accounting, managerial accounting for control and decision making, budgeting and cash control, and audit preparation.

HMM 203 Marketing of Hospitality Services / 3 cr. hrs. 3 periods

A description and application of modern marketing techniques and concepts involving food and lodging industries. Topics include competitive forces; image and consumer demand; market research; planning strategy; advertising and cost benefit comparison.

HMM 204 Hotel-Motel Financial Management / 3 cr. hrs. 3 periods

A study of food and lodging operations to determine profit as well as efficient provision and use of funds. Topics include financial statement analysis and interpretation, projection of working capital needs, debit financing, cash and expense control, and credit review.

HMM 299 Cooperative Hotel-Motel Training / 3 cr. hrs. 15 periods (lab)

A supervised cooperative work program for students in hotel-motel occupations for a maximum of 15 hours per week. Course may be taken two times for a maximum of six credit hours. Course objectives differ each semester.

HOUSEKEEPING—EXECUTIVE

HSK 150 Executive Housekeeping I / 3 cr. hrs. / 3 periods

Practical approaches to institutional housekeeping maintenance, custodial and environmental services; decor selection; and quantity purchasing of supplies within budgetary limitations.

HSK 151 Executive Housekeeping II / 3 cr. hrs. / 3 periods

A continued, practical, seminar treatment of the most efficient and economical application of an institutional housekeeping staff; maximum production with personnel and resources currently available.

HUMANITIES

HUM 60 Early Chinese Views of Social Change / 3 cr. hrs. 3 periods

This course, through a study of I Ching and Taoism, takes an unusual approach to social change.

HUM 110-111 Humanities I, II / 4-4 cr. hrs. / 4 periods

An introduction to man's expressions in art, architecture, drama, music, literature, religion and philosophy. The first semester treats man's ideas and art from the rise of civilization through the Renaissance. The second semester continues with the rise of modern science through the present.

HUM 130 Independent Studies in Humanities / 3 cr. hrs. 3 periods

Study areas to be arranged with instructor.

HUM 131 Great Ideas / 3 cr. hrs. / 3 periods

Course is designed to respond to student interest in particular topics in humanities. Past studies have included Zen meditation, mythology and mysticism.

JOURNALISM

JRN 57 Journalism Workshop / 3 cr. hrs. / 9 periods (lab)

A laboratory course in which students gather, write and edit material for the college's weekly student newspaper.

JRN 101 Basic Reporting / 3 cr. hrs. / 3 periods (2 lec., 1 lab)

An introduction to evaluation of news, news gathering methods, writing leads, organization of stories, and experience in interviewing and writing various types of news stories. Course work requires considerable amount of writing.

JRN 110 Exploring Mass Media / 3 cr. hrs. / 3 periods

An evaluation of today's mass communications, the nature, function and the impact on society. Study includes a review of important journalists' work and a broad overview of performances by newspapers, radio, television, advertising and magazines. One major writing project is required of each student.

JRN 140 Photojournalism / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: JRN 101 or consent of journalism department. Reporting and interpreting news through pictures; a study, discussion and application of basic photography techniques to mass media; some layout; writing cutlines, captions and pictorial studies. May be applied to magazine journalism sequence in advance study.

JRN 160-169 Publications Writing and Production / 1-10 cr. hrs. 1-18 periods (1-6 lec., 3-12 lab)

A series of 10 one credit-hour courses in which students learn and practice the skills of publications production. Each student is to select courses dependent upon background, experience and interest. Student campus publications, including a campus newspaper, are projects of the courses.

JRN 160 Basic News Writing / 1 cr. hr. / 1 period

Basic news and feature story structure, leads, copy editing, interviewing, headline writing and proofreading.

JRN 161 Advanced News Writing / 1 cr. hr. / 1 period

Prerequisite: JRN 160. Special types of stories, layout, photo-editing.

JRN 162 Newspaper Editing / 1 cr. hr. / 1 period

Prerequisite: JRN 161. News sources, assignments, scheduling, editorial writing and management.

✓ **JRN 163 Basic Photo Journalism / 1 cr. hr. / 1 period**

News value, pictorial quality, handling assignments and the picture story.

✓ **JRN 164 Newspaper Graphics / 1 cr. hr. / 1 period**

Basic art work, typography and photo techniques.

✓ **JRN 165 Newspaper Business Procedures / 1 cr. hr. / 1 period**

Advertising, circulation, record keeping and accounting.

✓ **JRN 166 Reporting Staff / 1 cr. hr. / 3 periods (lab)**

Prerequisite: JRN 160 or concurrent enrollment.

News, features and sports writing.

✓ **JRN 167 Editorial Staff / 1 cr. hr. / 3 periods (lab)**

Prerequisite: JRN 161.

Page editing and general editing experience.

✓ **JRN 168 Production Staff / 1 cr. hr. / 3 periods (lab)**

Experience in layout, photo selection and sizing, paste-up, proofreading and other production activities.

✓ **JRN 169 Business Staff / 1 cr. hr. / 3 periods (lab)**

Management, ad sales, circulation and clerical experience.

✓ **JRN 201 Advanced Reporting / 3 cr. hrs. / 3 periods (2 lec., 1 lab)**

Prerequisite: JRN 101.

Weekly writing assignments, investigative reporting, feature and editorial writing, copy-editing and headline writing, make-up and advertising. A required course for journalism majors.

✓ **JRN 215 Copy Editing and Design / 3 cr. hrs. / 5 periods (2 lec., 3 lab)**

Prerequisite: JRN 101.

A required class for journalism majors. Covers practicum in news room settings, editing and proofreading copy for publication and page layout, typography and design.

✓ **JRN 220 Broadcast Journalism / 3 cr. hrs. / 3 periods**

A general study of broadcast journalism. Course acquaints the general public with broadcast news media, and gives the student interested in journalism a taste of electronic journalism. It also helps those in related fields, such as public relations and advertising, to better understand the broadcast news process.

✓ **JRN 250 Media Advertising and Public Relations / 3 cr. hrs. 5 periods (2 lec., 3 lab)**

Prerequisite: JRN 101 or consent of journalism department. Various professional techniques are provided in planning sales and production.

LEISURE TIME

✓ **LTS 1 Practicum I / 1 cr. hr. / 2 periods (1 lec., 1 lab)**

Students experience on-the-job supervised training.

✓ **LTS 9 Restricted Sports and Games / 1 cr. hr. / 2 periods (1 lec., 1 lab)**

Students select, under advisement of Human Resources faculty members, sports and games of a low motor level.

✓ **LTS 14 Adaptive and Corrective Programs / 3 cr. hrs. 3 periods**

A study of various programs and routines of physical rehabilitation in recreation and physical education. Different techniques of instruction and the recovery from disabilities are surveyed.

LIBRARY TECHNOLOGY

✓ **LMT 50 Library Resources / 3 cr. hrs. / 3 periods**

An introduction to the basic library resources: catalogs, bibliographies, indices and reference materials. Also an introduction to periodicals and microforms.

✓ **LMT 51 Library Technical Services / 4 cr. hrs. / 4 periods**

Ordering and processing procedures; cataloging and classification; records maintenance (shelf list, card catalog, order files); simple book repair; bindery records and procedures.

✓ **LMT 52 Library Public Services / 3 cr. hrs. / 3 periods**

This course provides an introduction to public services. It includes circulation procedures and problems; charging systems and hardware; physical maintenance of library shelves; information services and reference assistance; public service ethics and relations.

✓ **LMT 299 Cooperative Library Technician Training 3 cr. hrs. / 15 periods (lab)**

A supervised cooperative work program for students in a library technician occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

LIFE SCIENCES

✓ **LSC 22 Modern Concepts of Desert Ecology / 1 cr. hr. 1 period**

This course shows the exciting relationship among living things of the Arizona-Sonora Desert. It also illustrates the need to understand how our desert ecological systems function and the symptoms of our failure to maintain their integrity.

✓ **LSC 76 Federal Lands and Management / 1 cr. hr. 1 period**

Students are acquainted with the historical development of federal resources protection agencies and the implementation of policy.

✓ **LSC 77 Federal Lands and Urbanization / 1 cr. hr. 1 period**

Students are provided with some insight into potential problems concerning utilization of federal lands near major population centers.

✓ **LSC 78 Federal Lands and Fire Control Policy / 2 cr. hrs. 2 periods**

This course covers the use of tools, safety gear, communications equipment, and techniques in the control of fires on federal lands.

✓ **LSC 79 Federal Lands Facility Planning and Visitor Services / 1 cr. hr. / 48 periods (32 lec., 16 lab)**

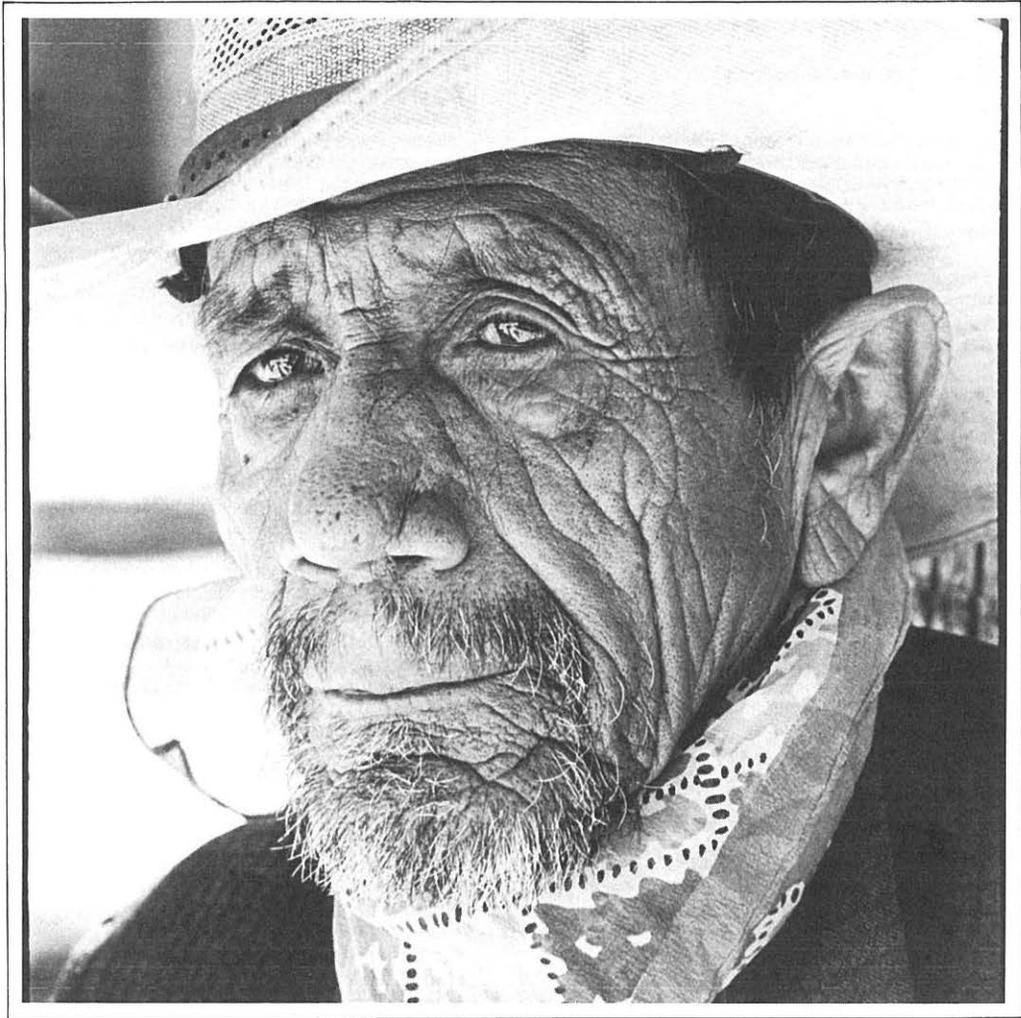
This is a sequential four-day session during the spring recess at which time the student is introduced to materials in park operations; communications, environmental interpretation, and search and rescue techniques as they apply to federal lands.

✓ **LSC 80 Advanced Federal Lands Facility Planning and Visitor Services / 1 cr. hr. / 48 periods (32 lec., 16 lab)**

This also is a sequential four-day session during the spring recess. Students are introduced to the National Park Service basic law enforcement techniques, facility maintenance and planning, and environmental interpretation.

✓ **LSC 90 Range and Livestock Management / 3 cr. hrs. 3 periods**

A practical course covering the infection, symptoms and treatment of livestock diseases, animal nutrition, and animal breeding. Range management techniques including fertilization, reseeding, and pasture rotation methods are discussed. Methods of range improvement, water structure, and range pest eradication are examined.



✓ **LSC 99 Anatomy and Physiology Review / 1-3 cr. hrs. 1-3 periods**

A review of basic anatomy and physiology. This course is primarily for students who have taken a traditional course but may need a review and additional information about anatomy and physiology.

✓ **LSC 102 Principles of Human Anatomy and Physiology 4 cr. hrs. / 6 periods (3 lec., 3 lab)**

Not for biology or pre-med majors.

The study of the systems of the human body. Designed for students in health occupation programs which require a one-semester anatomy and physiology course or to fulfill a one-semester lab science requirement.

✓ **LSC 103 General Biology I / 4 cr. hrs. / 6 periods (3 lec., 3 lab)**

Not for biology or pre-med majors.

An introductory biology course. Satisfies four units of Liberal Arts lab science requirements. This course provides the student with a macroscopic and microscopic view of his surroundings. Emphasis is on the cell and its function, reproduction, systems and ecology.

✓ **LSC 104 General Biology II / 4 cr. hrs. / 6 periods (3 lec., 3 lab)**

Prerequisite: LSC 103 recommended.

This course continues a survey of the living world. Areas of study include origin of life, genetics, evolution, behavior and populations.

✓ **LSC 112 Biology for Education Majors / 3 cr. hrs. 5 periods (2 lec., 3 lab)**

Not for science majors.

General biological principles are stressed as to their applicability to education majors and general interest students.

✓ **LSC 115 Human Ecology / 4 cr. hrs. / 5 periods (3 lec., 2 lab)**

Not for science majors.

Focus is on the question of survival for mankind and other life forms, exploring both present problems and alternatives for the future. Included are lectures, discussions and field trips. (Same as Earth Sciences 115.

✓ **LSC 117 Introduction to Infectious Diseases / 3 cr. hrs. 3 periods**

Generally not transferable for science majors.

Designed for students in health occupations and open to others interested in the cause and control of infectious and communicable diseases. Epidemiology is emphasized.

✓ **LSC 120 Human Anatomy and Physiology I / 4 cr. hrs. 6 periods (3 lec., 3 lab) (3 cr. hrs. for lec., and 1 cr. hr. for lab)**

Prerequisite: REA 100 series and CHM 110 or equivalent. (Not for biology or pre-med majors.)

A study of the structure and function of the body, emphasizing cellular and biochemical aspects. Includes an introduction to cells and tissues and to the skeletal, muscular, endocrine and reproductive systems. Designed for students in health careers.

✓ **LSC 121 Human Anatomy and Physiology II / 4 cr. hrs. 6 periods (3 lec., 3 lab) (3 cr. hrs. for lec., and 1 cr. hr. for lab)**

Prerequisite: LSC 120 or consent of instructor.

A continuation of the study of the systems of the body. Includes the circulatory, respiratory, digestive, urinary and nervous systems.

✓ **LSC 150 Ecology I / 4 cr. hrs. / 6 periods (3 lec., 3 lab)**

Prerequisite: LSC 103-104, or one year of biology, or consent of instructor. (Not for science majors.)

Emphasis on basic principles and concepts. Includes the development of an ecological vocabulary, learning methodology and techniques of ecological study, understanding relative position of groups of organisms with respect to food chains, predator-prey relations, energy cycles, and physical and biological factors.

✓ **LSC 151 Ecology II / 4 cr. hrs. / 6 periods (3 lec., 3 lab)**

Prerequisite: LSC 150.

A quantitative and qualitative study of geographical biomes. Includes a survey of evolution, distribution, speciation, specific niches and size of population in each biome.

✓ **LSC 170 Conservation of Natural Resources / 3 cr. hrs. 3 periods**

Prerequisite: Enrollment in natural resources option of the recreation program, or consent of instructor.

The historical basis for current problems in the conservation of natural resources and the application of basic ecological concepts toward the solution of wise utilization and preservation.

✓ **LSC 171 Survey of Western Flora / 3 cr. hrs. / 5 periods (2 lec., 3 lab)**

A survey of western flora with emphasis on local plants. Plant adaptation, distribution and environmental implications are stressed.

✓ **LSC 172 Survey of Western Vertebrates / 3 cr. hrs. 3 periods**

Prerequisite: One year of college life science or consent of instructor.

A survey of western fish, amphibians, reptiles, birds and mammals with emphasis on adaptations, distribution and environmental requirements.

✓ **LSC 173 Introduction to Game Management / 3 cr. hrs. 5 periods (2 lec., 3 lab)**

Prerequisite: LSC 150-151 or consent of instructor.

Basic biological and ecological principles are explored as they relate to compatible methods of managing wildlife populations under range and forest conditions.

✓ **LSC 174 Introduction to Watershed Problems / 3 cr. hrs. 3 periods**

Prerequisite: Enrollment in natural resources option of the recreation program or consent of instructor.

How biological agents of forest diseases and insects are related to the physical factors of local soil type, topography and geology in describing the efficiency, development and management practices of watershed areas.

✓ **LSC 196 Independent Studies in Life Sciences / 1-4 cr. hrs. 3-12 periods (lab)**

Subject matters and approaches vary with student interests and reasons for enrolling. The range is from exploratory students wanting to gain insights into biology to honors biology majors wishing to do advanced work.

✓ **LSC 205 Organismic Biology I / 4 cr. hrs. / 6 periods (3 lec., 3 lab)**

Prerequisite: CHM 120 and concurrent enrollment in CHM 121, or concurrent enrollment in CHM 120 with consent of instructor.

The study of plants and animals primarily at the organ-system of observation. Topics include chemical structure and functions of cells and tissues. Emphasis is on plant structure and development. Intended for biology, pre-medical, pre-veterinary, science majors.

LSC 206 Organismic Biology II / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: LSC 205.

A continuation of LSC 205 with emphasis on animal physiology and development. Topics include comparative anatomy, physiology, embryology, phylogeny and systematics of plant and animal taxa.

LSC 207 Microbiology I / 4 cr. hrs. / 7 periods (3 lec., 4 lab)

Emphasis is on the characteristics of microbes; the influences both of microbes on man and his environment and of man on the microbial environment.

LSC 208 Microbiology II / 4 cr. hrs. / 7 periods (3 lec., 4 lab)

Prerequisite: LSC 207.

This course has a medical orientation. Topics cover infection and immunity by a variety of microbial agents on a variety of hosts.

LSC 210 General Genetics / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: LSC 205-206, CHM 120-121, CHM 240 and concurrent enrollment in CHM 241.

The student planning to major in biology is introduced to the basic principles and concepts of genetics.

LSC 220 Botany I / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: LSC 103-104, or one year of biology, or consent of instructor.

A comparative survey of each system of the plant kingdom emphasizing morphology, physiology, systematics, growth and propagation. Special section on "plants useful to man."

LSC 299 Cooperative Natural Resource Management Technician Training / 3 cr. hrs. / 15 periods (lab)

A supervised cooperative work program for students in a natural resource management technician occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

LITERATURE

LIT 80 Papago Literature Workshop / 3 cr. hrs. / 3 periods

Prerequisite: Some knowledge of Papago or concurrent enrollment in PGO 50.

An exposure to Papago tales and legends in the native language. Tales are studied in both written and oral form. Those in oral form will be written down and translated into English. Tales from different villages also are compared and contrasted both in content and dialect variation.

LIT 130 Afro-American Literature / 3 cr. hrs. / 3 periods

A survey of Afro-American literature, its cultural and historical roots, and its relationship to other ethnic literature in America.

LIT 131 Introduction to Shakespeare / 3 cr. hrs. / 3 periods

This course familiarizes the student with eight of Shakespeare's major dramas. The student is made aware of relevant history and social conditions as well as literary background. Some attention is given to plays as stage vehicles.

LIT 162 Introduction to Literature II / 3 cr. hrs. / 3 periods

Prerequisite: WRT 101 and 102 for transfer credit.

An 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, modern drama, mystery fiction. Emphasis is on works of high literary merit.

LIT 166 Themes in American Literature / 3 cr. hrs. 3 periods

Prerequisite: WRT 101 and 102 for transfer credit.

A semester-long study of American literature which deals with a specific theme such as individualism, or nature, or the outsider. Works of major authors are included plus a variety of genres including novels, drama, and poetry appropriate to the theme.

LIT 241-242 Introduction to World Literature I, II 3-3 cr. hrs. / 3 periods

Prerequisite: WRT 101 and 102 for transfer credit.

An introduction to classic European literature with major authors studied in depth. The first semester deals with ancient and medieval works and the second semester with those since the Renaissance. May be taken as a humanities elective. (formerly LIT 141-142)

LIT 261 Introduction to Literature I / 3 cr. hrs. / 3 periods

Prerequisite: WRT 101 and 102 for transfer credit.

An introduction to drama, fiction, and poetry to promote appreciation and understanding of these forms. Some major works are explored in depth through analysis and discussion. May be taken as a humanities elective. (formerly LIT 161)

LIT 265 Major American Authors / 3 cr. hrs. / 3 periods

Prerequisite: WRT 101 and 102 for transfer credit.

A survey of selected works by major American authors from the colonial period to the present. May be taken as a humanities elective. (formerly LIT 165)

LIT 270 Survey of English Literature I / 3 cr. hrs. / 3 periods

Prerequisite: WRT 101 and 102 for transfer credit.

A survey of English literature from the Anglo-Saxon period through the Eighteenth Century. Some major authors are studied in depth. May be taken as a humanities elective. (formerly LIT 170)

LIT 271 Survey of English Literature II / 3 cr. hrs. 3 periods

Prerequisite: WRT 101 and 102 for transfer credit.

A survey of English literature from the Eighteenth Century to the present. Some major authors are studied in depth. May be taken as a humanities elective. (formerly LIT 171)

LIT 272 Major British Writers / 3 cr. hrs. / 3 periods

Prerequisite: WRT 101 and 102 for transfer credit.

Selected representative works by major authors exclusive of Shakespeare. The selections include a broad range of periods and types of literature. May be taken as a humanities elective. (formerly LIT 172)

MACHINE TOOL TECHNOLOGY

MAC 110 Machine Shop for Technicians I / 4 cr. hrs. 8 periods (2 lec., 6 lab)

Covers preliminary machine shop, introduction to machine tools, their range of application and capacity.

MAC 120 Machine Shop for Technicians II / 4 cr. hrs. 8 periods (2 lec., 6 lab)

Prerequisite: MAC 110, concurrent with MTH 120.

General shop practice including a thorough training in machine tool set-up, operation and cutting tool techniques.

MAC 130 Basic Metallurgy / 3 cr. hrs. / 3 periods

The study of steel classifications, heat treatment procedures, properties of ferrous and non-ferrous metals, and non-destructive testing.

MAC 135 Physical Metallurgy / 3 cr. hrs. / 4 periods (2 lec., 2 lab)

Prerequisite: MAC 130.

The behavior of metals in their service to industry during heating, cooling, shaping, forming and stress. Mechanical properties and tests to determine values; heat treatment of steel; pure metals and manner of crystallization; theory of alloys; and non-ferrous metals.

MAC 210 Jig and Fixture Designing I / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: MAC 120.

The design and application of tools, jigs and fixtures for basic metalworking and machine tools.

MAC 220 Jig and Fixture Designing II / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: MAC 210.

Course enables the technician to lay out design of machine parts, working with government standards and the preparation of drawings for numerically controlled machines.

MAC 230 Quality Control / 3 cr. hrs. / 3 periods

Prerequisite: MTH 120, MAC 120.

Students get a practical working knowledge of quality control methods and equipment. Theories of statistical quality control and true position dimensioning also are covered.

MAC 235 Quality Control Certification Refresher / 3 cr. hrs. 3 periods

Prerequisite: Background & experience in Quality Control Engineering.

A refresher course in preparing for the Quality Control Engineer Certification offered by examination through the American Society for Quality Control.

MAC 240 Manufacturing Processes I / 3 cr. hrs. / 3 periods

Prerequisite: MAC 120.

Provides a background knowledge on various manufacturing materials and fundamental types of manufacturing methods. Automation is introduced to acquaint the student with modern practice of numerical control.

MAC 245 Manufacturing Processes II / 3 cr. hrs. / 3 periods

Prerequisite: MAC 240.

A background in casting and foundry practices. The student becomes familiar with the production of simple molds, core and casting and in basic heat treatment inspection and testing, using both destructive and non-destructive methods.

MAC 250 Introduction to Numerical Control / 3 cr. hrs. 3 periods

Prerequisite: MTH 120, MAC 120.

The student is introduced to numerical control and its application to machines, processes and manufacturing processes. The basics of manual programming for point-to-point and absolute position machines are covered. Occupational opportunities also are reviewed. (Same as Computer Science 250.)

MAC 255 Numerical Controlled Machines / 3 cr. hrs. 4 periods (2 lec., 2 lab)

Prerequisite: MAC 120, 250.

This course starts continuous path programming and computer aided programming. Calculations are made manually and by computer for two and three axis numerical control machines. Numerical control languages are taught. (Same as Computer Science 255.)

MAC 299 Cooperative Machine Tool Training / 3 cr. hrs. 15 periods (lab)

A supervised cooperative work program for students in a machine tool occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

MANAGEMENT

MAN 110 Human Relations in Business and Industry 3 cr. hrs. / 3 periods

Students study organization and how its functioning is affected by many human factors. Areas of interest are motivation, problem solving techniques, group process and organizational environment.

MAN 122 Supervision / 3 cr. hrs. / 3 periods

A study of the origin of personnel supervision; an analysis of the components of recruitment, training and evaluation of employees; elements of decision making; and the role of labor unions.

MAN 124 Small Business Management / 3 cr. hrs. 3 periods

Prerequisite: ACC 101.

Analysis of the practical problems of organizing and managing a successful small business enterprise. Emphasis is on the managerial activities of the entrepreneur and their application to good business practice. Practical problems in quantitative analysis, causes of business failure, record keeping, sales promotion and marketing, budgeting, employee relations, and small business case studies are considered.

MAN 276 Personnel Management / 3 cr. hrs. / 3 periods

Prerequisite: BUS 100.

Covers practical aspects of managing personnel; includes recruiting, selection, testing, rating systems, promotion, discipline, training, labor relations, job evaluation and manpower planning. Intended for the practitioner in personnel management as well as the general manager.

MAN 278 Labor/Management Relations / 3 cr. hrs. 3 periods

Prerequisite: BUS 100.

Covers the history and development of American unionism, government of trade unions, collective bargaining, public policy, and bargaining power, with special emphasis on contemporary issues. Reviews basic legal framework regulating labor/management relations. A primary objective is consideration of the pragmatic issues involved in building a sound relationship between management and labor.

MAN 280 Business Organization and Management 3 cr. hrs. / 3 periods

Prerequisite: ACC 101, ECO 100.

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; management as a situational integration of diverse philosophies.

MAN 299 Cooperative Management Training / 3 cr. hrs. 15 periods (lab)

A supervised cooperative work program for students in a management occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

MARKETING

MKT 111 Marketing / 3 cr. hrs. / 3 periods

The basic principles involved in the movement of goods and services from producer to consumer. The functions of marketing and institutions of manufacturing, wholesaling and retailing.

MKT 113 Salesmanship / 3 cr. hrs. / 3 periods

A study of the basic principles and techniques of selling and their practical application; types of customers, products, information and its presentation, determination of customer's wants and needs, meeting customer objections, and opportunities in selling.

MKT 125 Advertising / 3 cr. hrs. / 3 periods

A basic understanding of the various aspects of advertising, including its planning and creation.

MKT 127 Advertising Layout and Design / 3 cr. hrs. / 3 periods

Prerequisite: MKT 125.

A workshop in present day creative advertising with practice in all current media. Actual practice, criticism and field trips included.

MKT 139 Retailing / 3 cr. hrs. / 3 periods

The organization and operation of a retail store; trends in the field; problems involved in the retailing of goods and services.

MKT 140 Consumer Experience / 3 cr. hrs. / 3 periods (3 lec.—on campus) 30 periods (30 lec.—telecourse)

Emphasizes the role of consumer behavior, the strategies wise consumers adopt in buying goods and services, financial responsibilities, consumer protection, fraudulent schemes, budgeting framework and contemporary personal financial problems.

MKT 141 Consumer Behavior / 3 cr. hrs. / 3 periods

A discussion and explanation of individuals deciding whether, what, when, where, how and from whom to purchase goods and services.

MKT 299 Cooperative Marketing Training / 3 cr. hrs. / 15 periods (lab)

A supervised cooperative work program for students in a marketing occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

MATHEMATICS

(A satisfactory placement 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 60 will not receive credit for MTH 60 or any of its components—without permission of the mathematics area.)

MTH 60 Introductory Mathematics / 3 cr. hrs. / 3 periods

Mathematics 60A through 60C collectively comprise MTH 60.

MTH 60A Introductory Mathematics—Whole Numbers (Module I) / 1 cr. hr. / 3 periods per week for 5 weeks

This is a five-week course and the schedule of classes should be checked for entry times. Topics include operations with whole numbers, placed value and order of operations.

MTH 60B Introductory Mathematics—Fractions and Decimals (Module II) / 1 cr. hr. / 3 periods per week for 5 weeks

Prerequisite: MTH 60A or equivalent.

Course covers operations with common and decimal fractions, powers of ten and scientific notation.

MTH 60C Introductory Mathematics—Percent, Ratio and Measurement (Module III) / 1 cr. hr. / 3 periods per week for 5 weeks

Prerequisite: MTH 60B or equivalent.

This also is a five-week course and the schedule of classes should be checked for entry times. Topics include percent, ratio and proportion, measures, metric system and applications.

MTH 65 Health Careers Mathematics / 3 cr. hrs. / 3 periods

This course provides the necessary mathematical skills for nursing and chemistry. It covers fractions, decimals, equations, scientific notation, apothecary and metric measures, dosages, concentrations and logarithms.

MTH 70 Algebra I / 3 cr. hrs. / 3 periods

Prerequisite: MTH 60 or equivalent.

Mathematics 70A through 70C collectively comprise MTH 70.

MTH 70A Algebra I—Linear Equations and Graphs (Module I) / 1 cr. hr. / 3 periods per week for five weeks

Prerequisite: MTH 60 or equivalent.

A five-week course and the schedule of classes should be checked for entry times. Topics include signed numbers, order of operation, inverse operation, linear equations and straight line graphs.

MTH 70B Algebra I—Binomials and Quadratics (Module II) / 1 cr. hr. / 3 periods per week for five weeks

Prerequisite: MTH 70A.

A five-week course—the schedule of classes should be checked for entry times. Included are operations with first and second degree polynomials, factoring, quadratic equations and their graphs.

MTH 70C Algebra I—Algebraic Expressions and Fractions (Module III) / 1 cr. hr. / 3 periods per week for five weeks

Prerequisite: MTH 70B.

A five-week course—the schedule of classes should be checked for entry times. Included are algebraic fractions, fractional equations and integral exponents.

MTH 90 Elementary Geometry / 3 cr. hrs. / 3 periods

Prerequisite: MTH 70 or equivalent.

A study of angles, parallel and perpendicular lines, triangles, quadrilaterals and circles, congruence, similar figures, geometric constructions and deductive proofs. Primarily for students who lack credit in high school geometry.

MTH 101 Slide Rule / 1 cr. hr. / 1 period

A programmed learning class—students may enter at any time. Students work at their own pace on scientific notation, estimation, multiplication, division, powers roots and trig scales.

MTH 102 Calculators / 1 cr. hr. / 1 period

Topics include H.P.-35, H.P.-45, Texas Instrument calculator and option. This is a programmed learning class and students may enter at any time. Students work at their own pace.

MTH 103 Computer Terminal / 1 cr. hr. / 1 period

Numerical calculation and program writing. This is a programmed learning class. Students may enter at any time and work at their own pace.

MTH 110 Technical Mathematics I / 3 cr. hrs. / 3 periods

Prerequisite: MTH 60 or equivalent.

Includes basic algebra for solving equations and using formulas; basic geometry for layout of mechanical structures and computing areas and volumes.

✓ **MTH 110A Technical Mathematics I: Arithmetic and Geometry**
1 cr. hr. / 1 period

Prerequisite: MTH 60.

Topics include a review of arithmetic operations, percent, measurements, basic geometry involving perimeters, areas and volumes.

✓ **MTH 110B Technical Mathematics I: Algebra, Part I / 1 cr. hr. 1 period**

Prerequisite: MTH 110A.

Topics include basic algebraic operations, linear equations, and factoring.

✓ **MTH 110C Technical Mathematics I: Algebra, Part II / 1 cr. hr. 1 period**

Prerequisite: MTH 110B.

Topics include algebraic fractions, graphs of equations and systems of linear equations.

✓ **MTH 115 Electronics Mathematics I / 3 cr. hrs. / 3 periods**

Basic algebra, electronic calculator, slide rule, simultaneous equations, Kirchoff's law, trigonometry and AC circuit analysis.

MTH 120 Technical Mathematics II / 3 cr. hrs. / 3 periods

Prerequisite: MTH 110.

Basic trigonometry, exponents, radicals, scientific notation, logarithms, slide rule and practical problem solving.

MTH 120A Technical Mathematics II: Exponents and Radicals
1 cr. hr. / 1 period

Prerequisite: MTH 110 or MTH 110C.

Topics include exponents, scientific notation, roots and radicals.

✓ **MTH 120B Technical Mathematics II: Quadratic Equations and Logarithms / 1 cr. hr. / 1 period**

Prerequisite: MTH 120A.

Topics include quadratic equations and logarithms.

MTH 120C Technical Mathematics II: Basic Trigonometric Functions / 1 cr. hr. / 1 period

Prerequisite: MTH 120B.

Topics include trigonometric functions, graphs, vectors, and solutions of right and oblique triangle problems.

✓ **MTH 125 Electronics Mathematics II / 3 cr. hrs. / 3 periods**

Prerequisite: MTH 115.

Computer number systems, Boolean algebra, advanced AC circuit analysis, logarithms and decibels.

✓ **MTH 130 Algebra II / 3 cr. hrs. / 3 periods**

Prerequisite: MTH 70 or equivalent.

MTH 130A through 130C are five week modules that collectively comprise MTH 130. These are offered at two or three initial times in a semester. Schedule of classes should be checked for entry time.

MTH 130A Algebra II—Polynomials (Module I) / 1 cr. hr. 3 periods per week for five weeks

Prerequisite: MTH 70C or equivalent.

This module includes operations of polynomials, linear equations, systems of linear equations, and inequalities including functional notation, graphing and determinants.

MTH 130B Algebra II—Factoring and Radicals (Module II)
1 cr. hr. / 3 periods per week for five weeks

Prerequisite: MTH 130A or equivalent.

This module includes products, factoring, algebraic fractions, fractional equations, exponents and radicals.

✓ **MTH 130C Algebra II—Quadratic Equations and Logarithms (Module III) / 1 cr. hr. / 3 periods per week for five weeks**

Prerequisite: MTH 130B or equivalent.

This module includes quadratic equations, complex numbers, variation and logarithms.

✓ **MTH 135 Survey of Math Thought / 4 cr. hrs. / 4 periods**

Prerequisite: MTH 60C or equivalent.

A study of the role of mathematics in society through the nature of mathematics and its historical, cultural and humanistic effects on civilization.

✓ **MTH 140 Math for Elementary Education Majors I**
3 cr. hrs. / 3 periods

Prerequisite: MTH 70 or equivalent.

Topics include sets, arithmetic operations and their properties, measurement, metric system, percent, decimals and fractions.

✓ **MTH 145 Math for Elementary Education Majors II**
3 cr. hrs. / 3 periods

Prerequisite: MTH 140.

Includes properties of the sets of integers, rational numbers and real numbers, algebra and geometry for elementary school students. Required for students majoring in elementary education.

✓ **MTH 150 College Algebra / 3 cr. hrs. / 3 periods**

Prerequisite: MTH 130.

Quadratic and higher degree equations, polynomial, exponential and logarithmic functions, determinants, matrices, systems of equations, sequences and the binomial theorem.

✓ **MTH 150A College Algebra: Equations and Functions**
1 cr. hr. / 1 period

Prerequisite: MTH 130.

Topics include linear, quadratic and radical equations; relations, functions and transformations; equations of a line and graphing parabola.

✓ **MTH 150B College Algebra: Linear Systems, Matrix Operations and Certain Functions / 1 cr. hr. / 1 period**

Prerequisite: MTH 150A.

Topics include 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**

Prerequisite: MTH 150B.

Topics include complex numbers, polynomial theory of equations, sequences and series, binomial expansion, induction and inequalities in two variables.

✓ **MTH 155 Trigonometry / 3 cr. hrs. / 3 periods**

Prerequisite: MTH 150 or concurrent enrollment.

Angular measure, trigonometric functions, graphs, identities, equations, inverse trigonometric functions, and solutions of right and oblique triangles.

✓ **MTH 160 College Algebra and Trigonometry / 5 cr. hrs. 5 periods**

Prerequisite: MTH 130.

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**

Prerequisite: MTH 150.

Includes set theory, logic, partitions, permutations, combinations, probability, Bernoulli trials and Markov chains. For students majoring in business.

MTH 175 Topics in Calculus / 3 cr. hrs. / 3 periods

Prerequisite: MTH 150.

Includes limits, continuity, differentiation and integration of algebraic functions, application to business and separable differential equations. For students majoring in business.

MTH 180 Analytic Geometry and Calculus I / 3 cr. hrs. / 3 periods

Prerequisite: MTH 150 and 155 or MTH 160.

Straight lines, conic sections, limits, continuity, differentiation and integration of algebraic functions, applications of derivatives, areas and volumes.

MTH 185 Analytic Geometry and Calculus II / 3 cr. hrs. / 3 periods

Prerequisite: MTH 180.

A continuation of MTH 180. Includes differentiation and integration of trigonometric, logarithmic and exponential functions, conic sections, translation and rotation of axes, and methods of integration.

MTH 205 Electronics Mathematics III / 3 cr. hrs. / 3 periods

Prerequisite: MTH 125.

Introduction to digital computer systems: introduction to Fortran; and trigonometric identities and their applications in electronics.

MTH 210 Introductory Statistics / 3 cr. hrs. / 3 periods

Prerequisite: MTH 130.

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

Prerequisite: MTH 185.

A continuation of MTH 185. Includes polar coordinates, solid geometry, two and three dimensional vectors, infinite series, moments, partial derivatives and multiple integration.

MTH 220 Linear Algebra and Differential Equations / 4 cr. hrs. / 4 periods

Prerequisite: MTH 215.

Vectors, bases, linear independence, matrices, linear transformations; differential equations of order one and degree one, linear equations, non-homogeneous equations, and series solutions.

MEDIA TECHNOLOGY**MET 50 Communigraphics I / 3 cr. hrs. / 3 periods**

Course covers the fundamentals of basic design in relationship to space, line and layout of elements for application to various types of media. Studied are commercial design, industrial design, typography, animation, design for television, design for printed media and special photography methods.

MET 53 Cinematography I / 3 cr. hrs. / 3 periods

Covered are the techniques of basic 8mm motion picture production; camera operation; techniques of animation application; film editing; and motion picture lab processes. The entire class is involved in the production and concept of one major film.

MET 70 Equipment Repair and Maintenance / 3 cr. hrs. / 3 periods

Electrical and mechanical repair and also maintenance of instructional media technology equipment including tape recorders, projectors, and mechanical graphic arts devices.

MET 81 Instructional Media Technology I / 3 cr. hrs. / 3 periods

Areas covered are still projection, motion picture projection, graphic arts, record players, tape recorders, broadcast sound systems, educational TV, programmed instruction, supporting equipment for instructional media, non-projected instructional media materials.

MET 82 Instructional Media Technology II / 3 cr. hrs. / 3 periods

The functions and responsibilities of the media specialist in an industrial or educational audio-visual department; various procedures in ordering, inventory, maintenance and budgeting for media operation; the responsibilities and opportunities for media specialists. Media facilities are designed, and equipment evaluated. Discussed are legal aspects of media production involving copyright.

MET 84 Implications of Media Technology / 3 cr. hrs. / 3 periods

The effects of media technology on the individual and his society, covering multi-media, computer-managed instruction, computer-assisted instruction, audio-tutorial systems, television, radio, film, programmed instruction, dial-access systems, man-machine relationships in systems approaches to solving teaching-learning problems.

MET 90 Telecommunications—Television Production / 3 cr. hrs. / 3 periods

Students learn to function as part of television production crews. They learn to operate and work with all the basic tools, equipment and techniques used in television production.

MET 91 Telecommunications—Television Workshop / 4 cr. hrs. / 6 periods (2 lec., 4 lab)

Prerequisite: MET 90.

Experience in the production of various types of television programs. Emphasis is on the production of special programs for educational, community and industrial use; and the utilization of television equipment in remote and on-location sites as well as in studio operation.

MET 299 Cooperative Media Technician Training / 3 cr. hrs. / 15 periods (lab)

Prerequisite: 14 hours in program or equivalent in general and technology courses, or consent of instructor.

A supervised cooperative work program for students in an instructional media technology occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

MILITARY SCIENCE (AIR FORCE)**MLA 101 The U.S. Air Force Today I / 2 cr. hrs. / 2 periods (1 lec., 1 lab)**

A review of the history, functions and organization of the Air Force, Air Force doctrine and national strategy, and strategy offensive forces. (Course offered in cooperation with University of Arizona.)

MLA 102 The U.S. Air Force Today II / 2 cr. hrs. / 2 periods (1 lec., 1 lab)

Strategic defensive forces, U.S. general purpose forces, and the support commands and operating agencies of the Air Force. (Course offered in cooperation with U of A.)

MLA 203 U.S. Air Force History I / 2 cr. hrs. / 2 periods (1 lec., 1 lab)

The chronological development of air power from the advent of the air age through World War II. (Course offered in cooperation with U of A.)

MLA 204 U.S. Air Force History II / 2 cr. hrs. / 2 periods (1 lec., 1 lab)

The development of the Air Force from 1946 to the present. (Course offered in cooperation with U of A.)

MILITARY SCIENCE (ARMY)

MSC 101 Introduction to ROTC / 2 cr. hrs. / 4 periods (1 lec., 3 lab)

Reviews the history, organization and mission of ROTC, and the military and civilian obligation of the citizen. There also is an introduction to weapons and the leadership laboratory. (Course offered in cooperation with University of Arizona.)

MSC 102 Defense Establishment in National Security 2 cr. hrs. / 4 periods (1 lec., 3 lab)

The history, mission and organization of the defense establishment; the role of the military in cold, limited and general warfare. Leadership laboratory included. (Course offered in cooperation with U of A.)

MSC 203 American Military History / 2 cr. hrs. / 2 periods

Principles of war and a survey of American military history are studied from Colonial times to 1966. Leadership laboratory included. (Course offered in cooperation with U of A.)

MSC 204 Military Map Reading and Tactics / 2 cr. hrs. 2 periods

An introduction to maps, map reading and the Lensatic compass. Also an introduction to small unit tactics. Leadership laboratory included. (Course offered in cooperation with U of A.)

MUSIC

MUS 45 Applied Music—Private Instruction / 2 cr. hr. ½ period

Course offers a private weekly lesson with an instructor, but without a jury exam requirement. Course of study jointly determined by the instructor and the student. Development of performance skills is stressed. Non-transferrable.

Section 1—Brass

Section 2—Guitar

Section 3—Percussion

Section 4—Piano

Section 5—Strings

Section 6—Voice

Section 7—Woodwinds

MUS 46 Applied Music—Private Instruction / 2 cr. hrs. ½ period

□ Prerequisite: MUS 45.

Course offers a private weekly lesson with an instructor, but without a jury exam requirement. Course of study jointly determined by the instructor and the student. A continuation of performance skills development. Non-transferrable. (see MUS 45 for sections offered)

MUS 47 Applied Music—Private Instruction / 2 cr. hrs. ½ period

□ Prerequisite: MUS 46.

Course offers a private weekly lesson with an instructor, but without a jury exam requirement. Course of study jointly determined by the instructor and the student. A continuation of performance skills development. Non-transferrable. (see MUS 45 for sections offered)

MUS 48 Applied Music—Private Instruction / 2 cr. hrs. ½ period

□ Prerequisite: MUS 47.

Course offers a private weekly lesson with an instructor, but without a jury exam requirement. Course of study jointly determined by the instructor and the student. A continuation of performance skills development. Non-transferrable. (see MUS 45 for sections offered)

MUS 54 Jazz Improvisation / 1 cr. hr. / 2 periods (1 lec., 1 lab)

□ Prerequisite: MUS 103.

The study of jazz improvisation on various instruments. Emphasis is on the rhythmic, melodic and harmonic aspects of jazz styles. Membership is determined by audition with instructor. Progressive development of musical skills through interpretation of literature is stressed. Course may be taken 2 times for a maximum of 2 credits.

MUS 91 Guitar Class I / 1 cr. hr. / 2 periods (1 lec., 1 lab)

Beginning instruction and development of basic skills for both hands. Emphasis is on fingering and picking styles, chords and melodic reading in first position.

MUS 92 Guitar Class II / 1 cr. hr. / 2 periods (1 lec., 1 lab)

□ Prerequisite: MUS 91 or consent of instructor.

Continuation of MUS 91 with more detailed study of chord structures, scales and melodic reading through the fourth position.

MUS 102 Introduction to Music Theory / 3 cr. hrs. / 3 periods

An introductory course in fundamental music theory designed to develop basic literacy in music. The course consists of the study of notation, melody, harmony, rhythm and musical terminology in a format for those who have little or no background in music theory.

MUS 103 Music Theory I / 4 cr. hrs. / 5 periods (3 lec., 2 lab)

An integrated study of elementary standard structure of traditional music, the ordinary treatment and notation. Includes principles of harmony, melody and rhythm, developing the ability to notate what is heard and vice versa, and applying these principles on the piano in creative harmonization. Course consists of three parts: (a) theoretical concepts; (b) ear training; (c) keyboard harmony. These segments may be studied separately as non-transferable courses.

MUS 120 Band / 2 cr. hrs. / 5 periods (1 lec., 4 lab)

Participation in regular band rehearsals and performances with membership determined by auditions with the director. Progressive development of musical skills through interpretation of literature is stressed. Course may be taken four times for a maximum of eight credit hours.

MUS 121 Jazz Band / 1 cr. hr. / 3 periods (1 lec., 2 lab)

Rehearsal and performance of many styles of music in the jazz idiom. Open to all students through a conference and audition with the instructor. Progressive development of musical skills through interpretation of literature is stressed. Course may be taken four times for a maximum of four credit hours.

MUS 123 Instrumental Ensemble / 1 cr. hr. / 2 periods (1 lec., 1 lab)

Course offers an opportunity for supervised rehearsal and performance of literature for various instrumental combinations. It is open to all students through a conference and audition with the instructor. Progressive development of musical skills through interpretation of literature is stressed. Course may be taken four times for a maximum of four credit hours.

MUS 130 Chorale (SATB) / 2 cr. hrs. / 5 periods (1 lec., 4 lab)

A selected group of mixed voices, chosen by audition, for interpretation of a wide variety of styles of music in concerts throughout the academic year. Progressive development of musical skills through interpretation of literature is stressed. Course may be taken four times for a maximum of eight credit hours.

MUS 131 College Singers (SATB) / 2 cr. hrs. / 5 periods (1 lec., 4 lab)

A small choral ensemble chosen by audition. Repertory and performance includes best literature from all styles and periods. There are various performances throughout the academic year. Open to all qualified students in the college. Progressive development of musical skills through interpretation of literature is stressed. Course may be taken four times for a maximum of eight credits.

MUS 132 Women's Chorus / 1 cr. hr. / 3 periods (1 lec., 2 lab)

Rehearsal and performances of choral literature written for women's voices. A short audition is necessary for voice placement. Minimum of one performance per semester. Open to all qualified students in the college. Progressive development of musical skills through interpretation of literature is stressed. Course may be taken four times for a maximum of four credit hours.

MUS 133 Concert Choir / 1 cr. hr. / 3 periods (1 lec., 2 lab)

The concert choir is chosen from those who wish to participate in choral music but for various reasons are not in chorale. A short audition is necessary for voice placement. Open to all qualified students. Progressive development of musical skills through interpretation of literature is stressed. Course may be taken four times for a maximum of four credits.

MUS 134 Vocal Ensemble / 1 cr. hr. / 2 periods (1 lec., 1 lab)

Course offers an opportunity for supervised rehearsal and performance of literature for various combinations. It is open to all students through a conference and audition by the instructor. Progressive development of musical skills through interpretation of literature is stressed. Course may be taken four times for a maximum of four credits.

MUS 136 Voice Class I / 1 cr. hr. / 2 periods (1 lec., 1 lab)

Beginning instruction, introduction and development of basic skills, breathing, diction, tone, rhythm and sight-singing. Practical training in singing without specialization. Open to all students.

MUS 137 Voice Class II / 1 cr. hr. / 2 periods (1 lec., 1 lab)

Prerequisite: MUS 136.
A continuation of MUS 136.

MUS 141 Piano Class I / 1 cr. hr. / 2 periods (1 lec., 1 lab)

Beginning instruction employing group and individual techniques in an electronic lab situation; introduction and development of elements of basic musicianship and keyboard skills. Open to all students.

MUS 142 Piano Class II / 1 cr. hr. / 2 periods (1 lec., 1 lab)

A continuation of MUS 141. Previous piano experience required.

MUS 143 Piano III / 1 cr. hr. / 2 periods (1 lec., 1 lab)

Advanced piano instruction utilizing group and individual techniques in an electronic lab situation. Continued development of keyboard skills and musical proficiency.

MUS 144 Piano IV / 1 cr. hr. / 2 periods (1 lec., 1 lab)

Prerequisite: MUS 141, 142, 143.
A continuation of MUS 143. Previous piano experience required. (Equivalent to three semesters.)

MUS 145 Applied Music—Private Instruction / 2 cr. hrs. ½ period

Course offers a private weekly lesson with an instructor and participation in student recitals and jury exams.

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. ½ period

Prerequisite: MUS 145.

Course offers a private weekly lesson with an instructor and participation in student recitals and jury exams. A continuation of performance skills development. (see MUS 145 for sections offered)

MUS 151 Exploring Music / 3 cr. hrs. / 3 periods

An introductory course in the study of various musical styles with an emphasis on listening and application of the basic elements of music (melody, rhythm, harmony, form, timbre) to each style. Open to all students.

MUS 201 History and Literature of Music I / 3 cr. hrs. 3 periods

Prerequisite: MUS 103.

A study of music literature with emphasis on structure, period and style. Literature includes the Greeks through the Baroque. This course is required of all music majors. May be taken as a humanities option.

MUS 202 History and Literature of Music II / 3 cr. hrs. 3 periods

Prerequisite: MUS 201.

A study of music Literature with emphasis on structure, period and style. Literature includes the Rococo through the present day. This course is required of all music majors. May be taken as a humanities option.

MUS 204 Music Theory II / 4 cr. hrs. / 5 periods (3 lec., 2 lab)

Prerequisite: MUS 103.

The theory of music in the pre-tonal styles with emphasis on medieval and Renaissance works. Course consists of three parts: (a) theoretical concepts; (b) ear training; (c) keyboard harmony. These segments may be studied separately as non-transferable courses.

MUS 205 Music Theory III / 4 cr. hrs. / 5 periods (3 lec., 2 lab)

Prerequisite: MUS 103.

The theory of music in tonal styles. Emphasis is on Baroque, Classical and Romantic period works, and on the development of hearing, singing and keyboard skills. Study concentrates on tertiary harmonic construction from seventh chord through borrowed, altered and eleventh/thirteenth chords, as well as melodic, rhythmic and formal aspects of styles involved. Course consists of three parts: (a) theoretical concepts; (b) ear training; (c) keyboard harmony. These segments may be studied separately as non-transferable courses.

**MUS 206 Music Theory IV / 4 cr. hrs. / 5 periods
(3 lec., 2 lab)**

Prerequisite: MUS 103.

The theory of music in post-tonal styles with emphasis on Twentieth Century composition and on the development of hearing, singing and keyboard skills. Course consists of three parts: (a) theoretical concepts; (b) ear training; (c) keyboard harmony. These segments may be studied separately as non-transferable courses.

**MUS 211 Basic Conducting Techniques I / 3 cr. hrs.
3 periods**

Prerequisite: MUS 103 or consent of instructor.

Development of fundamental conducting skills with emphasis on basic techniques, organizational problems, materials and interpretation of representative literature.

**MUS 247 Applied Music—Private Instruction / 2 cr. hrs.
½ period**

Prerequisite: MUS 146.

Course offers a private weekly lesson with an instructor and participation in student recitals and jury exams. A continuation of performance skills development. (see MUS 145 for sections offered)

**MUS 248 Applied Music—Private Instruction / 2 cr. hrs.
½ period**

Prerequisite: MUS 247.

Course offers a private weekly lesson with an instructor and participation in student recitals and jury exams. A continuation of performance skills development. (see MUS 145 for sections offered)

NURSING

NRS 70 Nursing I / 8 cr. hrs. / 16 periods (4 lec., 12 lab)

Prerequisite: Consent of instructor.

This course presents the roles and responsibilities of nurses; develops the basic knowledge and skills needed to give nursing care; and builds an understanding of health and man's total needs. A beginning course for the practical and associate degree nurse programs.

NRS 72 Nursing II / 9 cr. hrs. / 19 periods (4 lec., 15 lab)

Prerequisite: NRS 70.

Highlighted are health needs and problems that occur frequently in pregnancy, infancy, childhood, adolescence and medical, surgical, and psychological health needs and problems of adults. The role of the nurse includes giving physical and emotional care, and helping clients identify and use their own and community resources.

**NRS 80 A.D. Nursing III / 9 cr. hrs. / 19 periods
(4 lec., 15 lab)**

Prerequisite: NRS 72.

Emphasis is on increasingly complex care of clients of all ages with medical-surgical health needs or problems, and/or obstetric.

**NRS 82 A.D. Nursing IV / 9 cr. hrs. / 19 periods
(4 lec., 15 lab)**

Prerequisite: NRS 80.

A continued emphasis on complex patient care and the individual's reaction to illness, covering all age groups and community health. Management and leadership components are included. Seminars on the current trends in nursing, and the legal and ethical responsibilities of the nurse prepare the student for a role after graduation.

OFFICE EDUCATION

OED 60 Notehand / 2 cr. hrs. / 2 periods

An intensive course in a shorthand system to be used for personal notetaking. Practice in taking useful, well-organized lecture and conference notes is stressed.

OED 70 Upgrading Office Skills / 3 cr. hrs. / 3 periods

This course includes assessment and evaluation, review, improvement and new techniques in office skills and human relations. Designed for persons with previous office training who wish to re-enter the secretarial field or upgrade their present position.

OED 80 Stenoscrypt / 3 cr. hrs. / 4 periods (2 lec., 2 lab)

An alphabetic shorthand covering theory, reading and writing techniques. An abbreviated system of note taking. Of value to the businessman and office worker.

**OED 90 Typing Refresher / 3 cr. hrs. / 3 periods
(2 lec., 1 lab)**

A review course for students having some typing skills. Emphasis is on the practice of using the keyboard, speed drills, practice letters and manuscripts.

OED 91 Shorthand Refresher / 3 cr. hrs. / 3 periods

A review of the shorthand alphabet, basic theory and brief forms of Gregg shorthand with emphasis on the ability of applying the shorthand theory to new words. Concentration is on taking dictation up to at least 80 words per minute.

OED 101 Shorthand I / 3 cr. hrs. / 5 periods (3 lec., 2 lab)

Prerequisite: OED 111 or concurrent enrollment or one year of typing; OED 154 recommended.

A first-semester course in shorthand, using the Gregg method. Designed to develop skills in taking simple dictation and transcribing at the typewriter. Emphasis is on the mechanics of written English.

OED 102 Shorthand II / 3 cr. hrs. / 5 periods (3 lec., 2 lab)

Prerequisite: One year high school shorthand or dictation speed of 50 wpm with typewriter transcription at minimum of 95 percent accuracy; OED 154 or concurrent enrollment.

A review of Gregg shorthand through dictation practice and emphasis on shorthand speed development and accuracy in typed transcription.

OED 103 Records Management / 3 cr. hrs. / 3 periods

The principles and procedures of filing and actual practice in the basic filing systems. Course also deals with methods of storing and retrieving information and plans for retention, transfer and disposal of records.

**OED 103A Records Management A / 1 cr. hr.
3 periods per week for five weeks**

This module includes the indexing, coding, cross-referencing and alphabetizing of personal and business names.

**OED 103B Records Management B / 1 cr. hr.
3 periods per week for five weeks**

Prerequisite: OED 103A or equivalent.

This module includes the indexing, coding, cross-referencing and alphabetizing of governmental agencies and other names. Alphabetical correspondence is included. The module also deals with methods of storing and retrieving information and plans for retention, transfer and disposal of records.

**OED 103C Records Management C / 1 cr. hr.
3 periods per week for five weeks**

Prerequisite: OED 103B or equivalent.

A study of filing procedures used in subject, numeric and geographic filing.

OED 105 Beginning Forkner Shorthand / 3 cr. hrs. / 4 periods (3 lec., 1 lab)

Introduction of Forkner shorthand theory, development of dictation speed from 60 to 80 words per minute, and typewritten transcription of business letters with emphasis on improved spelling, grammar and punctuation.

OED 106 Advanced Forkner Shorthand / 3 cr. hrs. / 4 periods (3 lec., 1 lab)

Development of dictation speed from 60 to 120 words per minute. Dictation, business vocabulary and technical terms. Further development of transcription skills including punctuation, grammar and typing techniques.

OED 111 Typing I / 3 cr. hrs. / 5 periods (3 lec., 2 lab)

A beginning course in the theory and practice of touch typing. Emphasis is on the mastery of the keyboard, speed drills and practice. Letters, manuscripts and tabulations are included.

OED 111A Typing I: Keyboard Presentation and Basic Techniques / 1 cr. hr. / 5 periods (3 lec., 2 lab)

Keyboard presentation and basic typing techniques and procedures. Speed and accuracy development is included. For five weeks.

OED 111B Typing I: Basic Correspondence and Centering 1 cr. hr. / 5 periods (3 lec., 2 lab)

Prerequisite: OED 111A or equivalent. Basic centering and correspondence. Speed and accuracy development is included. For five weeks.

OED 111C Typing I: Correspondence and Manuscripts 1 cr. hr. / 5 periods (3 lec., 2 lab)

Prerequisite: OED 111B or equivalent. Tabulation, correspondence and manuscripts. Speed and accuracy development is included. For five weeks.

OED 112 Typing II / 3 cr. hrs. / 5 periods (3 lec., 2 lab)

Prerequisite: One year of typing or a typing speed of 30 wpm. A further development of typing techniques, skill and knowledge. Accurate proofreading and a concept of mailability are stressed. Letters, manuscripts, tabulations, memorandums and business forms.

OED 121 Calculating Machines / 2 cr. hrs. / 3 periods (2 lec., 1 lab)

Instruction covers the operation of the electronic calculator for mathematical computation in the modern business world. Also includes practical business applications such as discounts, commissions, percentage, proration, interest and mark-up.

OED 122 Word Processing / 4 cr. hrs. / 6 periods (4 lec., 2 lab)

Prerequisite: OED 112 or typing speed of 40 wpm and ability to type letters, manuscripts and tables; OED 154 recommended. Specific procedures, methods and equipment used for transcription of written, verbal or recorded ideas into typewritten or printed form. Includes work on transcription equipment, proportional-spacing typewriters, composing machines and magnetic tape typewriters. Instruction in duplicating equipment includes photocopiers, the spirit and stencil duplicators and offset press.

Note: Students may satisfy the requirements of OED 122 by taking OED 122A, B, D, or OED 122, C, D. No more than 4 credits may be earned for OED 122 or any combination of OED 122 A, B, C, D.

OED 122A Word-Processing Reprographics / 1 cr. hr. 1.5 periods (1 lec., .5 lab)

Prerequisite: OED 112 or typing speed 40 wpm and ability to type letters, manuscripts and tables; OED 154 recommended. Introduction to word processing and survey of duplicating methods and equipment used in offices. Photocopy, spirit, stencil and offset processes are covered.

OED 122B Word-Processing-Special Typewriters / 1 cr. hr. 1.5 period (1 lec., .5 lab)

Prerequisite: OED 112 or typing speed 40 wpm and ability to type letters, manuscripts and tables. OED 154 recommended. Includes work on a dual-pitch, self-correcting, proportional-spacing and word processing typewriters.

OED 122C Word Processing-Beginning Machine Transcription 2 cr. hrs. / 3 periods (2 lec., 1 lab)

Prerequisite: OED 112 or typing speed 40 wpm and ability to type letters, manuscripts and tables. OED 154 recommended. Techniques and equipment for basic transcription. Includes development of punctuation, grammar, and spelling skills using general business correspondence.

OED 122D Word Processing-Advanced Machine Transcription 2 cr. hrs. / 3 periods (2 lec., 1 lab)

Prerequisite: OED 112 or typing speed 40 wpm and ability to type letters, manuscripts and tables. OED 154 recommended. A further development of machine transcription techniques, with emphasis on mailability and transcription speed development. Legal, medical, and general business correspondence is included.

OED 130 Commercial and Technical Spanish / 2 cr. hrs. 2 periods

Prerequisite: Spanish proficiency in speaking and writing. The Spanish language as a business skill. The course is specially planned for the bilingual secretary or office employee. Emphasis is on business terms and the Spanish language as used in the southwestern United States and in Mexico. Includes practice in taking dictation and transcribing in both languages.

OED 130 Español Comercial / 2 cr. hrs. / 2 periods

Se enseña el español especializado para negocio para obtener aptitudes necesarias de secretaria bilingüe o trabajadora (trabajador) de oficina. El énfasis es sobre términos de negocios y el idioma español como se emplea en el suroeste de los Estados Unidos y México. Se practicará el dictado y la transcripción en ambos idiomas.

OED 154 Business English / 3 cr. hrs. / 3 periods

An in-depth study of English fundamentals essential for modern business communication, including grammar, punctuation, spelling and word usage. Not a writing course. It deals with the parts of speech and application of rules concerning items such as capitalization, verb tenses, sentence structure, plurals, possessives, etc.

OED 158 Machine Shorthand / 3 cr. hrs. / 4 periods (3 lec., 1 lab)

Prerequisite: OED 111 or concurrent enrollment or one year typing. Basic touch shorthand theory with speed developed to 80 words per minute. Emphasis is on reading skills.

OED 166 Medical Office Procedures / 3 cr. hrs. / 3 periods

Prerequisite: OED 112 or equivalent. Designed for students planning to work in a physician's office, clinic or hospital. Includes instruction in keeping patient records, preparation and handling of insurance forms and medical reports, handling patients and other duties typical of an assistant in a medical office.

OED 180 Legal Terms / 3 cr. hrs. / 3 periods

Provides an understanding of legal terms for students interested in working in a legal office as legal secretaries or technicians. Special emphasis is given to pronunciation, spelling and definition.

OED 250 Legal Secretarial Procedures I / 3 cr. hrs. / 3 periods

Prerequisite: OED 252 or equivalent.

Provides a knowledge and understanding of terminology and procedures of a law office, involving wills, domestic relations cases and foreclosures. Human relations and the code of ethics for legal secretaries are included. Typing proficiency is stressed.

OED 251 Legal Secretarial Procedures II / 3 cr. hrs. / 3 periods

Prerequisite: OED 250 or law office experience and typing.

Provides a knowledge and understanding of terminology and procedures for a law office including personal injury, probate, corporate and criminal law. Human relations and the code of ethics for legal secretaries are included. Typing proficiency is stressed.

OED 252 Typing III / 3 cr. hrs. / 5 periods (3 lec., 2 lab)

Prerequisite: Two years of typing or 40 wpm; OED 154 recommended.

High level skills in techniques of touch typing are developed with a standard of mailability for all production work stressed. Office typing problems include manuscripts, correspondence, tables, business forms, executive and legal work. Independent performance is encouraged.

OED 253 Shorthand III / 3 cr. hrs. / 5 periods (3 lec., 2 lab)

Prerequisite: Two years of shorthand or 70 wpm; OED 154 or concurrent enrollment.

A further development of shorthand skills and transcription techniques. Emphasis is on progressive speed development, grammar, spelling, punctuation, and production of mailable letters. Both timed and office-style dictation are included.

OED 255 Medical Terms / 3 cr. hrs. / 3 periods

Course provides an understanding of terminology essential to the medical business office. Emphasis is on understanding and ease in using medical terms.

OED 256 Medical Transcription / 3 cr. hrs. / 3 periods

Prerequisite: OED 255 or knowledge of medical terminology and typing speed of 40 wpm.

Course develops speed and accuracy in typing, skill in using transcribing equipment and expansion of medical terminology. Practice in transcribing medical reports and correspondence is emphasized.

OED 257 Office Procedures / 4 cr. hrs. / 5 periods (3 lec., 2 lab)

Prerequisite: OED 112 or equivalent.

A study of functions and procedures used in a wide range of office activities. Includes analysis of the secretarial profession, techniques to improve office efficiency and development of a secretarial personality.

OED 259 Business Communications / 3 cr. hrs. / 3 periods

Prerequisite: OED 154.

The general principles of effective communication as well as techniques pertinent to specific types of business correspondence. Social and business writing, claim and adjustment letters, interoffice memos, sales letters, credit letters, collection letters and letters of application and data sheet are covered.

OED 264 Shorthand IV / 3 cr. hrs. / 5 periods (3 lec., 2 lab)

Prerequisite: OED 253 or equivalent; OED 154 is recommended.

A production course which offers an opportunity to develop techniques and skills of high quality. Course content includes shorthand, typewriting, spelling, punctuation, word usage, proof-reading, editing and other related topics. A standard of mailability is stressed.

OED 299 Cooperative Office Education Training / 3 cr. hrs. / 15 periods (lab)

A supervised cooperative work program for students in an office education occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

OPHTHALMIC DISPENSING**ODT 51 Optical Orientation I / 6 cr. hrs. / 8 periods (5 lec., 3 lab)**

Prerequisite: Consent of program coordinator.

This course covers the role of the ophthalmic laboratory, laboratory technician, dispensing optician, optometrist, ophthalmologist, etc.; and basic information on lenses, refractive errors, frame construction, repair and laboratory organization.

ODT 52 Optical Orientation II / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: ODT 51.

Introduction to frame measurements, reading prescriptions and frame adjusting, types of single vision and multi-focal lenses, frames and manufacturers.

ODT 53 Optical Laboratory / 3 cr. hrs. / 7 periods (1 lec., 6 lab)

Prerequisite: ODT 51.

Lens surfacing, layouts, base curves, thickness, lens blanks, hardening, lense edging and insertion.

ODT 54 Optical Dispensing I / 6 cr. hrs. / 10 periods (4 lec., 6 lab)

Prerequisite: ODT 51, 52, 53.

Facial measurements, adjusting, frame selection, vocational glasses, lens and frame design.

ODT 55 Contact Lenses I / 5 cr. hrs. / 7 periods (4 lec., 3 lab)

Prerequisite: ODT 51, 52, 53.

Basic information on the anatomy and physiology of the eye for contact lens fitting. Introduction to fitting procedures.

ODT 56 Ophthalmic Assistant / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Prerequisite: ODT 51, 52, 53.

Optical instrumentation, field charting, visual skills, tangent screen, taking case histories, office procedures, etc.

ODT 57 Contact Lenses II / 5 cr. hrs. / 7 periods (4 lec., 3 lab)

Prerequisite: ODT 55.

The theory and practice of contact lens fitting optics, corneal measurements, lens check-outs, adjusting, bifocal and toric contact lenses and patient control.

ODT 58 Optical Dispensing II / 4 cr. hrs. / 4 periods

Prerequisite: ODT 51, 52, 53, 54.

Cataract lenses, adjusting, styles, record keeping, problem prescriptions and optical dispensary organization.

ODT 59 Senior Seminar / 2 cr. hrs. / 2 periods

Prerequisite: ODT 51 through 56.

Ethics of the profession, complete review of all material for state board examination, state laws and program evaluation.

**ODT 299 Cooperative Ophthalmic Dispensing Training
3 cr. hrs. / 15 periods (lab)**

Prerequisite: ODT 51 through 56.

A supervised cooperative work program for students in an ophthalmic dispensing occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

PAPAGO

PGO 50 Elementary Papago / 4 cr. hrs. / 4 periods

This is a conversation course with emphasis on listening and repetition. Designed for the non-Papago speaking students.

PGO 51 Papago for Native Speakers / 4 cr. hrs. / 4 periods

Prerequisite: Knowledge of Papago.

Class needs will be determined, due to different speaking dialects.

PERSONAL DEVELOPMENT

PDP 50 College Survival Skills / 1 cr. hr. / 1 period

Course provides an opportunity to develop skills which enhance the possibility of student success. Topics of discussion include educational planning, student services and effective study skills.

PDP 51 Self-Assessment/ 1 cr. hr. / 1 period

Develops student abilities to establish personal goals. Structured activities and inventory instruments are used to assess individual backgrounds and to serve as referents for personal/career development.

PDP 52 Human Relations and Problem Solving / 1 cr. hr. / 1 period

Skills are developed in working with others, in performing tasks and in solving problems. Structured activities include techniques for identifying problems and implementing appropriate solutions.

PDP 53 New Horizons for Women / 1 cr. hr. / 1 period

Course offers a structured group involvement for those wanting to explore transitional problems in returning to work or school. It also provides a supportive environment where students can discover and explore those aspects of themselves which will assist them in reaching educational, vocational and/or personal decisions.

PDP 54 Assertiveness Training / 2 cr. hrs. / 2 periods

Individuals have an opportunity to develop and strengthen their capabilities to assert themselves, gain confidence in their abilities and make decisions, particularly as these areas relate to learning and career planning.

PHILOSOPHY

PHI 101-102 Introduction to Philosophy I, II / 3-3 cr. hrs. / 3 periods

Course seeks to provide the student with a second 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

The objective of this course is to increase the student's awareness of the requirements and processes of valid thinking, decision-making and communication.

PHI 130 Introductory Studies in Ethics and Social Philosophy / 3 cr. hrs. / 3 periods

An introduction to the study of such matters as judgments of approval and disapproval, the rightness and wrongness of our acts, and the desirability or wisdom of our actions. Students study classical and contemporary meanings of ethical statements, their truth and falsity, their objectivity and subjectivity. May be taken as humanities option.

PHI 140 Philosophy of Religion / 3 cr. hrs. / 3 periods

An introduction to the philosophical study of religion. (Same as Religion 140.)

PHI 145 Historical Philosophy / 3 cr. hrs. / 3 periods

Course is designed to respond to student interest for study of particular topics in philosophy. Past studies have included Plato, Hume and Aesthetics.

PHYSICAL DISTRIBUTION

PYD 101 Physical Distribution Systems / 3 cr. hrs. / 3 periods

Prerequisite: BUS 100.

A job skill improvement course for developing a concept and working knowledge of physical distribution systems. Topics include a conceptual framework, transportation systems, inventory control, warehousing, order processing, industrial packaging, material handling and locational analysis.

PYD 102 Traffic Management and Distribution / 3 cr. hrs. / 3 periods

Prerequisite: PYD 101.

Traffic management and distribution techniques are covered in detail. Topics include commodity classification, transport pricing as an element of system costs, tariff constraints and simplifications, evaluative factors in routing, documentation and carrier liability, legal implications, transport policies and programs, and international distribution.

PHYSICAL EDUCATION

PED 1 Practicum I / 1 cr. hr. / 3 periods (lab)

The student experiences on-the-job supervised training as an aide. Assignments are in the service activity program, intramural program, or other related professional posts.

PED 2 Practicum II / 1 cr. hr. / 3 periods (lab)

The student experiences on-the-job supervised training as an aide. Assignments are in the service activity program, intramural program, or other related professional posts.

PED 3 Practicum III / 1 cr. hr. / 3 periods (lab)

The student experiences on-the-job supervised training as an aide. Assignments are in the service activity program, intramural program, or other related professional posts.

PED 4 Practicum IV / 1 cr. hr. / 3 periods (lab)

The student experiences on-the-job supervised training as an aide. Assignments are in the service activity program, intramural program, or other related professional posts.

PED 5 Field Work I / 1 cr. hr. / 1 period

Provides a cooperative educational experience involving students in working with federal, state, county, municipal and private agencies under supervision.

PED 120 Facilities for Physical Education and Recreation / 2 cr. hrs. / 2 periods

A survey of available facilities in Pima County. Students learn about size, space, site planning, design, construction materials and techniques, costs, competitive bids and other facility problems. Field trips are a large part of this course.

**PED 125 Foundations of Athletic Training / 2 cr. hrs.
2 periods**

This course consists of practical work in the training room as well as instruction in the techniques of athletic training. Students experience hydrothermy, electrothermy, taping, and various preventive and corrective methods used in sports and medicine.

**PED 130 Elementary School Physical Education / 3 cr. hrs.
3 periods**

This is a skills/methods course providing the teacher with the basic skills and knowledge of materials and methods of teaching games, relays and modified activities in team and individual sports.

Students also are introduced to the theoretical basis of using the movement education approach in teaching physical education in the elementary schools.

**PED 131-138 Professional Activities / 1-8 cr. hrs.
2-16 periods (1-8 lec., 1-8 lab)**

A series of eight activities offered on a two-year rotational basis, designed for physical education majors and minors. Two units of one credit each are taught each semester. These are skill oriented classes with emphasis on skill and strategy development beyond beginning/intermediate level.

PED 131 Softball / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 132 Basketball / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 133 Tennis / 1 cr. hr. / 2 periods (1 lec., 1 lab)

**PED 134 Wrestling / Self Defense / 1 cr. hr. / 2 periods
(1 lec., 1 lab)**

**PED 135 Soccer / Field Hockey / 1 cr. hr. / 2 periods
(1 lec., 1 lab)**

PED 136 Volleyball / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 137 Swimming / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 138 Badminton / 1 cr. hr. / 2 periods (1 lec., 1 lab)

**PED 139 Introduction to Leisure Education / 3 cr. hrs.
3 periods**

For prospective professionals in the fields of health, physical education and recreation—a survey of opportunities and qualifications as well as a general orientation of these fields.

PED 144 Dance / 2 cr. hrs. / 2 periods

Introduction to folk, square, modern and social dances for majors and minors.

PED 145 Sports Officiating / 2 cr. hrs. / 2 periods

Students are acquainted with the rules of various sports from the standpoint of an official. Current methods and materials are included to develop competency in executing official rules. Actual experience is required, by service, in the intramural program and other agencies. (Same as Recreation 145.)

**PED 147 Intramural Sports and Equipment / 2 cr. hrs.
2 periods**

A study of intramural organization and administration with practical experience in the Pima Community College intramural program. Students also are exposed to equipment purchasing procedures, inventory procedures, maintenance procedures and repair techniques.

**PED 149 History of Physical Education / 2 cr. hrs.
2 periods**

A historical look at the social, political, religious and cultural influences as they shaped the physical activities of man from prehistoric times to the present. Emphasis also is on the leaders of physical education in each major period of time.

**PED 150 Beginning Archery / 1 cr. hr. / 2 periods
(1 lec., 1 lab)**

PED 152 Badminton / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 156 Basketball / 1 cr. hr. / 2 periods (1 lec., 1 lab)

**PED 158 Folklore Dances / 1 cr. hr. / 2 periods
(1 lec., 1 lab)**

Taught are best known traditional folk dances from various regions of Mexico. The class begins with warm-up exercises followed by techniques of the zapateado. Progress is according to class ability. When necessary, classes in modern dance techniques are given as a compliment to the folklore.

**PED 158 Bailes Folkloricos / 1 cr. hr. / 2 periods
(1 lec., 1 lab)**

Se enseñarán los más celebrados bailes tradicionales de diversas regiones de México. El desarrollo de las clases será desde ejercicios de calentamiento hasta la técnica del zapateado, progresivamente, según las aptitudes de los elementos; y como complemento del folklore, tendrán clases de técnica de danza moderna cuando sea necesario para que los elementos tengan mayor proyección hacia el público.

**PED 159 Beginning Dance / 1 cr. hr. / 2 periods
(1 lec., 1 lab)**

PED 160 Baseball / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 162 Bowling / 1 cr. hr. / 2 periods (1 lec., 1 lab)

**PED 164 Defensive Tactics / 2 cr. hrs. / 3 periods
(2 lec., 1 lab)**

**PED 165 Deportes Bilingües / 1 cr. hr. / 2 periods
(1 lec., 1 lab)**

**PED 166 Beginning Fencing / 1 cr. hr. / 2 periods
(1 lec., 1 lab)**

PED 168 Field Hockey / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 169 Flag Football / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 170 Beginning Golf / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 171 Gymnastics / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 172 Handball / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 173 Racquetball / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 174 Ice Hockey / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 175 Ice Skating / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 176 Beginning Judo / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 177 Physical Fitness / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 178 Scuba / 1 cr. hr. / 2 periods (1 lec., 1 lab)

**PED 179 Self-Defense for Women / 2 cr. hrs. / 3 periods
(2 lec., 1 lab)**

PED 180 Soccer / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 181 Softball / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 182 Square Dancing / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 183 Swimming / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 184 Life Saving / 1 cr. hr. / 2 periods (1 lec., 1 lab)

**PED 185 Water Safety Instructor / 1 cr. hr. / 2 periods
(1 lec., 1 lab)**

**PED 186 Beginning Tennis / 1 cr. hr. / 2 periods
(1 lec., 1 lab)**

PED 187 Volleyball / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 188 Weight Training / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 189 Wrestling / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 200 Independent Activity / 1 cr. hr. / 2 periods (1 lec., 1 lab)

Independent activity in physical education under the supervision of an instructor.

PED 250 Advanced Archery / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 256 Dance, Arabic / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 259 Advanced Dancing / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 266 Advanced Fencing / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 270 Advanced Golf / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 271 Advanced Gymnastics / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 276 Advanced Judo / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PED 286 Advanced Tennis / 1 cr. hr. / 2 periods (1 lec., 1 lab)

PHYSICS

PHY 101 Technical Physics I / 3 cr. hrs. / 4 periods (2 lec., 2 lab)

Designed for the technologist, the course is based on the specific applications of physics to the automotive, air conditioning and other technical fields. All math needed is developed concurrently.

PHY 102 Technical Physics II / 3 cr. hrs. / 4 periods (2 lec., 2 lab)

Prerequisite: PHY 101, MTH 70.

A continuation of PHY 101. The course deals mostly with the application of the electro-magnetic theory to the technologies.

PHY 105 Fundamental Physics / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: High school algebra.

Intended for health careers, this course offers a brief introduction to the phenomena occurring in the physical world. Units or topics are chosen according to special interests of students.

PHY 112 General Physics for Education Majors / 3 cr. hrs. 5 periods (2 lec., 3 lab)

Prerequisite: High school algebra.

For education majors. A one-semester course offering an introduction to the subject matter of general physics, mechanics, heat, light, sound, electricity, magnetism and modern physics.

PHY 121 Introductory Physics I / 4 cr. hrs. / 7 periods (4 lec., 3 lab)

Prerequisite: High school algebra.

Topics include mechanics, heat, waves and sound. A non-calculus, liberal arts course.

PHY 122 Introductory Physics II / 4 cr. hrs. / 7 periods (4 lec., 3 lab)

Prerequisite: PHY 121.

Light, electricity and magnetism, atomic and nuclear physics.

PHY 131 Introductory Physics with Calculus I / 4 cr. hrs. 7 periods (4 lec., 3 lab)

Prerequisite: Calculus or concurrent.

For mathematics and science majors. Topics include mechanics, heat, waves and sound.

PHY 132 Introductory Physics with Calculus II / 4 cr. hrs. 7 periods (4 lec., 3 lab)

Prerequisite: PHY 131.

Light, electricity and magnetism, atomic and nuclear physics.

PHY 170 Practical Applied Physics / 1-3 cr. hrs. 1-3 periods

Prerequisite: Certain topics may have a prerequisite.

Topics available include how things work, physics of musical instruments, science and society, holography, energy and independent study.

PHY 210 Introductory Mechanics / 4 cr. hrs. / 7 periods (4 lec., 3 lab)

Prerequisite: Calculus and analytic geometry.

An introduction to mechanics. Recommended for physics and engineering majors. Kinematics, dynamics, energy, momentum, and harmonic motion.

PHY 216 Introductory Electricity and Magnetism / 4 cr. hrs. 7 periods (4 lec., 3 lab)

Prerequisite: PHY 210.

Electricity and magnetism through Maxwell's equations. For physics and engineering majors.

PHY 221 Introduction to Waves and Heat / 3 cr. hrs. 6 periods (3 lec., 3 lab)

Prerequisite: PHY 210.

Heat, fluids, sound and light, including optics and optical instruments.

PHY 230 Introduction to Modern Physics / 3 cr. hrs. 6 periods (3 lec., 3 lab)

Prerequisite: PHY 210 and 216 or PHY 131 and 132, MTH 180, 185.

Atomic and nuclear physics, relativity and radioactivity, quantum physics.

POLITICAL SCIENCE

POL 50 Immigration Law and Practices / 3 cr. hrs. 3 periods

The legal and political status of immigrants from Mexico, the process of immigration and counseling for the immigrant.

POL 50 Derecho, Conceptos y Procesos de Emigración 3 cr. hrs. / 3 periods

Se estudiará el derecho de migración a los Estados Unidos, sus procesos y ramificaciones legales.

POL 100 Introduction to Political Science / 3 cr. hrs. 3 periods

Politics. What is it? What is its significance in daily life? How do political systems change?

POL 110 American National Government and Politics 3 cr. hrs. / 3 periods

A survey of the institutions of American government and the evolution of our political system. Included are studies of the Constitution, roles of political parties, interest groups, public opinion and voting behavior. Special attention is given to positions of economic, ethnic and religious minorities in American society.

POL 111 American State and Local Governments and Politics / 3 cr. hrs. / 3 periods

Survey of state and local governments and politics with particular emphasis on the political culture of Arizona, the state's politically relevant economic and ethnic groups, and its current political trends.

POL 112 National and State Constitutions / 3 cr. hrs. / 3 periods

Not for social science majors.
Historical background, organization and functions of the national, state and local governments based on the constitutions of the United States and Arizona. Satisfies the requirement for teacher certification.

POL 120 Introduction to Comparative Politics / 3 cr. hrs. / 3 periods

An 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 the developing areas.

POL 130 Introduction to International Relations / 3 cr. hrs. / 3 periods

A 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.

POL 140 Minority Groups and the Political Process / 3 cr. hrs. / 3 periods

An 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.

POL 149 Independent Study in Political Science / 2-4 cr. hrs. / 2-4 periods

Independent readings or special projects to be arranged with the instructor.

POL 190 Political Revolution and Violence / 3 cr. hrs. / 3 periods

An 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.

PROFESSIONAL DEVELOPMENT

PRD 50 The Arizona Community College / 3 cr. hrs. / 3 periods

An exploration of the philosophy, goals, legislation, curriculum, board and administration functions, grantsmanship, student personnel services and continuing education function of the Arizona community college.

PSYCHOLOGY

PSY 100 Introduction to Psychology I / 3 cr. hrs. / 3 periods

Survey of psychology; growth of the individual, behavior disorders, introduction to social psychology, learning and history of the field.

PSY 100 Introducción a Psicología I / 3 cr. hrs. / 3 periods

Estudio panorámico de la psicología; desarrollo del individuo, aberración de comportamiento, introducción a la psicología social, el proceso bajo el cual se aprende, y la historia del campo de la psicología.

PSY 101 Introduction to Psychology II / 3 cr. hrs. / 3 periods

Biological bases of behavior, sensation and perception, motivation, emotion and stress.

PSY 102 Introduction to Social Psychology / 3 cr. hrs. / 3 periods

The basic theories and concepts of social psychology and the individual's experience in group situations.

PSY 103 Normal Personality I / 3 cr. hrs. / 3 periods

Psychological functioning and coping behaviors for normal personality development. Early adulthood is stressed.

PSY 104 Introduction to Behavior Modification / 3 cr. hrs. / 3 periods

Prerequisite: PSY 100 or equivalent.
An introduction to the principles of behavior modification with emphasis on application in practical situations.

PSY 203 Normal Personality II / 3 cr. hrs. / 3 periods

Prerequisite: PSY 103 or consent of instructor.
Further study of normal personality through participation in groups. Bioenergetics and Gestalt are among the group approaches available. For information regarding specific semester offerings, consult the behavioral or social sciences area.

PSY 205 Introduction to Testing and Assessment / 3 cr. hrs. / 3 periods

A survey course of standardized and teacher made tests and assessment instruments; how to interpret the results; what they reveal and don't reveal; and the principal users.

PSY 240 Futures: A Psychological Perspective / 3 cr. hrs. / 3 periods

An introduction to the rapidly expanding discipline of futurism. Why think about the future? How to think about the future? What to do about the future? Careers in futurism? Lectures, readings, class discussions and simulations of the future.

PSY 296 Individual Studies in Psychology / 3-6 cr. hrs. / 3-6 periods

Prerequisite: Consent of instructor.
An 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 (lab)

Prerequisite: Consent of instructor.
Students become familiar with some specific areas of social psychology through a review 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

Public and private approaches to leading social issues, and the role of the public administrator in their resolution.

PAD 215 Environmental Factors in the Administrative Process / 3 cr. hrs. / 3 periods

Prerequisite: PAD 105.
An exploration of the environmental influences and constraints which the administrator encounters in the course of policy execution.

PUBLIC BUILDING MAINTENANCE

PBM 55 Building Maintenance / 2 cr. hrs. / 2 periods

All phases of the care and cleaning of buildings, fixtures and furnishings including various types of building interiors.



RADIOLOGIC (X-RAY) TECHNOLOGY

RAD 55 Skull Refresher / 2 cr. hrs. / 2 periods

Prerequisite: Registered or registry eligible (A.R.R.T.)
This course is for registered or registry eligible radiologic technologists to review and practice radiographic-positioning for visualization of the bones of the skull, sinuses and mastoids. Radiographic phantoms are used to demonstrate the principles of exposure. Group process is used to demonstrate positioning and to critique films.

RAD 71 Radiologic Fundamentals / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: Consent of program coordinator.
An introduction to radiologic technology as a profession and its application in the allied health professions. Included are the role and responsibilities of radiologic technologists, the theoretical knowledge and practice necessary for competence in the accurate utilization of X-ray and processing equipment for diagnosis.

RAD 72 Radiographic Processing and Technique / 4 cr. hrs. 6 periods (3 lec., 3 lab)

Prerequisite: RAD 71 and consent of program coordinator.
Emphasizes the technical factors and processing techniques utilized in the formation of the diagnostic X-ray image. Included are the factors affecting and controlling radiographic quality, film characteristics, and manual/automatic processing.

RAD 73 Radiographic Positioning I / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: RAD 71 and consent of program coordinator.
Demonstration and practice of routine and special radiographic positioning for visualization of the bones of the skeleton, exclusive of those of the skull, and the viscera of the chest and abdomen. Phantoms are used to relate the principles of radiographic techniques and anatomical positioning.

RAD 81 Radiographic Positioning II / 5 cr. hrs. / 7 periods (4 lec., 3 lab)

Prerequisite: Satisfactory completion of required first-year courses.
Students learn the radiographic positions required to demonstrate the bones of the skull and the visceral organs. Class discussions include fluoroscopic procedures, mobile radiography, the use of contrast media and patient care.

RAD 82 Radiologic Physics I / 5 cr. hrs. / 7 periods (4 lec., 3 lab)

Prerequisite: Satisfactory completion of required first-year courses.
Students learn the function of X-ray machines, the electronic components of the X-ray circuit and special accessory equipment required to produce diagnostic radiographs. Emphasis is on accurate radiographic principles and technical factors, the demonstration and application of X-ray equipment, and the methods of protecting the patient and personnel from ionizing radiation.

RAD 83 Clinical Procedures I / 2 cr. hrs. / 6 periods (lab)

Prerequisite: Satisfactory completion of required first-year courses.
Students apply their acquired skills of routine radiographic procedures and related studies in clinical situations under the direct supervision of staff radiologists and/or registered radiologic technologists of affiliated hospitals. Please note that students must register for two lab sections for a total of six lab hours per week in the affiliated hospital assigned to them.

RAD 84 Radiation Therapy, Biology and Nuclear Medicine 3 cr. hrs. / 3 periods

Prerequisite: Satisfactory completion of required first-year courses.
An introduction to radiation-oncology and nuclear medicine which utilize ionizing radiation for the diagnosis and treatment of benign and malignant diseases. Emphasis is on the effects of radiation on human tissues, and the equipment and technology utilized in radiotherapy and nuclear medicine.

RAD 85 Radiographic Positioning III / 5 hrs. / 7 periods (4 lec., 3 lab)

Prerequisite: Satisfactory completion of required third-semester courses.
Demonstration and practice of special radiographic procedures of the vascular anatomy, special contrast media studies, pediatric radiography, nursing and surgical procedures.

RAD 86 Clinical Procedures II / 2 cr. hrs. / 6 periods (lab)

Prerequisite: Satisfactory completion of required third-semester courses.
A continuation of RAD 83. Students apply advanced skills in emergency and specialized radiology procedures in clinical situations under direct supervision of staff radiologists and/or registered radiologic technologists of affiliated hospitals. Please note that students must register for two lab sections for a total of six lab hours per week in an affiliated hospital assigned to them.

RAD 88 Radiologic Physics II / 5 hrs. / 7 periods (4 lec., 3 lab)

Prerequisite: Satisfactory completion of required third-semester courses.
A continuation of RAD 82 with special emphasis on the equipment utilized in mobile radiography, body-section radiography, special procedures, ultrasound, xeroradiography, thermography and image intensification.

RAD 91 Hospital Externship Practicum I / 12 cr. hrs. 40 periods (lab)

Prerequisite: Satisfactory completion of the first four semesters of program and consent of coordinator.
All students must spend an appropriate time as an extern in an affiliated approved hospital radiology department to obtain additional practical training. Such approved radiology departments must be under the direct supervision of a radiologic technologist registered by the American Registry of Radiologic Technologists, and a radiologist.

RAD 92 Hospital Externship Practicum II / 12 cr. hrs. 40 periods (lab)

Prerequisite: RAD 91.
A continuation of RAD 91.

RAD 93 Hospital Externship Practicum III / 12 cr. hrs. 40 periods (lab)

Prerequisite: RAD 92.
A continuation of RAD 92.

READING

REA 52 Bilingual Reading / 3 cr. hrs. / 3 periods

Prerequisite: Some reading ability in English and Spanish.
Laboratory methods and techniques are used to improve reading in English and Spanish. There are side-by-side readings in English and Spanish, independent readings and vocabulary development in both.

REA 52 Lecturas Bilingües / 3 cr. hrs. / 3 periods

Para estudiantes que desean mejorar su habilidad en el uso del español, o los dos idiomas. Escritos originales en español coincidirán con su traducción en inglés; escritos en inglés, coincidirán con su traducción en español. Finalmente, escritos en inglés, todavía no traducidos, serán comparados con escritos en español del mismo tema. El laboratorio permitirá trabajos individuales además de en grupo.

REA 100 Reading 100 Series / 4 cr. hrs. / 4 periods

All students should register for the REA 100 series which is composed of three levels. Level placement for each student is determined by diagnostic testing and teacher evaluation after enrollment. Day classes meet for four hours a week but special schedules can be arranged for students who would otherwise have a class conflict.* Non-native speakers of English should see English as a Second Language. Group and individual instruction is emphasized in vocabulary, comprehension, study skills and reading speed in each of the three levels which are REA 100—Reading Improvement; REA 101—Developmental Reading; REA 102—Critical Reading.

*Afternoon and evening classes meet two hours twice a week.

READING—ALTERNATIVE LEARNING CENTER**RDG 68 Techniques of Vocabulary Building / 1 cr. hr. / 1 period**

Students learn how to improve their vocabulary through a variety of methods such as use of structural analysis and/or context clues. An increased understanding of word roots and derivatives will enable students to easily expand their existing vocabularies and to use newly acquired words correctly and with confidence.

RDG 71 Spelling / 1 cr. hr. / 1 period

Spelling skills are improved through concentration on principles of spelling.

RDG 72 Phonetic Keys to Words / 2 cr. hrs. / 2 periods

How to use phonics as an aid in word recognition and reading. Covered are sounds of letters, letter combinations, accents and pronunciations.

RDG 73 Understanding What You Read I / 2 cr. hrs. / 2 periods

Designed to help students read printed materials with understanding. Various levels of understanding are explained and applied to diverse reading materials with emphasis placed on following directions, recognizing supporting details and recognizing sequence.

RDG 74 Understanding What You Read II / 3 cr. hrs. / 3 periods

Various levels of understanding are explained and applied to diverse reading materials with emphasis on making inferences, drawing conclusions, and differentiating between fact and opinion.

RDG 75 Class Aids / 1 cr. hr. / 1 period

Provides a way to improve study methods through note taking, outlining, reports and summarizing.

RDG 76 Study and Books / 1 cr. hr. / 1 period

Provides a way to improve study methods through use of textbooks, reference books and a dictionary.

RDG 77 Study Methods / 1 cr. hr. / 1 period

How to study, and how to listen.

RDG 78 Test-Taking Techniques / 1 cr. hr. / 1 period

Improving study methods through test-taking techniques.

RDG 79 Pictorial Aids / 1 cr. hr. / 1 period

How to read maps, charts, graphs and tables.

REAL ESTATE**RLS 101 Real Estate Principles / 3 cr. hrs. / 3 periods**

An introduction to real estate, providing familiarity with real estate and associated rules and regulations. The Arizona Department of Real Estate accepts this course as satisfying the pre-licensing educational requirement.

RLS 102 Real Estate Practices / 3 cr. hrs. / 3 periods

Prerequisite: RLS 101 or Arizona Real Estate Salesman's License. Real estate as it affects individuals and business firms; and the involvement of government in urban redevelopment and urban planning. Topics include property rights, ownership, financing, brokerage and evaluation.

RLS 110 Real Estate Finance Methods / 1 cr. hr. / 1 period

Prerequisite: Student should be a licensed real estate salesperson or broker. Covers residential and commercial real estate financing: FHA, VA, conventional and secondary markets. Also reviewed are government regulations and current lending policies. This course fulfills the annual education requirement for the practicing real estate salesperson and broker.

RLS 113 Real Estate Taxes and Assessment / 1 cr. hr. / 1 period

Prerequisite: The student should be a licensed real estate salesperson or broker. Taxes and assessments as they relate to the development of property; calculating assessments; methods for forecasting assessments and taxes. This course fulfills the annual education requirement for practicing real estate salespersons and brokers.

RLS 114 Real Estate Planning and Zoning / 1 cr. hr. / 1 period

Prerequisite: Student should be a licensed real estate salesperson or broker. Course deals with planning for future development of property, zoning codes and procedures for submitting zoning change requests. This course fulfills the annual education requirement for practicing real estate salespersons and brokers.

RLS 116 Real Estate Valuation / 1 cr. hr. / 1 period

Prerequisite: Student should be a licensed real estate salesperson or broker. The techniques and methods of determining real estate market values. Students will gather and calculate information needed to establish a market value on one of several properties. This course fulfills the annual education requirement for practicing real estate salespersons and brokers.

RLS 118 Real Estate Contract Writing / 1 cr. hr. / 1 period

Prerequisite: Student should be a licensed real estate salesperson or broker. An in-depth study of preparing real estate contracts with necessary parts of the Uniform Commercial Code and Arizona State Statutes covered. This course fulfills the annual education requirement for practicing real estate salespersons and brokers.

RLS 201 Real Estate Law / 3 cr. hrs. / 3 periods

Prerequisite: RLS 101 or consent of instructor. This course provides real estate students with the basic concepts and application of the general principles of real estate law. Legal topics include freehold estates, landlord and tenant, concurrent ownership, easements, profits, license, deeds and conveyances, and recording.

RLS 202 Real Estate Appraisals / 3 cr. hrs. / 3 periods

□ Prerequisite: RLS 101 or consent of instructor.

Real estate students are acquainted with the basic principles and practical application of real estate appraisals. Topics include valuation terms, market, analysis and classification of data, income and cost factors.

RECREATION**REC 51 Arts and Crafts / 3 cr. hrs. / 3 periods**

Focuses on the practical experience in creative craft projects. Included are ceramics, metal, weaving, woodworking and junk art.

REC 52 Recreation Systems and Management / 3 cr. hrs. / 3 periods

An introduction to national, state, county, city and private parks and the recreational systems offered in each.

REC 59 Park Administration / 3 cr. hrs. / 3 periods

The administrative procedures and techniques of various park systems.

REC 74 Public Relations and Communigraphics / 3 cr. hrs. / 3 periods

The development of flyers, brochures and pamphlets; problems of dealing with the public and providing information on the agency's functions and activities.

REC 75 Water Recreation and Resources / 3 cr. hrs. / 3 periods

Practices in managing outdoor water-oriented recreation on private and public lands.

REC 101 Introduction to Parks and Recreation / 3 cr. hrs. / 3 periods

General surveys of the development and role of parks, their current roles and functions in modern society; a survey of recreation, including theories of leisure, changing recreation use and activities due to changes in time, income and mobility factors; and models of general recreation experiences.

REC 102 Group Leadership / 2 cr. hrs. / 2 periods

Course provides a knowledge of human dynamics, leadership ability and principles of effective leadership. Students experience these characteristics by observation, demonstration, participation and field trips.

REC 103 Recreation Administration and Finance / 3 cr. hrs. / 3 periods

Covered are administration, financing and responsibility for parks and recreational areas, personnel selection, public relations, use of community resources and legal aspects of recreation administration.

REC 114 Program Planning and Organization / 3 cr. hrs. / 3 periods

The essential elements and basic principles of organization, supervision, promotion and evaluation of various types of recreation programs and services.

REC 115 Outdoor Recreation-Education / 3 cr. hrs. / 3 periods

An overview of the scope and magnitude of outdoor recreation, including history and development, conservation and organized camping. Camp craft skills are taught during field trips.

REC 116 Recreation for Special Groups / 3 cr. hrs. / 3 periods

Students are introduced to various recreation programs for special groups. Special consideration is given to organizing and planning recreational activities for the handicapped, aged and corrective programs.

REC 118 Survival / 2 cr. hrs. / 4 periods (1 lec., 3 lab)

The principles and techniques of survival. Students have an opportunity to enhance their ability to survive with the environment.

REC 119 Recreational Games / 2 cr. hrs. / 2 periods

Students gain an understanding of teaching children's games, both team and individual, in a recreational setting. This course is primarily for the recreation leader.

REC 121 First Aid / 2 cr. hrs. / 2 periods

First aid and emergency care procedures to include: life-saver steps, drug overdoses, splints, bandages, and heat and cold related injuries. The American Red Cross Standard First Aid certificate may be awarded to qualified students.

REC 145 Sports Officiating / 2 cr. hrs. / 2 periods

Students are acquainted with the rules of various sports from the standpoint of an official. Current methods and materials are included to develop competency in executing official rules. Actual experience is required, by service, in the intramural program and other agencies. (Same as Physical Education 145.)

REC 150 Camping and Hiking / 1 cr. hr. / 2 periods (1 lec., 1 lab)

A recreational activity offering students a lecture/lab experience in camping and hiking. Several field trips give students an exposure to camp cooking, camp selection and backpacking.

REC 152 Beginning Marksmanship / 1 cr. hr. / 2 periods (1 lec., 1 lab)

A lecture/lab course introducing students to firearms. Moral and legal aspects of firearms are emphasized along with firearms safety. Course includes range practice. (Same as Administration of Justice 152.)

REC 154 Mountaineering / 1 cr. hr. / 2 periods (1 lec., 1 lab)

Technical and free-climbing techniques are explained. Students learn techniques on campus and then are taken on several field trips to practice the techniques.

REC 156 Beginning Trapshooting / 1 cr. hr. / 2 periods (1 lec., 1 lab)

The history of shotguns, principles and techniques of instinct shooting, and the rules of trap and skeet shooting. Course is conducted on the range and includes extensive practice.

REC 160 Recreational Map Use / 1 cr. hr. / 2 periods (1 lec., 1 lab)

The basics of scale (distance), direction, elevation and location. Students learn practical aspects of route selection and compass use.

REC 252 Advanced Marksmanship / 1 cr. hr. / 2 periods (1 lec., 1 lab)

Course covers advanced techniques of competitive marksmanship and includes extensive range practice while emphasizing range safety.

REC 256 Advanced Trapshooting / 1 cr. hr. / 2 periods (1 lec., 1 lab)

Similar to REC 252.

REC 299 Cooperative Recreation Training / 3 cr. hrs. / 15 periods (lab)

A supervised cooperative work program for students in a recreation occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

RELIGION, COMPARATIVE

REL 120 Old Testament / 3 cr. hrs. / 3 periods

The major works of the Old Testament are studied with emphasis given to their religious, moral, historical and literary significance.

REL 121 New Testament / 3 cr. hrs. / 3 periods

The major works of the New Testament are studied with emphasis given to their religious, moral, historical and literary significance.

REL 125 Islam / 3 cr. hrs. / 3 periods

The history and literature of Islam are explored from the Prophet Mohammed to the present. Special emphasis is on the poetry and practices of the Sufis.

REL 130 Comparative Religions: Oriental / 3 cr. hrs. / 3 periods

Hinduism, Buddhism, Zoroastrianism, Confucianism, Taoism, Shintoism and Zen Buddhism are explored through readings, discussions and movies. Christianity is compared through student knowledge and opinion in discussions.

REL 140 Philosophy of Religion / 3 cr. hrs. / 3 periods

An introduction to the philosophical study of religion. (Same as Philosophy 140.)

RESPIRATORY THERAPY

RTH 71 Introduction to Respiratory Therapy / 5 cr. hrs. / 9 periods (3 lec., 6 lab)

Prerequisite: Admission to the RTH core curriculum, concurrent enrollment in RTH 82.

A brief history of respiratory therapy, handling of medical gases, safety practices, basic nursing arts for the therapist, and general equipment used in the administration of medical gases.

RTH 73 Clinical Medicine / 3 cr. hrs. / 3 periods

Prerequisite: RTH 71, concurrent enrollment in RTH 83, 86 and 91. Course emphasizes the study of microorganisms and control of pathogens related to cardiopulmonary disorders, and the basics of pharmacology and medications used in respiratory therapy.

RTH 82 Respiratory Physiology / 5 cr. hrs. / 5 periods

Prerequisite: Concurrent enrollment in RTH 71.

An in-depth study of the cardiopulmonary system, associated structures and the principles involved in ventilation and gas transport.

RTH 83 Respiratory Care I / 5 cr. hrs. / 7 periods (4 lec., 3 lab)

Prerequisite: RTH 71, concurrent enrollment in RTH 73, 86 and 91. Students are introduced to the study of humidity/aerosol therapy and all of the clinical indications for such therapy. Also covered are methods and principles of cardiopulmonary resuscitation and monitoring of the critically ill patient.

RTH 84 Respiratory Care II / 5 cr. hrs. / 7 periods (4 lec., 3 lab)

Prerequisite: RTH 83, concurrent enrollment in RTH 89 and 92. Course covers the principles of all positive pressure breathing devices and clinical applications. Also studied are chest physiotherapy and rehabilitative respiratory therapy. Volume ventilators are explored with emphasis on proper selection of a ventilator and the assessment of a patient in need of assisted or controlled ventilation.

RTH 86 Diseases I / 4 cr. hrs. / 4 periods

Prerequisite: RTH 82, concurrent enrollment in RTH 73, 83 and 91. Course covers cardiopulmonary diagnostic procedures and studies, and begins the study of common pulmonary disorders.

RTH 89 Diseases II / 4 cr. hrs. / 4 periods

Prerequisite: RTH 86, concurrent enrollment in RTH 84 and 92. A continuation of the study of pathophysiology of cardiopulmonary disorders and treatment.

RTH 91 Clinical Procedures I / 5 cr. hrs. / 15 periods (lab)

Prerequisite: Concurrent enrollment in RTH 83.

This course is the laboratory portion and clinical practicum of the program. Students begin application of clinical principles in a hospital setting after suitable laboratory experience.

RTH 92 Clinical Procedures II / 8 cr. hrs. / 24 periods (lab)

Prerequisite: Concurrent enrollment in RTH 84.

An extension of RTH 91 with more in-depth clinical work and responsibility.

SHEET METAL

SML 110 Sheet Metal I / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Students learn to lay out and fabricate metal items for air conditioning fittings under proper instruction given on the use of hand and machine tools.

SML 120 Sheet Metal II / 4 cr. hrs. / 6 periods (3 lec., 3 lab)

Prerequisite: SML 110.

A continuation of layout and fabrication of fittings for air conditioning. Students learn to build and create these objects.

SML 130 Sheet Metal Pattern Layout I / 3 cr. hrs. / 3 periods

Students learn all phases of laying out sheet metal work including pattern making, cutting, shop methods and procedures of development. This course is designed for all metal trades and follows a sequence of parallel lines, radial lines and triangulation.

SML 135 Sheet Metal Pattern Layout II / 3 cr. hrs. / 3 periods

Prerequisite: SML 130.

A continuation of SML 130.

SML 210 Sheet Metal Pattern Layout III / 3 cr. hrs. / 3 periods

Prerequisite: SML 135.

A continuation of SML 135.

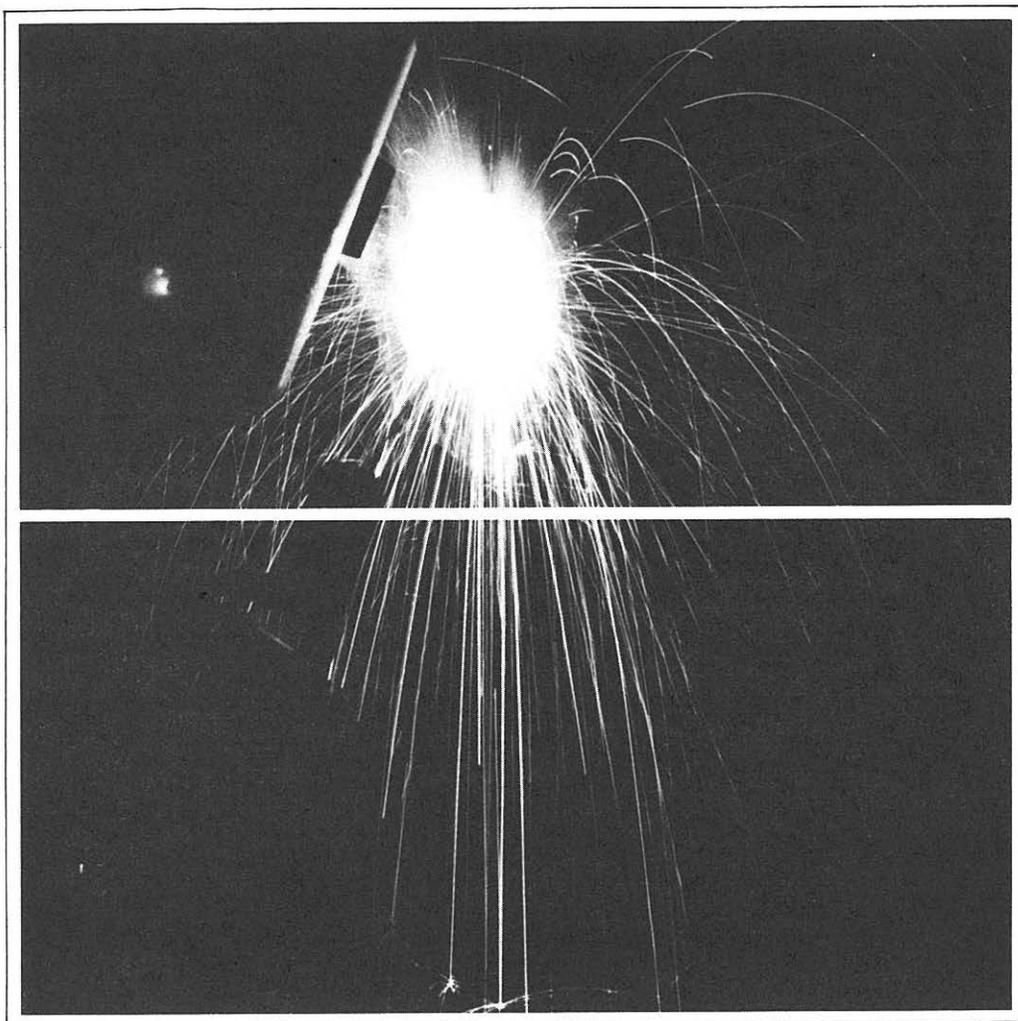
SML 220 Architectural Sheet Metal / 3 cr. hrs. / 4 periods (2 lec., 2 lab)

Prerequisite: SML 120, 210.

Students are supervised in fabricating gutterwork, valleys, range hoods, flashing and ornamental work. They also are exposed to different designing problems in sheet metal.

SML 299 Cooperative Sheet Metal Training / 3 cr. hrs. / 15 periods (lab)

A supervised cooperative work program for students in a sheet metal occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.



SIGN LANGUAGE

SLG 101 Manual Communication I / 3 cr. hrs. / 3 periods

Principles, methods and techniques of communicating manually with the deaf. Emphasis on developing manual communication skills.

SLG 102 Manual Communication II / 3 cr. hrs. / 3 periods

Second course in principles, methods, and techniques of communicating manually with the deaf. Emphasis on developing manual/communications skills.

SLG 201 Manual Communication III / 3 cr. hrs. / 3 periods

Prerequisite: SLG 102.

Principles, methods, and techniques of American Sign Language for communicating with hearing impaired persons with limited command of English.

SOCIAL SERVICES

SSE 115 Drugs in American Society / 3 cr. hrs. / 3 periods

A general introduction to the current drug situation in the United States. Content includes philosophical exploration of the drug situation, interpretation within the social context, the physical and psychological effects of drugs, and a review of current drug programs and research. Emphasis is on dealing with stereotypes so that students can profit from additional information on the drug situation.

SSE 127 Political and Legal Aspects of Drug Use / 3 cr. hrs. / 3 periods

An overview of the political and legal aspects of drug use and abuse including historical perspectives on the drug situation, the influence of political pressures on the interpretation of the problem, the economics of drug abuse, civil liberties, court decisions and current thinking in the field.

SSE 133 Introduction to Social Welfare / 3 cr. hrs. / 3 periods

An introduction to our social welfare system; what it is, has been, and what it may become nationally and in the local community. Also included is an in-depth review of community agencies and resources.

SSE 134 Casework Methods / 3 cr. hrs. / 3 periods

Prerequisite: SSE 133.

The theory and practice of casework within the context of the Southwest. Also included are interviewing, case history and review, and how to develop a helping relationship. Case examples from various social service settings are examined.

SSE 216 Community Organization and Development / 3 cr. hrs. / 3 periods

Course reviews the theory of organizing groups to effect change, and the role of the professional organizer; provides an examination of institutions showing why they change or fail to change; and provides different strategies for effecting change. Students become involved, under guidance, in formal and informal groups within the Tucson community for observation purposes.

SSE 217 Evaluation and Support of the Drug User / 3 cr. hrs. / 3 periods

Course provides students with information and skills necessary to thoroughly and accurately evaluate an individual client, including understanding the specific drug-related behaviors as well as other aspects of the social milieu surrounding the addict, such as family, legal and social situation. When combined with SSE 218, students can make an accurate matching of treatment modality to the needs of the client. This course should be taken jointly with SSE 218 or subsequent to SSE 218.

SSE 218 Treatment of the Drug Abuser / 3 cr. hrs. / 3 periods

A comprehensive course leading to student skills in the treatment of the drug abuser. Content includes the various treatment modalities in use, including therapeutic communities, day-care programs, methadone maintenance and detoxification and psychotherapy models.

SSE 234 Interviewing Techniques—Social Services / 3 cr. hrs. / 3 periods

Prerequisite: SSE 134.

Advanced techniques in interviewing, recording and evaluation. Students will participate in interviewing sessions and be evaluated as to their performance.

SSE 235 Group Work / 3 cr. hrs. / 3 periods

An understanding of group dynamics including personal growth, leadership and organization development in different economic and cultural settings; the role of the leader in groups and techniques of working with groups. Case examples are examined and observed.

SSE 236 Crisis Intervention, Theory Techniques / 3 cr. hrs. / 3 periods

Prerequisite: SSE 134.

The basics of crisis intervention in theory and practice. Students learn techniques of individual crisis intervention in effective personal crisis situations.

SSE 237 Group Technique Applications / 3 cr. hrs. / 3 periods

Prerequisite: SSE 235.

Students further their experience in facilitating groups, using the major group approaches discussed in SSE 235.

SSE 290 Social Services Field Experience / 3 cr. hrs. / 15 periods (lab)

Prerequisite: SSE 133, 134 and consent of instructor.

Supervised placement in community social services agencies so that students are exposed to and gain experience in the practical application of classroom knowledge. Bi-weekly seminars are conducted to discuss practical issues raised through the field experience and pertinent theory. Course may be taken two times for a maximum of six credit hours.

SSE 299 Cooperative Social Services Training / 3 cr. hrs. / 15 periods (lab)

A supervised cooperative work program for students in a social service occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

SOCIOLOGY

SOC 100 Introduction to Sociology / 3 cr. hrs. / 3 periods

What this society is, how we live in it and what we can do with it.

SOC 101 Current United States Social Problems / 3 cr. hrs. / 3 periods

Prerequisite: SOC 100 for University of Arizona transfer.

How individuals get constructively involved.

SOC 103 Explorations in Prejudice / 3 cr. hrs. / 3 periods

Prerequisite: SOC 100 for University of Arizona transfer.

Why we hate each other. What we, as participants in this course, do about our own prejudice and prejudice in the community.

SOC 105 World Population / 3 cr. hrs. / 3 periods

Basic concepts of population studies; analysis of social trends, problems and solutions in relation to environmental factors with reference to both advanced and developing nations.

SOC 110 Introduction to Cities and Community Planning
3 cr. hrs. / 3 periods

An introductory course on the history, structure and form of cities to help students understand the urban environment and how the urban environment functions at the local level.

SOC 120 Age of Uncertainty / 3 cr. hrs. / 3 periods

An interdisciplinary study with major elements of economics, philosophy, history, sociology, anthropology and political science that begins in the agricultural landscape of the 1700s and brings the student to the age of the corporate giant and the nuclear warfare of modern industrial society. (Television course supplemented by reading assignments, workbook exercises and examinations.)

SOC 127 Marriage and the Family / 3 cr. hrs. / 3 periods

A study of the functions of the family and the effect of relationships within the family on the development of individuals in the home and community. (Same as HEC 127.)

SOC 166 Social Gerontology I / 3 cr. hrs. / 3 periods

An introductory course to the bio-cultural study of aging, dying and death in a holistic manner. Emphasis is on the bio-social process of aging, factors in longevity and the social meaning of death.

SOC 167 Social Gerontology II / 3 cr. hrs. / 3 periods

An introductory course to the bio-cultural study of aging, dying and death in a holistic manner. Emphasis is on the psycho-social foundation of aging, retirement crisis, socio-cultural factors, economics of aging and cross-cultural perspectives.

SOC 201 Ghetto Society / 3 cr. hrs. / 3 periods

Prerequisite: SOC 100 for University of Arizona transfer.
A study of minority socialization and the life of urban disadvantaged groups.

SOC 202 Introduction to Civil Rights Practices / 3 cr. hrs. / 3 periods

An explanation of legal practices and regulations with emphasis on individual rights and problems, the welfare system, financial contracting, health and building codes, and administrative processes in the schools. Applied field work included. (Included in Political Science 149.)

SOC 203 Sociology of Utopia / 3 cr. hrs. / 3 periods

Included are the study of "Alternative Life Styles" 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

A study of the legal, social, economic, political, religious and psychological statuses of women in society.

SOC 289 Individual Studies in Sociology / 3-6 cr. hrs. / 3-6 periods

Prerequisite: Consent of instructor.
An exploration of special interest areas. Content to be determined by student and facilitator-instructor.

SOC 298 Topics in Community Involvement / 1-3 cr. hrs. / 1-3 periods

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.

SPANISH

SPA 50 Conversational Spanish I / 4 cr. hrs. / 4 periods

Practice in speaking Spanish, emphasizing current usage and ease in expressing ideas. Emphasis also is on listening and speaking abilities. For beginners and non-native speakers only.

SPA 55 Conversational Spanish II / 4 cr. hrs. / 4 periods

Prerequisite: SPA 50 or 110 or knowledge of Spanish.
A continuation of SPA 50 with study on a more advanced level. Emphasis is on listening and speaking abilities. For non-native speakers only.

SPA 56 Advanced Conversational Spanish / 4 cr. hrs. / 4 periods

Prerequisite: SPA 55 or SPA 111.
Emphasis is on improving speaking skills of students interested in increasing their conversational abilities in Spanish on a more advanced level. Classes are conducted in Spanish.

SPA 101 Intensive Spanish for Native Speakers I / 4 cr. hrs. / 4 periods

Grammar instruction is designed to meet the particular needs of native speakers of Spanish; reading and writing in increasing difficulty to prepare for advanced composition and introductory courses in Spanish literature.

SPA 101 Español Intensivo Para Estudiantes de Haba Hispana I / 4 cr. hrs. / 4 periods

Es un curso planeado especialmente para responder a las necesidades del estudiante de habla hispana. Se empieza con el sistema básico, enseñar a leer y a escribir. Por efecto de conocimientos ya adquiridos previamente los estudiantes asimilan las enseñanzas con extraordinaria rapidez. Para leer se usan particularmente lecturas con fondo cultural mexicano.

SPA 102 Intensive Spanish for Native Speakers II / 4 cr. hrs. / 4 periods

Prerequisite: SPA 101.
This is a continuation of intensive Spanish for Native Speakers I.

SPA 102 Español Intensivo Para Estudiantes de Haba Hispana II / 4 cr. hrs. / 4 periods

Prerequisite: SPA 101.
En Español 102 se continúa el curso 101 del primer semestre con mayor participación en la literatura y en la gramática.

SPA 110 Elementary Spanish I / 4 cr. hrs. / 4 periods

Basic communication skills are taught with emphasis on listening, speaking, reading abilities in elementary grammar. Students also are exposed to the culture and traditions of Spanish speaking countries.

SPA 111 Elementary Spanish II / 4 cr. hrs. / 4 periods

Prerequisite: SPA 110 or equivalent.
A continuation of Elementary Spanish I.

SPA 205-206 Imaginative Writing I, II / 3-3 cr. hrs. / 3 periods

The course is designed to develop creative writing abilities.

SPA 205-206 Literatura Creativa, I, II / 3-3 cr. hrs. / 3 periods

Literatura creativa es un curso que ayudará técnicamente a los estudiantes que tengan vocación de escritores, propiciando el desarrollo de sus facultades creativas. Se tratará de publicar los trabajos más sobresalientes.

SPA 210 Intermediate Spanish I / 4 cr. hrs. / 4 periods

Prerequisite: SPA 111 or equivalent.

An intensive review of grammar fundamentals and a continued practice in speaking. Students also read selected authors and write short compositions.

SPA 211 Intermediate Spanish II / 4 cr. hrs. / 4 periods

Prerequisite: SPA 210 or equivalent.

This is a continuation of Intermediate Spanish I with emphasis on practical usage.

SPA 225 Intermediate Spanish Composition and Conversation I / 3 cr. hrs. / 3 periods

Prerequisite: SPA 211 or equivalent.

This course gives students a firmer command of spoken and written Spanish. Includes preparation of themes and conversations from suggested topics and discussions of current issues and events.

SPA 225 Composición y Conversación en Español I / 3 cr. hrs. / 3 periods

Prerequisite: SPA 211 or equivalent.

El curso está diseñado para lograr mayor facilidad en el español hablado y escrito. Se prepararán discusiones sobre tópicos actuales de toda naturaleza para practicar el hablar y para ensanchar el vocabulario. Para la parte escrita se estudiarán trozos de cuento, para análisis de estilo y después para hacer imitaciones en ensayos.

SPA 226 Intermediate Spanish Composition and Conversation II / 3 cr. hrs. / 3 periods

A continuation of Intermediate Spanish Composition and Conversation I.

SPA 240 Independent Study in Spanish Language / 1-4 cr. hrs. / 1-4 periods

Prerequisite: Consent of instructor.

Students pursue an independent course of study under the supervision of an instructor.

SPA 249 Cultura Chicana / 3 cr. hrs. / 3 periods

Este curso incluye los siguientes temas Chicanos: proceso histórico; el fenómeno social, creación literaria.

SPEECH**SPE 102 Introduction to Oral Communication / 3 cr. hrs. / 3 periods**

An introduction to the basic concepts and skills of oral communication in interpersonal and public address situations; and a study of communication barriers; research techniques, and norms of speech delivery.

SPE 105 Voice and Diction / 2 cr. hrs. / 2 periods

Study and training in the aspects of basic voice production including speech and personality, the physiological system, and general speech standards.

SPE 110 Public Speaking / 3 cr. hrs. / 3 periods

Study and training in public speaking with emphasis on audience adaptation. Reading and speech assignments focus on research, organization and logic, analysis and delivery as techniques of audience adaptation.

SPE 111 Parliamentary Procedures / 2 cr. hrs. / 2 periods

Designed for student leaders and others interested in elementary parliamentary law and procedure. Rules and motions according to Robert's Rules of Order are explained together with modern changes and practices.

SPE 115 Voice and Articulation for the Stage / 2 cr. hrs. / 2 periods

Study and training in the aspects of basic voice production as required by the stage; norms and techniques of stage diction, characterizations, dialects and sight-reading.

SPE 120 Business and Professional Communication / 3 cr. hrs. / 3 periods

Study and training in communication situations and problems within the organizational complex. Basic assignments include oral reports, interviewing, problem-solving and conference groups, listening and persuasion.

SPE 124 Argumentation and Debate / 3 cr. hrs. / 3 periods

A study and practice of argumentation. Students are acquainted with the basic forms of analysis, evidence, proof reasoning and refutation.

SPE 125 Forensics / 1 cr. hr. / 1 period

Individualized instruction and practice in speech competition skills including debate, oral interpretation, and persuasive, extemporaneous and impromptu speaking. Each student must participate in at least one intercollegiate speech tournament.

SPE 130 Small Group Discussion / 3 cr. hrs. / 3 periods

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

Study and training in the techniques of analysis and presentation of the oral dimensions of literature; use of voice and body in the presentation of literature, the role of interpreter, characterization, literary conventions and oral interpretation modes.

SPE 149 Independent Study in Speech / 1-4 cr. hrs. / 1-4 periods

Prerequisite: Six hours in speech or equivalent.

Students may research some aspect of communication not available through regular course offerings, such as argumentation, non-verbal communication, communication theory, mass media, rhetorical criticism, etc.

SWAHILI**SWA 50-51 Elementary Swahili, I, II / 4-4 cr. hrs. / 4 periods**

Basic patterns and structures of Swahili and sufficient vocabulary to communicate are taught through conversation, reading and writing. An advanced course in Swahili will be offered if enrollment is sufficient.

TRAVEL AND TOURISM INDUSTRY**TVL 101 Principles of Travel-Tourism Industry / 3 cr. hrs. / 3 periods**

Overview of the industry including modes, motives, 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

Prerequisite: TVL 101 or concurrent registration.

Observation and task accomplishment of duties of a travel agent or specialist. Emphasis is on airline travel, tariffs, ticketing, manuals and routing.

**TVL 201 Travel-Tour Agency Management / 3 cr. hrs.
3 periods**

Prerequisite: TVL 102.

Business requirements in promotion, sales, financing and credit. Problems in schedule manipulation, resolving employee/customer conflict, and development of ethical relations with the traveling public are covered.

**TVL 202 Current Issues and Problems in Travel-Tourism
3 cr. / 3 periods**

Prerequisite: TVL 201 or concurrent registration.

Practice is provided in resolution of current problems within the travel-tourism business in economic, political, and legal areas.

WASTEWATER TECHNOLOGY

**WWT 101 Introduction to Water and Wastewater Technology
3 cr. hrs. / 5 periods (2 lec., 3 lab)**

An introductory course covering the basic concepts of groundwater production and water distribution and wastewater collection and treatment. Wastewater emphasis is on ponds and package plants. Course is designed to include materials found in Grade I Certification requirements.

WWT 103 Small Treatment Plants / 1 cr. hr. / 1 period

Course includes materials found in Grade I Certification on the operation and maintenance of wastewater lagoons including both stabilization ponds and aerated lagoons and portions of Grade II Certification requirements on the maintenance of extended aeration package plants. Activated sludge methods are stressed.

WWT 105 Quality Monitoring / 1 cr. hr. / 1 period

Course includes materials found in Grades I, II, & III Certification requirements on flow measuring devices and sampling equipment and techniques including the use of tables and calculations. Also covered is the use of basic monitoring and operational tests.

WWT 107 Hydraulics of Water / 2 cr. hrs. / 2 periods

Prerequisite: MTH 110 or equivalent.

A practical course dealing with the hydraulics of water including flow measurements, pipe friction, pumps, flumes, detention times, velocity, valves, hydrostatics and sedimentation. Course is designed to include materials found in Grade I & II Certification requirements.

WWT 110 Sewerage System Maintenance / 1 cr. hr. / 1 period

Course includes materials found in all grade level certification requirements of sewerage system maintenance. Includes the study of plant mechanical and electrical components, safety, collection maintenance, conventional cleaning methods and inspection.

WWT 112 Chemical Control Processes / 1 cr. hr. / 1 period

Course includes materials found in all grade level certification requirements dealing with common and alternative methods of disinfection and the use of chemical and microbiological results in the control of plant processes.

WWT 114 Wastewater Plant Safety / 1 cr. hr. / 1 period

Course includes materials found in all grade level certification requirements dealing with safe chemical use and storage including OSHA requirements and the development of a plant and collection system safety program.

**WWT 115 Intermediate Biological Wastewater Treatment
3 cr. hrs. / 5 periods (2 lec., 3 lab)**

Course includes operation and maintenance of wastewater treatment plants utilizing the activated sludge and trickling filter processes. Included are pretreatment, aeration, settling, aerobic and anaerobic sludge treatment, sludge thickening and disposal, effluent disposal and safety. Use of laboratory results in operation and monitoring as well as the development of a maintenance program are covered. Course is designed to include materials found in Grade II and III Certification requirements.

**WWT 199 Cooperative Wastewater Training / 3 cr. hrs.
15 periods (15 lab)**

A supervised cooperative work program for students in wastewater occupations for a minimum of 15 hours per week. Course may be taken two times for a maximum of six credit hours. Course objectives differ each semester.

**WWT 201 Advanced Biological Wastewater Treatment
3 cr. hrs. / 5 periods (2 lec., 3 lab)**

Prerequisite: WWT 115 or equivalent Grade II Certification.

The use of laboratory results in the activated sludge process and in tertiary treatment are covered, in addition to upgrading operator knowledge and skills in activated sludge treatment, safety, and the development of a maintenance program. Course is designed to include materials found in Grade III Certification requirements.

**WWT 203 Applied Chemistry in Water and Wastewater
2 cr. hrs. / 2 periods**

Prerequisite: Grade II Certification in water or wastewater or equivalent background or experience.

Practical experiences of commonly used chemical and microbiological tests found in both water and wastewater facilities. Course is designed to include materials found in Grade III and IV Certification requirements as well as supervisory personnel.

WWT 205 Wastewater Treatment Processes / 2 cr. hrs. / 2 periods

Prerequisite: Grade II Certification or equivalent background or experience.

A study of necessary laboratory treatment processes within wastewater pilot-plants. Course is designed to include materials found in Grade III and IV Certification requirements.

**WWT 209 Wastewater Collection Systems / 3 cr. hrs.
5 periods (2 lec., 3 lab)**

Covers maintenance of collection systems including inspection, cleaning, repair, record keeping, safety and development of a maintenance program. Course is designed to include materials found in Grade II and III Certification requirements.

**WWT 215 Applied Chemical and Microbiological Analysis
3 cr. hrs. / 5 periods (2 lec., 3 lab)**

Prerequisite: Grade II Certification or equivalent background or experience.

An introduction to the chemical and laboratory experiences necessary to perform and calculate test results commonly used in wastewater plant operation and effluent monitoring. Types of tests covered include BOD, suspended solids, pH, fecal coliform, alkalinity, volatile solids and volatile acids. Course is designed to include materials found in Grade III and IV Certification requirements as well as laboratory work at all levels.

**WWT 220 Wastewater Hydraulics / 3 cr. hrs. / 5 periods
(2 lec., 3 lab)**

A pre-professional hydraulics class including characteristics of fluids, flow measurement, pump and valve selection, pump calibration, friction losses, use of tables and basic calculations. Laboratory work covers lift station maintenance, valve maintenance and repair, and pump repair. Course is designed to include materials found in all grade levels of certification, particularly requirements in Grades III and IV.

WWT 225 Physical-Chemical Sewage Treatment / 3 cr. hrs. 5 periods (2 lec., 3 lab)

□ Prerequisite: WWT 201, 203.

The use of chemical addition as a method of waste treatment. Includes basic chemistry of physical-chemical treatment, chemical makeup and metering process control, monitoring, laboratory controls and carbon adsorption. Course is designed to include materials found in Grades III and IV Certification requirements as well as special certification requirements in physical-chemical treatment.

WWT 235 Wastewater Treatment Plant and Collection System Design and Construction / 3 cr. hrs. / 5 periods (2 lec. 3 lab)

□ Prerequisite: Grade II Certification or equivalent background or experience.

Covers plan reading and pre-professional engineering design including design criteria, specifications and cost estimation. Also included are types of sewer line materials and treatment plant materials for specified uses, proper installation and construction inspection. Course is designed to include materials found in Grade III and IV Certification requirements.

WWT 299 Cooperative Wastewater Training / 3 cr. hrs. 15 periods (15 lab)

A supervised cooperative work program for students in wastewater occupations for a maximum of 15 hours per week. Course may be taken two times for a maximum of six credit hours. Course objectives differ each semester.

WELDING

WLD 50 Elementary Welding / 3 cr. hrs. / 6 periods (1 lec., 5 lab)

An elementary course in welding, designed to acquaint the student with theory and application of arc welding and oxyacetylene welding and cutting. Practical experience is provided in the making of typical butt, lap, corner, and fillet joints.

WLD 110 Combination Welding / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Basic techniques in arc welding and oxyacetylene welding.

WLD 110 Soldadura / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

Técnica básica de soldadura eléctrica y octógona.

WLD 115 Blueprint Reading / 3 cr. hrs. / 3 periods

The student, after successfully completing the course, can interpret blueprints as applied to the welding trade and should be familiar with welding symbols and their significance.

WLD 150 Oxyacetylene Welding / 4 cr. hrs. / 6 periods (2 lec., 4 lab)

Students learn set-up and operation of oxyacetylene welding equipment, how to weld flat, horizontal, vertical and overhead on standard alloys of steel; to braze and solder non-ferrous and ferrous metals and their alloys.

WLD 160 Arc Welding / 4 cr. hrs. / 6 periods (2 lec., 4 lab)

A study of joining metals by electric arc with the use of the electrode; techniques of basic steps essential to all position welding with all types of electrodes; equipment, current electrodes and all specified joint preparations used.

WLD 250 Pipe Welding / 4 cr. hrs. / 6 periods (2 lec., 4 lab)

□ Prerequisite: WLD 150 and 160, SML 130.

This course covers the contraction and expansion of pipe, flame cutting pipe, beveling pipe, welding different pipe joints, tacking, welding miter joints and flange welding. Plate and pipe certification requirements are included.

WLD 260 Inert Gas Welding / 4 cr. hrs. / 6 periods (2 lec., 4 lab)

□ Prerequisite: WLD 250.

Students learn techniques and procedures of Tungsten Inert Gas welding (Heli-Arc). Techniques involve proper control settings, proper manipulation of TIG torch, and welding in all positions on non-ferrous and ferrous metals. Also a study and practice of metal inert gas welding (MIG welding).

WLD 299 Cooperative Welding Training / 3 cr. hrs. 15 periods (lab)

A supervised cooperative work program for students in a welding occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.

WRITING

WRT 5 Poetry Writing / 3 cr. hrs. / 3 periods

Offered concurrently with WRT 205 but not designed for transfer credit.

WRT 6 Short Story Writing / 3 cr. hrs. / 3 periods

Offered concurrently with WRT 206 but not designed for transfer credit.

WRT 62 Literary Magazine Workshop / 3 cr. hrs. / 3 periods

A laboratory course in which students edit, design, layout and produce at least one literary publication of student work in each semester. It is recommended that this course be taken for credit for two consecutive semesters.

WRT 70 Developmental Writing / 3 cr. hrs. / 3 periods

Course provides training in the fundamental skills including grammar, usage, organization and development. It may be taken in preparation for WRT 101 or WRT 150, or for personal improvement.

WRT 72 Sentence Patterns / 1 cr. hr. / 1 period

□ Prerequisite: Passing score on entry test.

This mini-course teaches the student to write and identify various types of sentence structures and their essential elements, and independent and dependent clauses. Help is given in correcting common sentence errors.

WRT 73 Punctuation / 1 cr. hr. / 1 period

This mini-course covers the mechanics of writing, including punctuation, capitalization, numbers and abbreviations.

WRT 77 Paragraphs / 1 cr. hr / 1 period

This mini-course provides practice in designing effective paragraphs as basic units in constructing essays. Emphasizes the topic sentence, patterns of development, and clear transitions.

WRT 88 Writing Journal / 1 cr. hr. / 1 period

Course promotes fluency, spontaneity and creativity in writing through a daily practice of writing skills. Entry skills will be evaluated.

WRT 91 Essay / 1 cr. hr. / 1 period

This mini-course offers practice in the writing of short essays (300–500 words), including at least one persuasive paper.

WRT 92 Critical Essay / 1 cr. hr. / 1 period

This mini-course offers the student practice and skills in the writing of short critical essays about works of literature.

WRT 93 Research Paper / 1 cr. hr. / 1 period

This mini-course provides instruction and practice in gathering information, designing and writing a research paper.

WRT 101 Writing I / 3 cr. hrs. / 3 periods

An introduction to the excitement of good writing with emphasis on the technique and practice of description, explanation and argument. Designed for transfer credit.

WRT 102 Writing II / 3 cr. hrs. / 3 periods

Prerequisite: WRT 101.

A continued practice in writing with emphasis on longer and more analytical compositions, including a research paper or annotated papers. Readings may include fiction, poetry, drama or non-fiction. Designed for transfer credit.

WRT 101M-102M Writing IM, IIM / 3-3 cr. hrs. / 3 periods

These courses permit students to complete the two-semester freshman writing requirement by taking six one-hour modules. The Introduction module must be taken at the start of WRT 101M. The following modules must be included for transfer: Essay; Writing about Literature; and Research. Students may select two additional modules from the following list to complete the requirement. The Essay module must be taken before Writing about Literature or Research. Other modules may be taken in any sequence. Any three modules may be taken in a semester for WRT 70 credit. The modules are: (1) Introduction; (2) Sentences; (3) Paragraphs; (4) Essay; (5) Writing about Literature; (6) Research; (7) Reading Literature; (8) Dream Journal; (9) Individual Studies; (10) Journal; (11) Dialects; (12) Creative Writing.

WRT 150 Practical Communications / 3 cr. hrs. / 3 periods

Practice in effective everyday communication skills. Emphasis is on writing and other communication skills necessary in specific career fields. May transfer as an elective.

WRT 154 Technical Communications / 3 cr. hrs. / 3 periods

Prerequisite: WRT 101 or 150.

Students develop writing skills used in formal and informal reports, form completion, letters, abstracts, reviews and other communication skills as prescribed by vocational areas.

WRT 205 Poetry Writing / 3 cr. hrs. / 3 periods

Prerequisite: WRT 101 and 102.

An introduction to the techniques used in contemporary poetry; a study of selected poems as examples; practice in applying techniques by writing and discussing original poetry. For transfer, students must have completed WRT 102. This course may be taken as WRT 5 for non-transfer credit.

WRT 206 Short Story Writing / 3 cr. hrs. / 3 periods

Prerequisite: WRT 101 and 102.

Introduction to the techniques used in contemporary short fiction, and study of selected short fiction with practice in separate elements of technique through short exercises and writing of original manuscripts. For transfer, students must have completed WRT 102. This course may be taken as WRT 6 for non-transfer credit.

WRT 215 Advanced Poetry Writing / 3 cr. hrs. / 3 periods

Prerequisite: WRT 5 or 205 and consent of instructor.

A continuation of poetry writing, with increased emphasis on craft. Candid peer/instructor criticism of both published models and student poems. Offered both semesters. Transfers as an elective.

WRT 220 Advanced Non-Fiction Writing / 3 cr. hrs. / 3 periods

Prerequisite: WRT 101 and 102.

A second-year college level course offering extensive practice in writing various forms such as essays, reports, journals and interviews.

WRT 254 Technical Communications / 3 cr. hrs. / 3 periods

Prerequisite: WRT 101, 102 and approval of major advisor and instructor.

Basic techniques of writing long and short reports, abstracts, memos, proposals and other forms required in scientific and technical occupations. The course is structured to allow students to work on writings and required in courses and in future occupations.

WRT 299 Cooperative Writing Training / 3 cr. hrs. 15 periods (lab)

A supervised cooperative work program for students in a writing occupation for a minimum of 15 hours per week. Course may be taken four times for a maximum of 12 credit hours. Course objectives differ each semester.



APPRENTICE RELATED INSTRUCTION

The following courses are offered cooperatively with local and state indentured apprenticeship committees.

ASSOCIATED GENERAL CONTRACTORS

AGC 50-51 Surveying I, II / 5-5 cr. hrs. / 5 periods

BRICKLAYING

BKL 50-54 Bricklaying I-VI / @ 5 cr. hrs. / 6 periods (4 lec., 2 lab)

BUILDING CONSTRUCTION TECHNOLOGY

- ✓ BCT 50 Building Trade Mathematics / 5 cr. hrs. / 5 periods
- ✓ BCT 51 Building Trades Blueprint Reading / 5 cr. hrs. / 5 periods
- ✓ BCT 60-61 Welding I, II / 4-4 cr. hrs. / 6 periods (2 lec., 4 lab)

CARPENTRY

- ✓ CRP 50 Carpentry History, Tools and Materials / 5 cr. hrs. / 6 periods (4 lec., 2 lab)
- ✓ CRP 51 Carpentry Foundations and Forms / 5 cr. hrs. / 6 periods (4 lec., 2 lab)
- ✓ CRP 52 Carpentry Exterior Finish / 5 cr. hrs. / 6 periods (4 lec., 2 lab)
- ✓ CRP 53 Reinforced Concrete and Heavy Construction / 5 cr. hrs. / 6 periods (4 lec., 2 lab)
- ✓ CRP 54 Carpentry Interior Finish / 5 cr. hrs. / 6 periods (4 lec., 2 lab)
- ✓ CRP 55 Carpentry Roof Framing / 5 cr. hrs. / 6 periods (4 lec., 2 lab)
- ✓ CRP 56 Carpentry Stair Building / 5 cr. hrs. / 6 periods (4 lec., 2 lab)
- ✓ CRP 57 Blueprint Reading and Estimating / 5 cr. hrs. / 6 periods (4 lec., 2 lab)

FLOOR COVERING

- ✓ FLR 50 Introduction to Floor Covering / 5 cr. hrs. / 5 periods
- ✓ FLR 51 Tile and Linoleum / 5 cr. hrs. / 5 periods
- ✓ FLR 52 Carpet / 5 cr. hrs. / 5 periods

GLAZING

- ✓ GLZ 50 Orientation to the Glazing Trade / 5 cr. hrs. / 5 periods
- ✓ GLZ 51 Glazing, Tools, Equipment and Materials / 5 cr. hrs. / 5 periods
- ✓ GLZ 53 Blueprint Reading and Sketching / 5 cr. hrs. / 5 periods
- ✓ GLZ 54 Store Front Construction and Glazing / 5 cr. hrs. / 5 periods
- ✓ GLZ 55 Locks, Latches and Door Closers / 5 cr. hrs. / 5 periods

IRONWORKING

- ✓ IRW 50 Introduction to Trade Science / 3 cr. hrs. / 4 periods (3 lec., 1 lab)
- ✓ IRW 51 Reinforcing Blueprint Reading / 3 cr. hrs. / 4 periods (3 lec., 1 lab)
- ✓ IRW 52 Basic Welding / 3 cr. hrs. / 4 periods (3 lec., 1 lab)
- ✓ IRW 53 Advanced Welding / 3 cr. hrs. / 4 periods (3 lec., 1 lab)
- ✓ IRW 54 Rigging and Safety / 3 cr. hrs. / 4 periods (3 lec., 1 lab)
- ✓ IRW 55-56 Structural Blueprint Reading I, II / 3-3 cr. hrs. / 4 periods (3 lec., 1 lab)
- ✓ IRW 57 Ornamental Iron I / 3 cr. hrs. / 4 periods (3 lec., 1 lab)
- ✓ IRW 58 Steel Detailing and Fabrication / 3 cr. hrs. / 4 periods (3 lec., 1 lab)
- ✓ IRW 59 Ornamental Iron II / 3 cr. hrs. / 4 periods (3 lec., 1 lab)
- ✓ IRW 64 Intermediate Combination Welding / 3 cr. hrs. / 5 periods (2 lec., 3 lab)
- ✓ IRW 66 Advance Combination Welding / 3 cr. hrs. / 5 periods (2 lec., 3 lab)

LATHING

- ✓ LTH 50 Lathing I / 5 cr. hrs. / 5 periods
- ✓ LTH 51 Ceiling and Wall Construction / 5 cr. hrs. / 5 periods
- ✓ LTH 52-53 Blueprint Reading and Sketching I, II / 5-5 cr. hrs. / 5 periods

OPERATING ENGINEERS

- ✓ OEG 50-51 Diesel Engine I, II / 5-5 cr. hrs. / 5 periods
- ✓ OEG 52 Equipment Structure and Function / 5 cr. hrs. / 5 periods
- ✓ OEG 53 Transmission of Power I / 5 cr. hrs. / 5 periods
- ✓ OEG 54 Transmission of Power II / 4 cr. hrs. / 5 periods (3 lec., 2 lab)
- ✓ OEG 55 Construction Material Application / 5 cr. hrs. / 5 periods
- ✓ OEG 56-58 Grades, Plans and Earthwork I-III / @ 5 cr. hrs. / 5 periods
- ✓ OEG 59 Basic Electricity and Wiring / 5 cr. hrs. / 5 periods
- ✓ OEG 62 Plant Equipment Structure and Function / 5 cr. hrs. / 5 periods
- ✓ OEG 63 Construction Material Processes / 5 cr. hrs. / 5 periods
- ✓ OEG 64 Mathematics for Operating Engineers / 3 cr. hrs. / 3 periods
- ✓ OEG 65 Mechanical Drawing for Operating Engineers / 3 cr. hrs. / 3 periods
- ✓ OEG 66-68 Refrigeration I-III / @ 5 cr. hrs. / 5 periods

PAINTING & DECORATING

- ✓ PNT 50 Introduction to the Painting Trade / 5 cr. hrs. / 5 periods
- ✓ PNT 51 Color Harmony and Design / 5 cr. hrs. / 5 periods
- ✓ PNT 52 Blueprint Reading and Estimating / 5 cr. hrs. / 5 periods
- ✓ PNT 53 Wall Covering / 5 cr. hrs. / 5 periods
- ✓ PNT 54 Drywall Taping / 5 cr. hrs. / 5 periods
- ✓ PNT 55 Industrial Painting / 5 cr. hrs. / 5 periods

PLASTERING AND CEMENT MASONRY

- ✓ PCM 50 Related Mathematics and Science / 5 cr. hrs. / 5 periods
- ✓ PCM 51 Trade Theory / 5 cr. hrs. / 5 periods
- ✓ PCM 52 Blueprint Reading for Plaster and Cement Masons / 5 cr. hrs. / 5 periods
- ✓ PCM 53 Drafting and Sketching / 5 cr. hrs. / 5 periods
- ✓ PCM 54 Estimating and Building Codes / 5 cr. hrs. / 5 periods
- ✓ PCM 55 Trade Practices / 5 cr. hrs. / 5 periods

PLUMBING AND PIPEFITTING

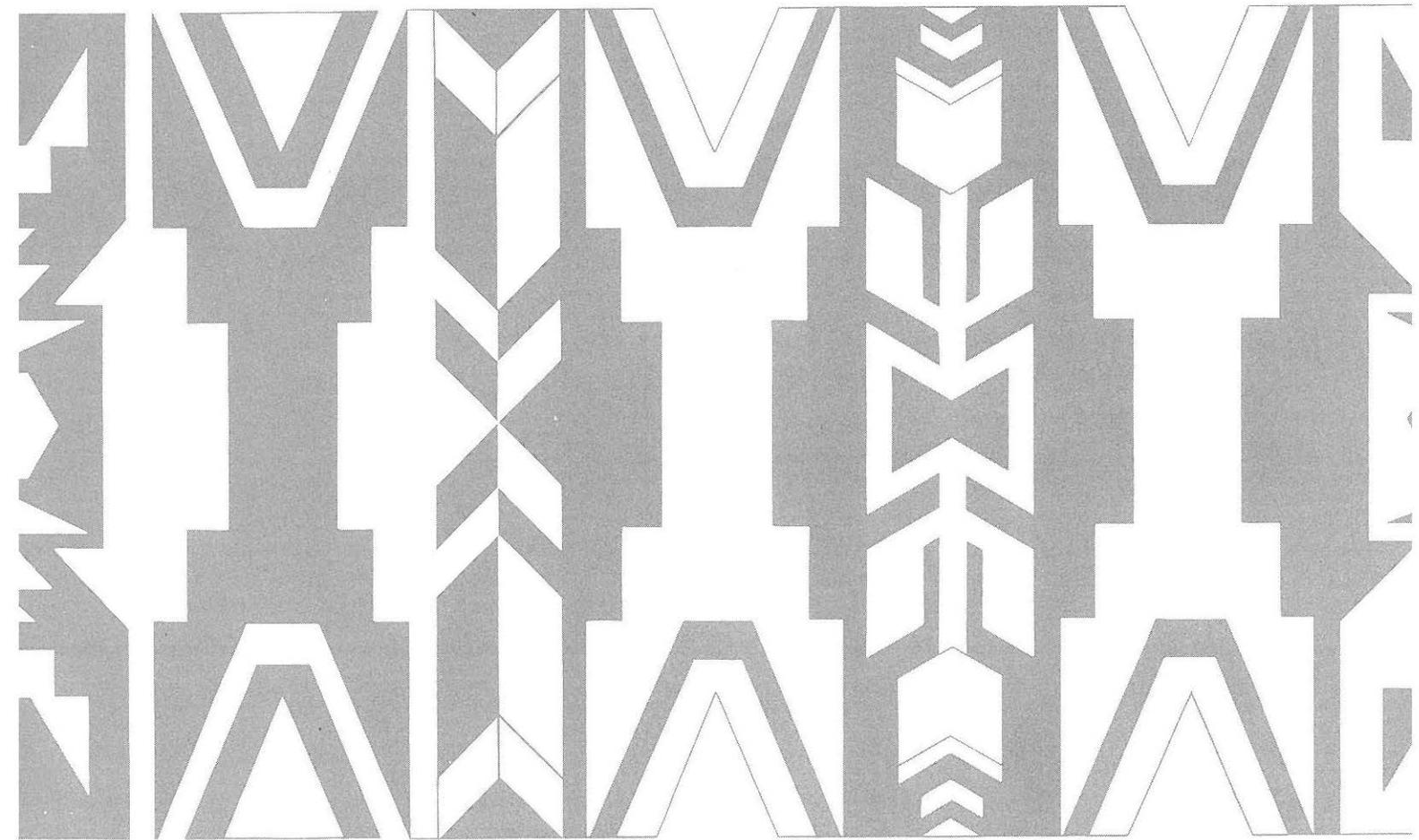
- ✓ PFT 50 Plumbing and Pipefitting I / 5 cr. hrs. / 5 periods
- ✓ PFT 51 Plumbing and Pipefitting II / 4 cr. hrs. / 5 periods (3 lec., 2 lab)
- ✓ PFT 52 Plumbing and Pipefitting III / 5 cr. hrs. / 5 periods
- ✓ PFT 53 Plumbing and Pipefitting IV / 4 cr. hrs. / 5 periods (3 lec., 2 lab)
- ✓ PFT 54-58 Plumbing V-IX / @ 5 cr. hrs. / 5 periods
- ✓ PFT 59 Plumbing X / 4 cr. hrs. / 5 periods (3 lec., 2 lab)
- ✓ PFT 60-61 Pipefitting V-VI / 4-4 cr. hrs. / 5 periods (3 lec., 2 lab)
- ✓ PFT 62 Pipefitting VII / 5 cr. hrs. / 5 periods
- ✓ PFT 63-65 Pipefitting VIII-X / @ 4 cr. hrs. / 5 periods (3 lec., 2 lab)

SHEET METAL

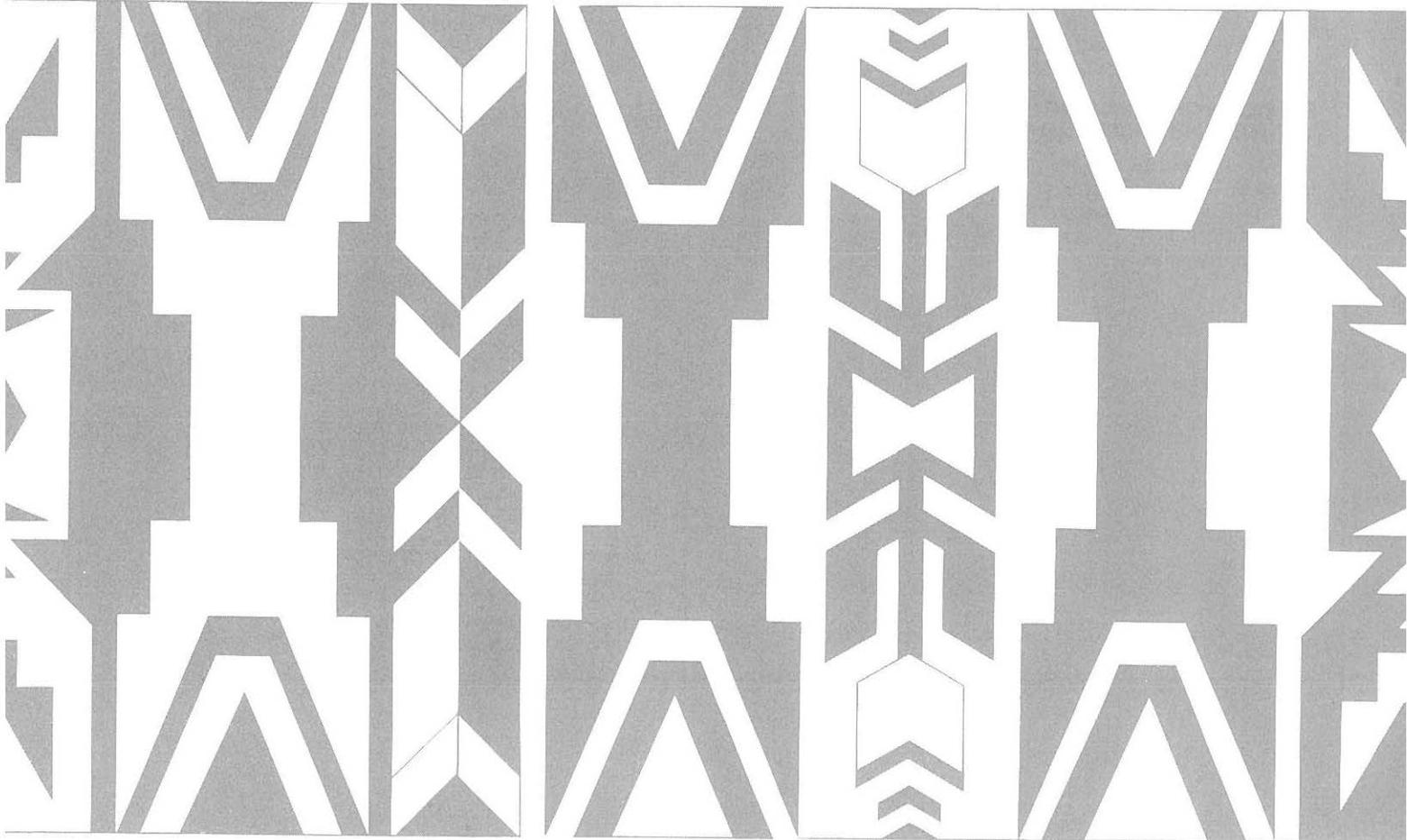
- ✓ SML 50 Introduction to the Sheet Metal Trade / 5 cr. hrs. / 5 periods
- ✓ SML 51-55 Apprentice Sheet Metal I-V / @ 5 cr. hrs. / 5 periods
- ✓ SML 56 Apprentice Air Conditioning / 5 cr. hrs. / 5 periods

THEORY AND PRACTICE OF ELECTRICITY

- ✓ TGE 50-52 Electrical Theory I-III / @ 6 cr. hrs. / 6 periods
- ✓ TGE 53-55 Advanced Apprenticeship Training I-IV / @ 1 cr. hr. / 1 period
- ✓ TGE 56 Advanced Apprenticeship Training IV / 2 cr. hrs. / 2 periods
- ✓ TGE 57 Advanced Apprenticeship Training V / 1 cr. hr. / 1 period
- ✓ TGE 58-60 Advanced Apprenticeship Training VI-VIII / @ 6 hrs. / 6 periods
- ✓ TGE 61 Advanced Apprenticeship Training IX / 2 cr. hrs. / 2 periods
- ✓ TGE 62 Advanced Apprenticeship Training X / 3 cr. hrs. / 3 periods
- ✓ TGE 63-64 Advanced Apprenticeship Training XI-XII / 1-1 cr. hrs. / 1 period
- ✓ TGE 65 Advanced Apprenticeship Training XIII / 2 cr. hrs. / 2 periods
- ✓ TGE 66-68 Advanced Apprenticeship Training XIV-XVI / @ 6 cr. hrs. / 6 periods



Governing board and faculty



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term expires 1979
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M.S.—Brigham Young University
Ph.D.—Arizona State University

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Library Services
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B.A.—University of South Florida
M.A.—Arizona State University
M.L.S.—University of Arizona

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M.A.—Western Carolina University
Ed.D.—University of Tennessee

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Intramurals, Recreation
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M. Ed.—University of Arizona

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M.S.—University of Notre Dame

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Jack W. Fuller, Associate Dean of Evening,
Extended Day and Summer Programs
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M.Ed.—Southern Illinois University
M.A.—California State College
Ed.D.—University of Wyoming

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(Business/Human Resources)
A.A.—College of the Sequoias
B.A.—California State University
J.D.—Loyola University

Area Associate Dean
(Fine, Applied and Communicative Arts)

Donald E. Proulx, Area Associate Dean
(Health-Math/Sciences)
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M.Ed.—University of Arizona

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M.Ed.—University of Arizona

Elizabeth Gonzalez, Associate Dean of Student Services
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M.Ed.—University of Arizona

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M.A.T.—Purdue University

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M.A.—Syracuse University
Ph.D.—University of Illinois

Miguel A. Palacios, Assistant Dean of
Admissions and Registration
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M.A.—University of Arizona
Ph.D.—University of Arizona

Ralph L. Wahrer, Associate Dean of Extended Day Programs
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M.A.—University of Iowa
Ph.D.—University of Iowa

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Edward Acuna, Associate Dean of Instructional Services
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M.Ed.—University of Arizona

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Acting Assistant Dean, Registration and
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M.Ed.—University of Arizona

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M.A.—Northern Colorado University
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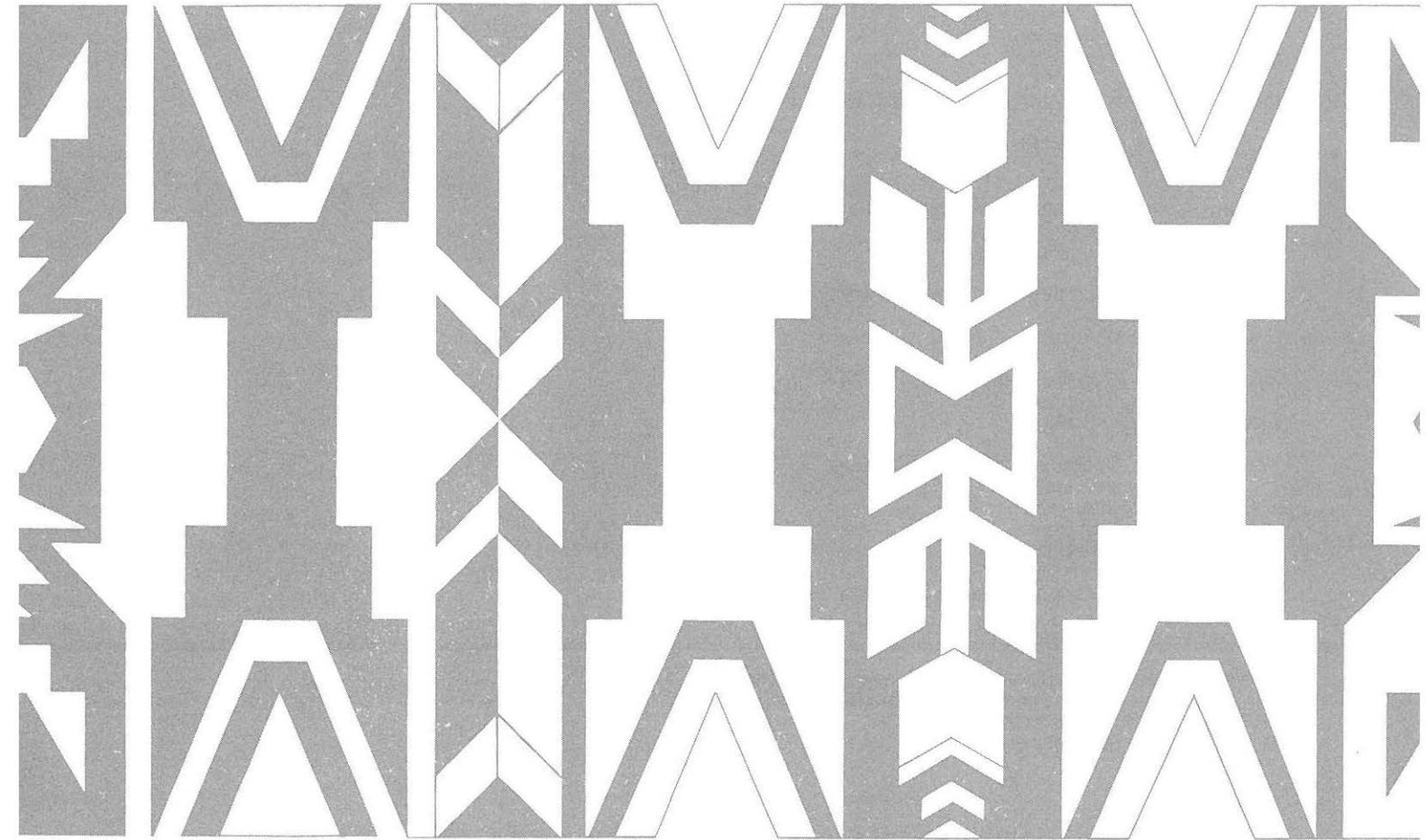
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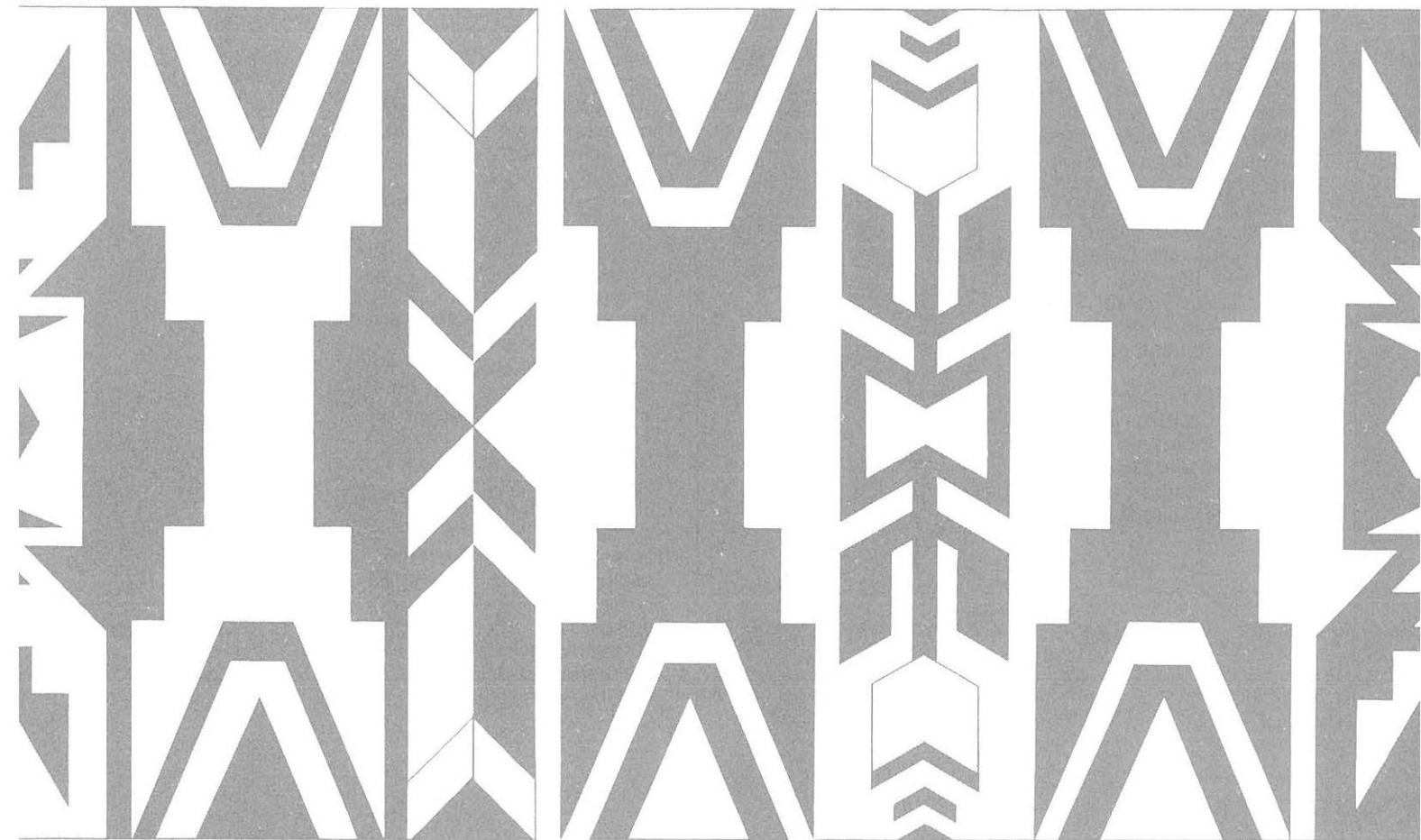
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