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PimaCommunityCollegeCatalog ❄ 80/81

10th Anniversary 1970-1980

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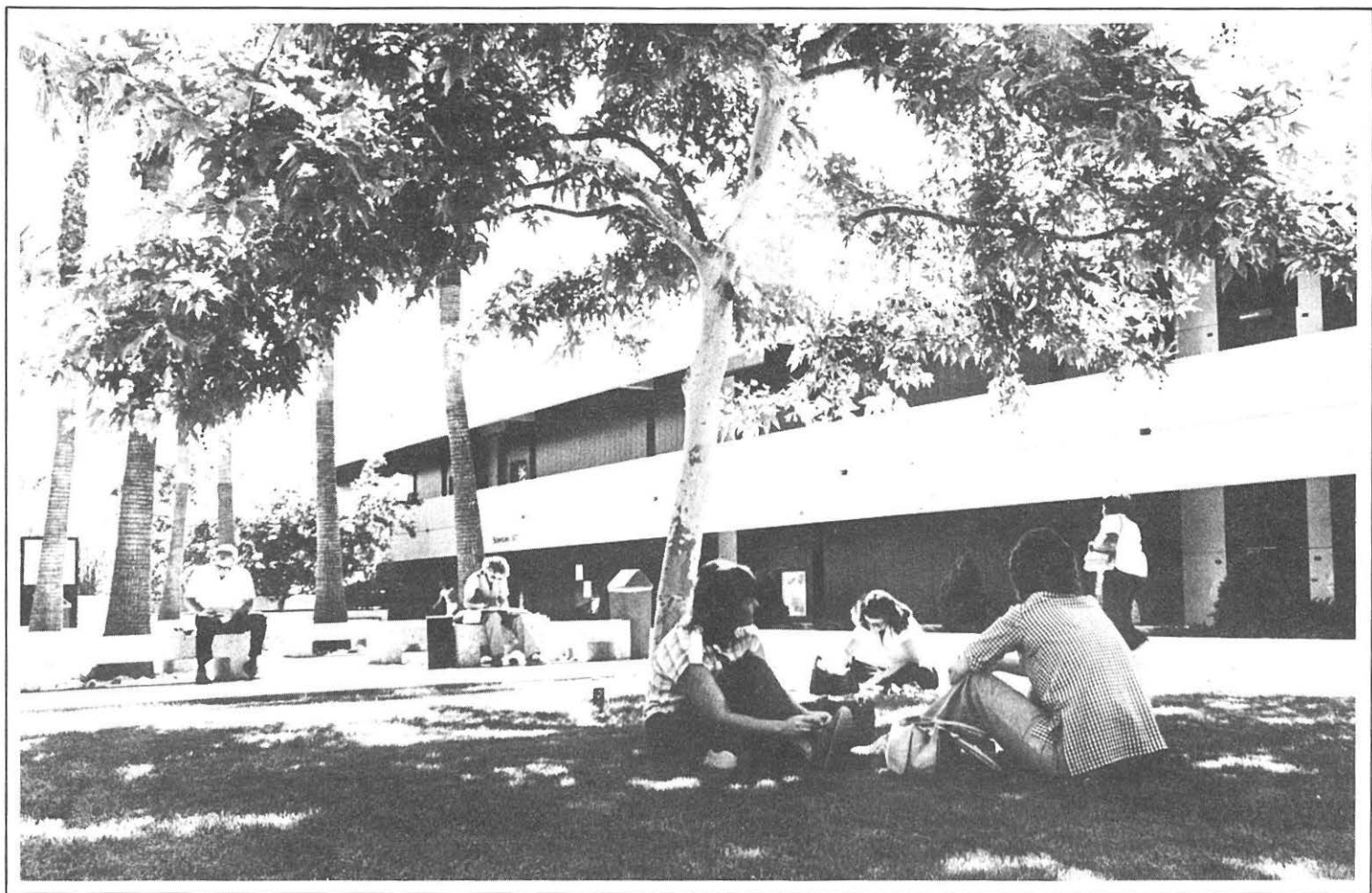


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Pima County Community College District

1980/81

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 Personnel/Human Resources (EEO) Office for Pima Community College is on the West Campus in the Administration/Library Building. Telephone number is 884-6623.

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

Published: June 1980

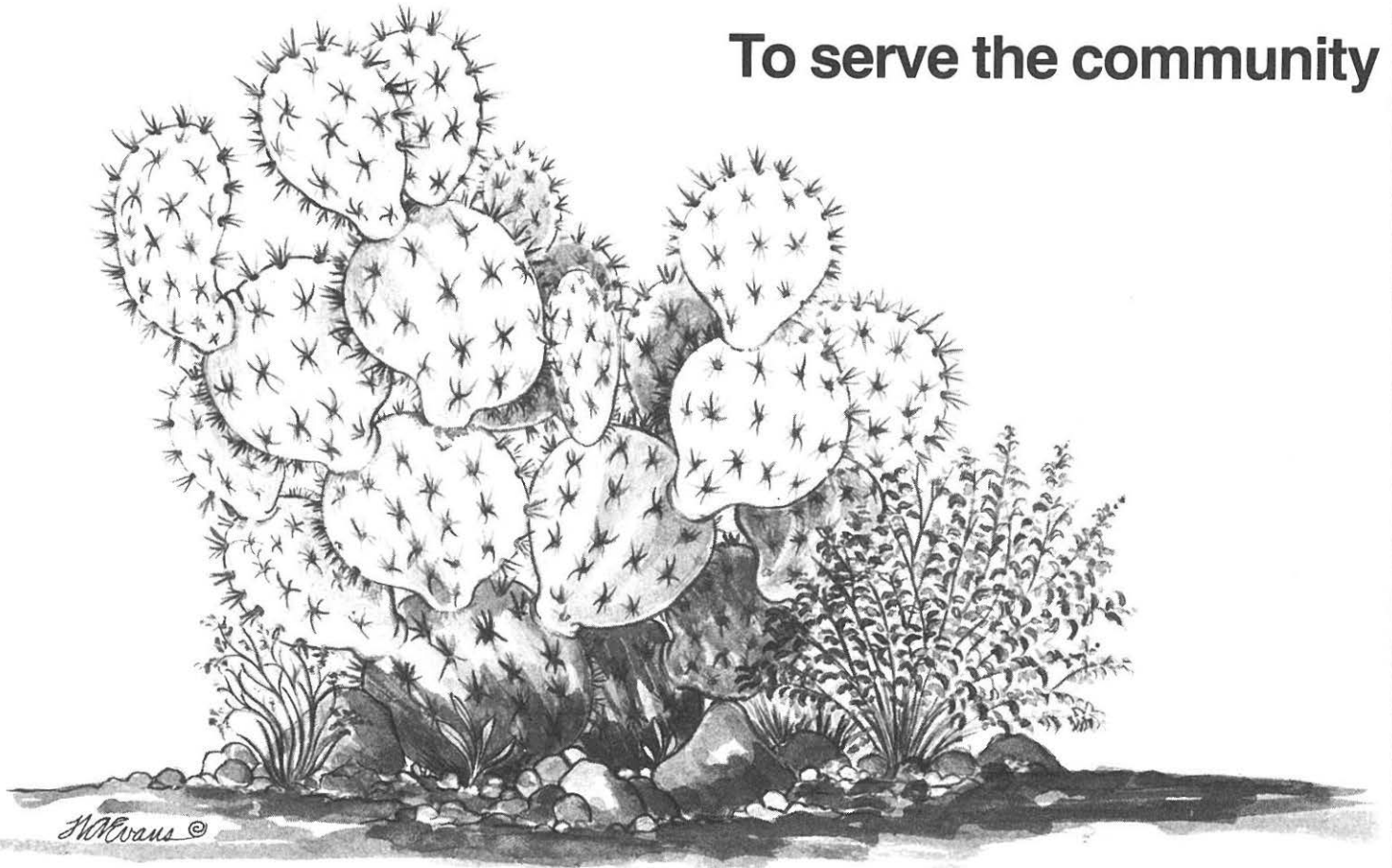
Family Educational Rights and Privacy Act

Pima Community College informs its students annually of the Family Educational Rights and Privacy Act of 1974. This Act, with which the institution intends to fully comply, was designated to protect the privacy of educational records, to establish the right of students to inspect and review their education records, and to provide guidelines for the correction of inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with the Family Educational Rights and Privacy Act Office concerning alleged failures by the institution to comply with the Act.

Local 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 Registrations and Admissions or the Office of Student Services at any campus.

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

To serve the community



Pima County Community College District

Pima Community College, which officially opened in the fall of 1970, is a two-year institution supported primarily by county taxes and state aid.

The multi-campus college district serves a population of 490,000 people residing within the 9,240 square miles of Pima County through two campuses, an education center, and some 70 off-campus locations. A community services program offers additional non-credit courses at 30 locations. Pima is also responsible for the Tucson Career Skill Center. In addition, Pima College offers classes in neighboring Santa Cruz County which currently does not have a community college.

College credit programs include university parallel or transfer studies representing the freshman and sophomore levels and job-oriented technical-occupational studies of various lengths.

Many credit and non-credit courses are open to students on a general interest or self-improvement basis. There are also a limited number of courses taught via radio and television each semester which can be taken on a general interest basis or as part of a program of study. Approximately 1,000 courses are offered by the District.

Most of the two-year study programs lead to an associate degree. Certificate programs can run from one semester up to two years depending on the area of study.

The college has an enrollment of approximately 22,000 students in credit course programs.

West Campus

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.

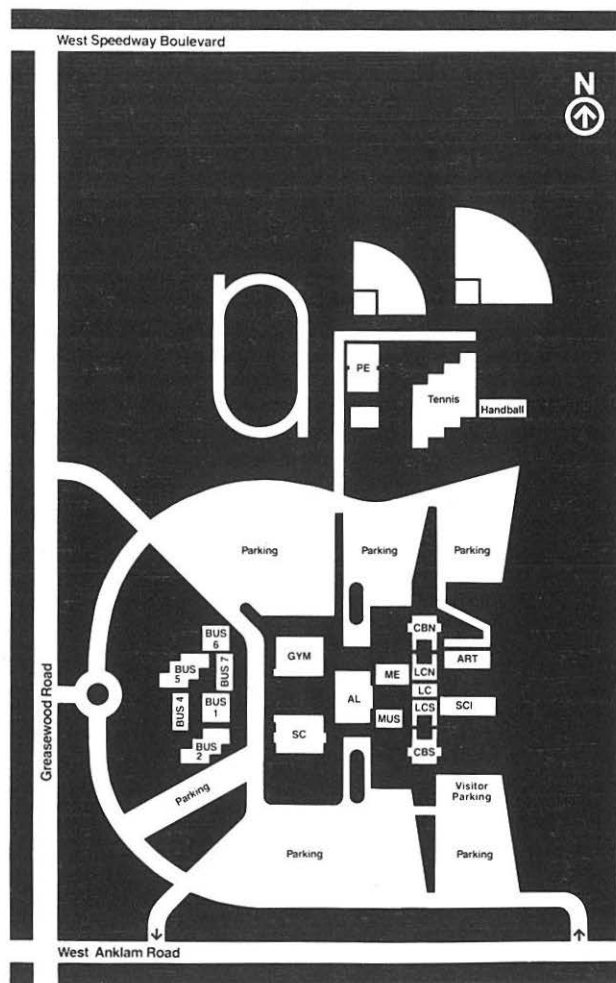
The West Campus is located on a 273-acre site in the foothills of the Tucson Mountains, three miles west of Tucson's central business district. Completed in the early part of 1971, campus facilities include 11 permanent buildings and six relocatable or portable buildings.

Buildings, designed in the form of a close-knit complex, and landscaping surrounding the campus blend in with the rolling desert terrain. Malls hidden within the complex, however, sport areas of lush grass, shrubs and tall trees.

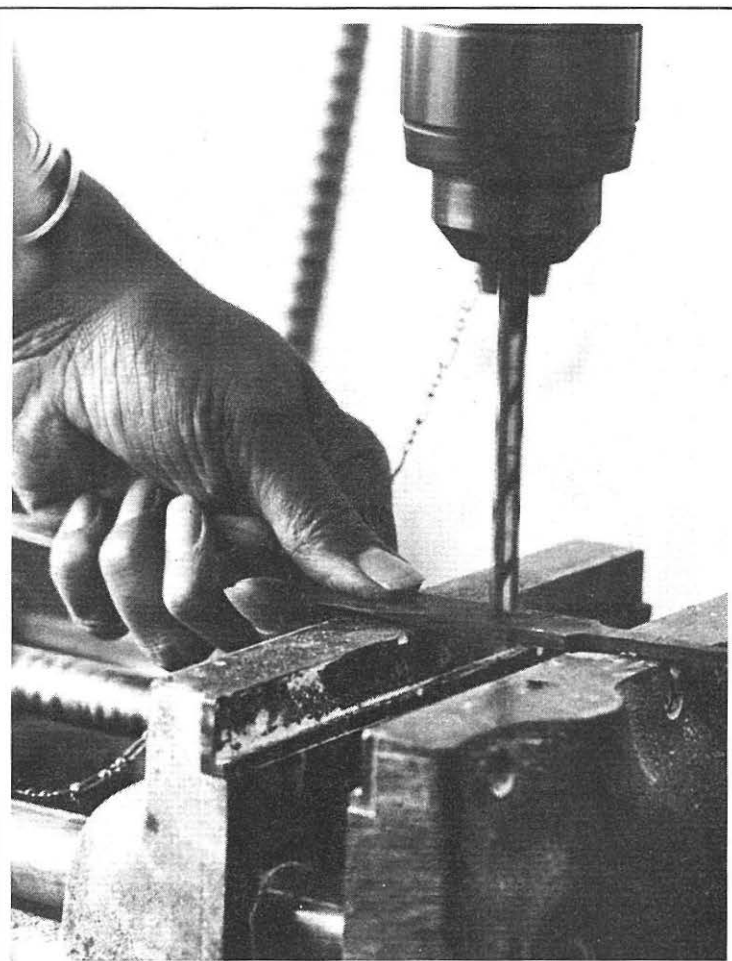
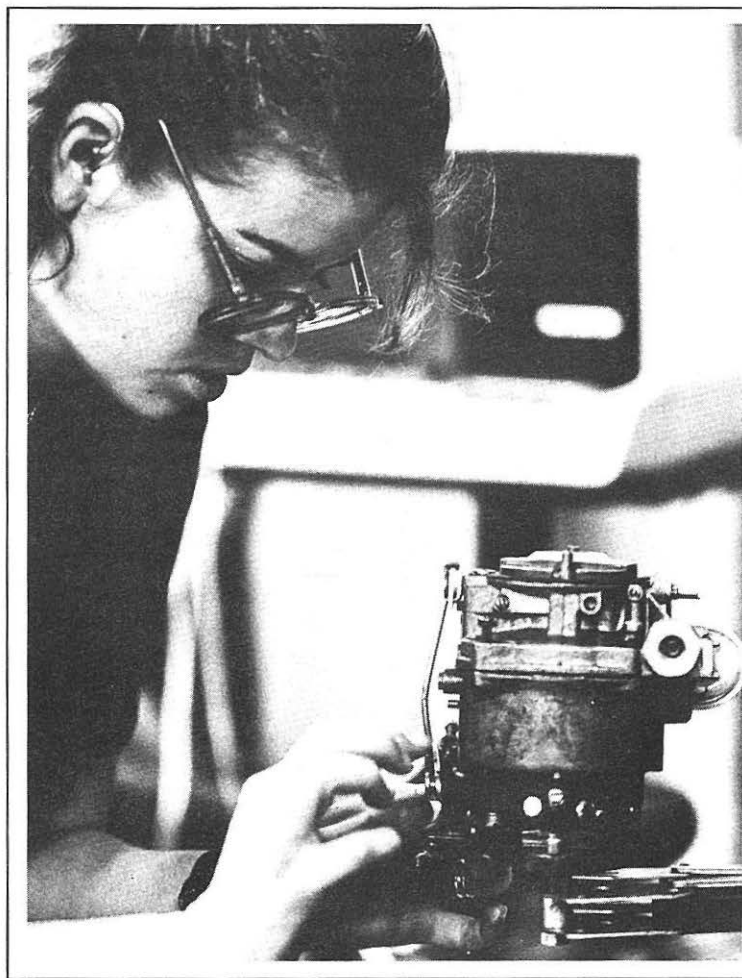
Facilities include two classroom buildings; a lecture center; a student center housing various student service offices, an art exhibition gallery, a cafeteria and lounges; a music building; a sciences building; a math/electronics building; an arts building; a library/administration building; learning centers; a gymnasium and a physical education annex plus a track, baseball and softball diamonds, tennis and handball/racquetball courts. Business instruction classrooms currently are housed in the relocatables.

The campus, located at Anklam and Greasewood Roads, also currently houses the District administration offices.

The West Campus enrollment is approximately 10,000.



- SC** Student Center
- GYM** Gymnasium
- PE** Physical Education Annex
- AL** Administration/Library
- MUS** Music
- ME** Math/Electronics
- LCN** Alternative Learning Center—North
- LCS** Alternative Learning Center—South
- LC** Lecture Center
- CBN** Classroom Building—North
- CBS** Classroom Building—South
- SCI** Sciences
- ART** Arts
- Area R** Relocatable Buildings
 - BUS 1—Business Relocatables
 - BUS 2—Business Relocatables
 - BUS 3—Business Relocatables
 - BUS 4—Business Relocatables
 - BUS 5—President/College Administration Offices
 - BUS 6—Business Relocatables
 - BUS 7—Business Relocatables



Downtown Campus

The Downtown Campus, which opened in the fall of 1974, 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 the students.

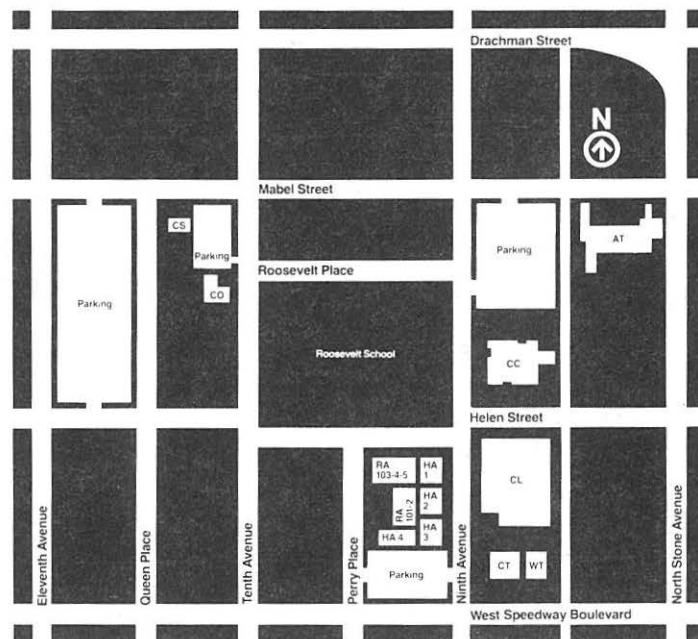
Helping determine the selection of the campus site was its easy accessibility to public transportation from most sections of the city.

In addition to offering a fully comprehensive study program, the campus also houses some of the specialized industrial technologies programs such as automotive, air conditioning and sheet metal, machine tool and welding. Students can take all their studies at the Downtown Campus or a portion at that campus and the remainder at any of the other college locations. Bus service is available linking the Downtown and West Campuses.

Facilities at the Downtown Campus include an automotive technologies building; a main classroom and several small classroom buildings; an advertising art building; a welding technologies building; and a student center housing various student service offices, a library, a bookstore, an alternative learning center, lounges and a food service area.

The Downtown Campus enrollment is approximately 6,000.

- AT** Automotive Technology
- CC** Campus Center
- CL** Classroom Building
- CO** Community Campus Office
- CS** Community Services
- CT** Classroom Technology Building
- HA-1** Extended Day Programs
- HA-2** Restrooms
- HA-3** Physical Plant
- HA-4** Faculty Offices
- RA** Classrooms
- WT** Welding Technology



East Education Center

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

The 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 on a lease basis.

Opening of the Center was aimed at relieving high enrollment pressures at the West and Downtown Campuses and also to bring classes closer to people on the east side. It had been found that nearly half of Pima's annual student body lives east of Alvernon Way.

Housed at the Center are classrooms, laboratories and support services including advising and counseling, an alternative learning center, a library, financial aid services, student activities, veterans advising, and a bookstore.

Construction of an eastside campus is currently under consideration.

Approximately 4,200 students are attending classes at the East Education Center.

Community Campus

The Community Campus—a campus without walls—utilizes the facilities of the community including the public school system, various businesses, agencies and neighborhood centers in the Tucson vicinity and in Ajo, Marana, Sells and Nogales. College credit classes are taught at approximately 70 locations, mainly during evening hours.

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

The concept of the Community Campus, established in 1975, was to bring college classes to where people live and work.

The Community Campus office is located at 1225 N. 10th Avenue, adjacent to the Downtown Campus.

The Community Campus enrollment is about 8,000 with classes held at: Air National Guard, Ajo High School, Amphitheater Junior High School, Amphitheater High School, Araneta's Mexican Inn, Automotive Skill Center, Arivaca Community Center, Avra Valley Fire Station, Aztec Inn, Burr Brown Plant, Canyon Del Oro High School, Carillo Elementary School, Catalina High School, Cholla High School, Cross Junior High School, Davis-Monthan Air Force Base, District No. 1 Education Center, Doubletree Inn, Drexel Fire Station, El Pueblo Community Center, El Rio Center, Erickson School, Tucson Fire Training Center, First National Bank of Arizona, Flowing Wells Fire Station, Flowing Wells High School, Ganoung School, Green Valley, Hilton Inn, Hughes Aircraft Company, Kino Hospital, Main Tucson Post Office, Mansfield Center, Marana High School, Midway Business Park, Nogales High School, Palo Verde High School, Patagonia High School, Plaza International Hotel, PPEP/Educational Project, Pueblo High School, Ramada Inn, Rincon High School, Sahuarita High School, Sahuaro High School, Santa Rita High School, Sells High School, Smuggler's Inn, Sunnyside High School, Tucson General Hospital, Tucson High School, Tucson Marriott Hotel, Tucson Medical Center, University of Arizona, Valley National Bank and Western Savings Bank.

Community Services

Community Services, which is self-supporting through student revenues, offers all of the college's non-credit programs at approximately 30 locations. These include family life education, women's programs, a senior citizen education program, general interest courses, special projects, seminars and workshops.

General interest type classes cover environment/science, hobbies, art and music, foods, health programs, self-improvement, crafts, languages and business.

The senior citizen program provides a stimulating atmosphere and classes which assist older adults to adjust to the lifestyles and situations in which they find themselves, encourages intellectual growth and participation as well as contribution to the social, political and intellectual activities of the community.

The Community Services Office is located at 210 W. Mabel Street, adjacent to the Downtown Campus.

Tucson Career Skill Center

The Tucson Career Skill Center is a non-profit adult vocational training facility that works with community-based organizations and agencies to provide training to the educationally, economically, and handicapped disadvantaged. From 250 to 300 persons are involved in center programs at peak times.

The Skill Center's major funding sources are CETA, the Arizona Department of Education's Division of Career and Vocational Education, and the Work Incentive Program.

Pima Community College became the local educational agency for the Skill Center in 1973 and on August 15, 1979, officially recognized the Center as part of the college organization.

Academic Calendar 1980/81

Fall Semester (1980)

Advising/Registration Period	Aug 4-22
Continuing Students by Appointment	Aug 4-7,11-12
Pre-applied New Students	Aug 12-13
Open to All Students	Aug 14-22
Fall Classes Start	Aug 25
Late Registration and Drop/Add	Aug 25-29
Labor Day Holiday	Sept 1
Advising for Spring Semester by Appointment	Oct 13-Nov 26
Applications Due for Students Completing Programs & Degrees	Nov 1
Spring Registration Period	
Continuing Students by Appointment	Nov 10-21
New Students by Appointment	Nov 24-26
Registration Continues with Limited Advising	Dec 1-19
Veterans Day Holiday	Nov 11
Thanksgiving Day Holiday	Nov 27-30
Early Drop/Add for Spring Semester	Dec 3
Evaluation/Assessment/Exam Week	Dec 15-19
Final Grades Due	Dec 19
Fall Semester Ends	Dec 19

Spring Semester (1981)

Advising/Registration Continues	Jan 8-14
Spring Classes Start	Jan 15
Late Registration and Drop/Add	Jan 15-21
Rodeo Days Holiday	Feb 19-22
Applications Due for Students Completing Programs & Degrees	Mar 2
Spring Vacation	Mar 16-22
Evaluation/Assessment/Exam Week	May 11-15
Graduation	May 14
Final Grades Due	May 15
Spring Semester Ends	May 15

Summer Session (1981)

Summer Advising/Registration	
Open to All Students	May 26-Jun 2

First Five-Week Session (A Session)

Advising/Registration Continues	Jun 3-4
Classes Begin	Jun 8
Independence Day	Jul 2
Classes End	Jul 9

Second Five-Week Session (B Session)

Advising/Registration Continues	Jul 8-9
Classes Begin	Jul 13
Classes End	Aug 13

Eight Week Session (C Session)

Advising/Registration Continues	Jun 3-4
Classes Begin	Jun 8
Independence Day	Jul 2
Classes End	Jul 30



The 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.

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

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 Ankam 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-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's 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.

In May, 1977, the Pima Community College Foundation was established to support the College.

Highlights of the 1977/78 academic year included a report by a Citizens' Advisory Committee on future facility needs of the College in response to the institutions's steady enrollment increases.

On July 15, 1978, Dr. Irwin L. Spector resigned his position as president after six years of leadership in developing the College. Donald F. Klaasen, then dean of Business Services and chief fiscal officer, began his year-long service as acting president. Raymond J. Stith was appointed executive dean of the West Campus.

Also during the year, the College was chosen as one of the top five community colleges in the nation to host a National AACJC Conference in Career Education.

After an intensive presidential search, Dr. S. James Manilla was appointed president of the College. Prior to joining the College on July 16, 1979, he was president of Penn Valley Community College in the Kansas City Metropolitan Community College System. President Manilla has initiated a Five-Year Master Plan composed of educational, facilities, and fiscal components. All college constituencies are represented on the Master Plan Steering Committee.

The 1979/80 fiscal year began with the adoption of a fiscally conservative operating and capital outlay budget of \$25.9 million. The Board of Governors voted to maintain the Pima Community College District tax levy at the level of the previous year despite cost increases from inflation.

In November, 1979, Esther Tang was reelected to a second five-year term as the Board of Governors representative from District 4. Other Governing Board members are Mrs. Georgia C. Brousseau, from District 3; Dr. James B. Klein, from District 1; and Michael Hansen, District 2. Joe Bedard from District 5 announced his resignation from the Board in March, 1980.

Work continued during the 1979/80 year on acquiring a permanent site for an educational facility on the east side of Tucson. On February 20, 1980, the contract for the acquisition of 60 acres of land was signed. An eastside facility is planned as a replacement for the East Education Center which is housed in leased facilities.

Robert Agrella, the former executive dean of the Downtown Campus, was appointed to the same position after having served as president of Mendocino Community College in Ukiah, California.

Pima continues to be the largest community college in Arizona. By the fall of 1980, it is anticipated the student enrollment will be 23,500 with 10,000 on the West Campus, 6,000 at the Downtown Campus, 4,200 at the East Education Center and 8,000 attending Community Campus classes. There is some duplication of numbers as many students take classes at more than one site.

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

A prime objective of the Foundation is to help bring about a recognition by local and regional business and industry and 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.

Meeting 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

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

DIRECTORS OF PIMA COMMUNITY COLLEGE FOUNDATION

Dewey F. Barich
James H. Click
Jack D. Davis
Walter H. Fathauer
Mary Foster
Thomas B. Freeman
Edward S. Frohling
Oscar Gonzales
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Donald F. Klaasen
S. James Manilla
John Mascarella
Howard W. Miller, Sr.
Sally Rollings
Edward J. Rusing
Rubin Salter, Jr.
Donald G. Shropshire
William Hawes Smith
Thomas C. Weir
Joseph B. Wilcox
William Wilde
Thomas E. Wilson

Información del Colegio en Español

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 multiplicidad cultural que representa 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 currículum 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 de habla hispana la posibilidad de aprovechar más el proceso educativo 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 será institución educativa 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 tiene 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.

Admission to the College

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 has 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 specific entrance examinations and may have 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 or until one year after immigrant status is

reached. 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.

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 registration each term in order to clarify the fee status for that term.

International Student Admission

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

Any non-citizen of the United States who has not received immigrant status is considered an international student and must meet the admission requirements listed below. 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). 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.

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

- Submit a bank statement 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 application for admission. Students in the United States who are on a different visa than F-1 may attend part-time, i.e., enrolled for less than 12 credit hours. Graduation from the equivalent of an American secondary school is not of primary importance. However, part-time international students must demonstrate English proficiency if they plan to enroll in courses other than English as a Second Language or courses offered bilingually. All international students, regardless of full-time or part-time status, must meet all appropriate immigration standards and requirements.

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 forward 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.

Arizona Higher Education Course Equivalency Guide

This guidebook has been developed in order to smooth the transfer of students from Arizona community colleges to four-year colleges and universities. The guide offers information on which courses will transfer for equal credit. It is available in the counseling offices.

Registration/Advisement Information

Registration

Students can register for classes after going through early or summer advising as well as during the regular registration periods. A schedule of list of classes with information on registering and getting advice is given to each student before 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 dropped requiring them to re-register. Students with awards for aid in paying their fees should first report to the financial aid office. New students attending the college under the G.I. Bill should check at the veterans' affairs office about deferring fees.

Registration/Advisement for International Students

International students must contact the three staff members responsible for guiding their educational experience at Pima Community College. These are the International Student Admission Specialist, the International Student Counselor and a program advisor. Since two of these staff members are currently available only at the West Campus, full-time international students must be admitted and complete registration and schedule changes at that location. International students may be required to take placement examinations for the purpose of determining proper academic placement. An international student registering for a course must meet the prerequisites or otherwise satisfy the instructor of his or her preparation to take the course. Prerequisites can be waived only at the direction of the instructor or department involved. An instructor may withdraw a student who does not have the proper prerequisites for his or her class.

Maximum Credit Hours Per Semester

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

Students who wish to exceed this maximum credit hour load must obtain the approval of the director in the division of their program majors.

Advisement

Assistance is given each student to help select a program of study for the student's needs and goals. The advising program is offered each semester during registration. At this time, students have a chance to talk with teachers and counselors about program choices and course selection.

Withdrawals

Students may withdraw from a course at any time before the end of the term but should first talk with their teacher or a counselor. If they still decide to withdraw they must notify each teacher involved and the Registrar's Office. The date and the reasons for withdrawal must be recorded. A withdrawal grade may be requested by the student or the teacher after the teacher notifies the student in person or by mail that this action is intended.

Prerequisites

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

Attendance

The student who expects success in the learning process must be sure to attend class each time. The rules for attending shall be given to the student in writing at the start of the semester. The student who does not meet these rules may be withdrawn from the course by the teacher. Students who are involved in official college activities may be excused but they must notify their teachers in advance and must make up all work missed.

Repeat of Course for Credit

State Board Regulations prohibit the college from receiving state aid for students repeating courses more than once except in certain programs, and in those programs no more than four semesters of work in any course may be taken. Students who enroll more than the permitted number of times in a course will be charged an extra fee to replace the lost state aid.

Students who repeat a course will have both grades appearing on the permanent record and transcript. Only one successful completion will be counted toward degree and certificate requirements.

Student Costs

Fees and Tuition

Tuition and Student Fees were not determined at publication deadlines. For information regarding tuition and student fees call the college at 884-6060 or one of the college's admission and registration offices.

Refund Regulation (Credit Courses)

STUDENT FEES & IN-COUNTY STUDENT TUITION REFUND—Student fees are not refundable except under the following circumstances:

1. When classes are canceled by the college, a 100 percent refund of the applicable fee will be made.
2. When students process a complete withdrawal from the college on or before the fourteenth (14th) calendar day after the start of the regular semester, a refund, less a \$5 processing fee, will be made.
3. When students adjust their schedules by officially dropping one or more classes on or before the fourteenth (14th) calendar day after the start of the regular semester, and the amount of their fees is affected, a refund of the applicable fee will be made less a \$5 processing fee.
4. No refund will be made after the fourteenth (14th) calendar day after the start of the regular semester.

For those classes not beginning within the first week following the scheduled start date of any semester, the refund period will be 14 calendar days following the scheduled start date of each class.

OUT-OF-COUNTY/OUT-OF-STATE TUITION REFUND—Refunds of out-of-county or out-of-state students who officially withdraw from the college will be made in accordance with the following schedule:

1. When classes are canceled by the college, a 100 percent refund of the applicable tuition will be made.
2. If the total withdrawal occurs at any time before the eighth (8th) calendar day, a refund, less a \$25 processing fee, will be made and no additional processing fee will be charged.
3. If the total withdrawal occurs from the eighth (8th) through the fourteenth (14th) calendar day after the start of the regular semester, a 50% refund, less a \$25 processing fee, will be made. If the tuition is less than \$25, no refund will be made.

4. No refund will be made after the fourteenth (14th) calendar day after the start of the regular semester.

For those classes not beginning within the first week following the scheduled start date of any semester, the refund period will be 14 calendar days following the scheduled start date of each class.

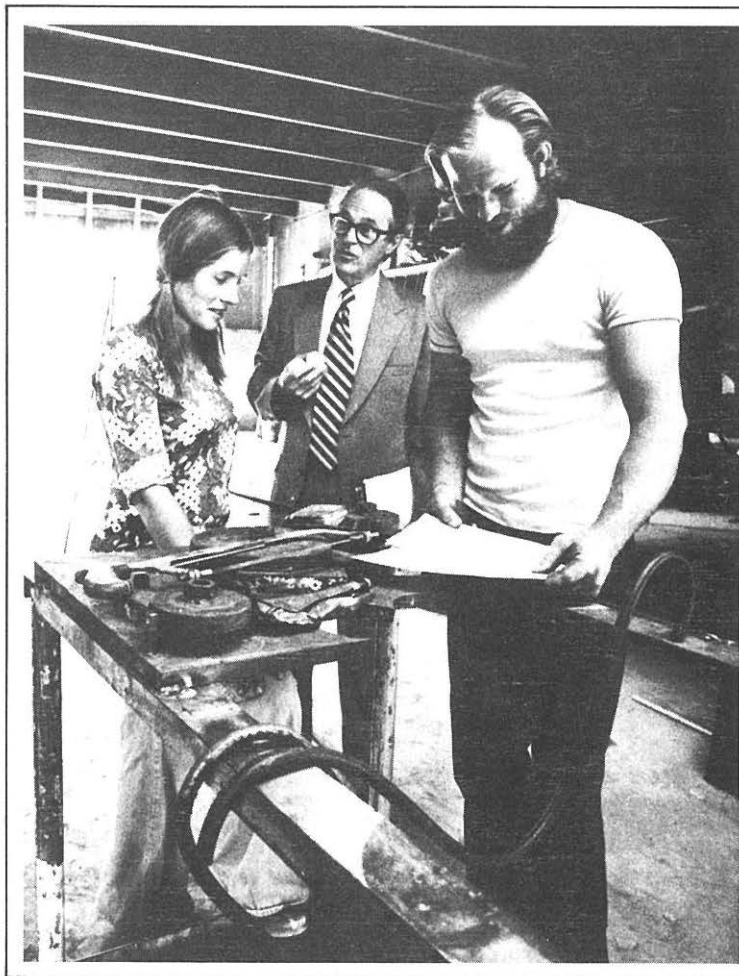
5. When students adjust their schedules by officially dropping one or more classes on or before the fourteenth (14th) calendar day after the start of the regular semester and the amount of their tuition is affected, a refund of the applicable tuition will be made in accordance with the above schedule. A one-time \$25 processing fee will be charged for any schedule adjustment that effects a refund.

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 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.



Student Records

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 the 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.

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. For this reason, it is important 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 the requirements students must meet to qualify for degree or certificate recommendation to the Governing Board of the Pima County Community College District.

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

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.

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.

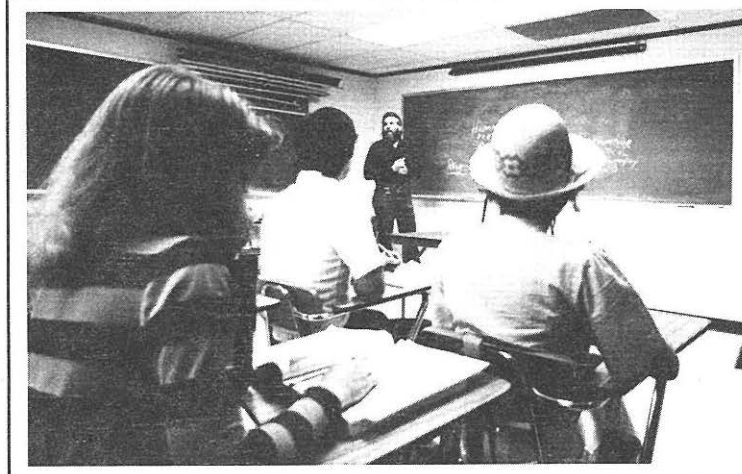
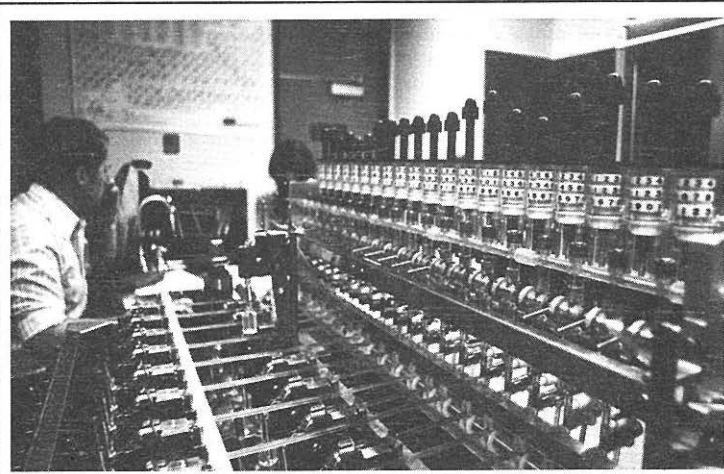
Credit by examination is offered on the principle that the student has already acquired knowledge of the competencies of the course and an instructor, therefore, is not responsible for helping the student develop them.

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 student 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—Credit by examination may be awarded for selected courses currently taught at Pima Community College. The student should consult with the appropriate departmental chairperson or faculty member for further information. Only students currently enrolled at Pima Community College may earn credit by examination. A student may not receive credit by examination for a course that is equivalent to or of a lower level than that in which he/she is currently enrolled or has already received credit. Credit by examination may not necessarily be transferable to other institutions of higher education. (Credit by exam does not satisfy the 12 hour residency requirement nor can it be used in qualifying a student for veterans benefits.)



College Programs

Servicemen

Pima Community College is active 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 military people have found it hard until now to finish college programs because of frequent moving and different demands by colleges. Colleges in the SOC program have agreed to accept credits from other SOC colleges and give special help to the military student to finish a program or degree. Pima Community College will award degrees or certificates to a SOC student who has completed the necessary work whether or not the student is attending Pima at the time this work is finished. Complete details about the program can be obtained at the Community Campus office or at the Education Office of Davis Monthan Air Force Base.

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 (subject to change) 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 requested to select, preferably 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 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.

Educational benefits will not be paid for courses unless they are used in computing graduation requirements. Veterans and dependents receiving the grade of No Credit (NC), or Withdrawal (W) or Incomplete (I) (unless the incomplete grade is changed to a passing grade within one year from receipt) in any of their courses will have to reimburse the V.A. for any difference in pay, retroactive to the beginning of the semester unless they can report mitigating circumstances to the V.A. Regional Office.

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.

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 learn to develop competencies in career planning, obtaining employment, maintaining a job, human relations, and economic understanding.

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.

Evening/Extended Day Programs

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

Summer Session

Three terms of school are offered each summer with courses determined by student demand. Two terms are five weeks long each and one term is eight weeks long. Costs for tuition and fees are \$26 per credit hour and \$10 for a processing fee. Under Arizona law, summer programs must be self-supporting and receive no public support.

Library and Learning Centers

Learning Resource 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 includes 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 1,400 magazines and newspapers. Also available for users are microfiche collections of college catalogs, national phone directories and ERIC documents.

The LRC contains study tables, equipped carrels and lounge areas to accommodate over 300 students. In addition, classes can view films or videotapes in the film room. The LRC also displays art work done by faculty and students.

The public services staff is available to answer reference questions and assist users in locating and utilizing items in the collection. The staff also provides free bibliographies, tours, referral to other community resources, access to automated data bases, student and faculty manuals, a self-paced library skills workbook, and the use of typewriters and calculators.

The Downtown Campus library, located on the second floor of the Campus Center, houses a collection of print and non-print materials for reference and for curriculum support. A collection of current magazines and newspapers is maintained for informational and leisure reading. A small collection of backfiles of selected periodicals is also available for faculty and student research. The library also maintains a small collection of popular fiction and non-fiction for leisure reading. 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.

Alternative Learning Centers

Learning Centers have been established on both the West Campus and the Downtown Campus to provide alternative learning experiences in a variety of subject areas. In these centers, students are encouraged to work independently and to progress at their own pace. Instructors and tutors are available during both the day and evening hours to work with any student.

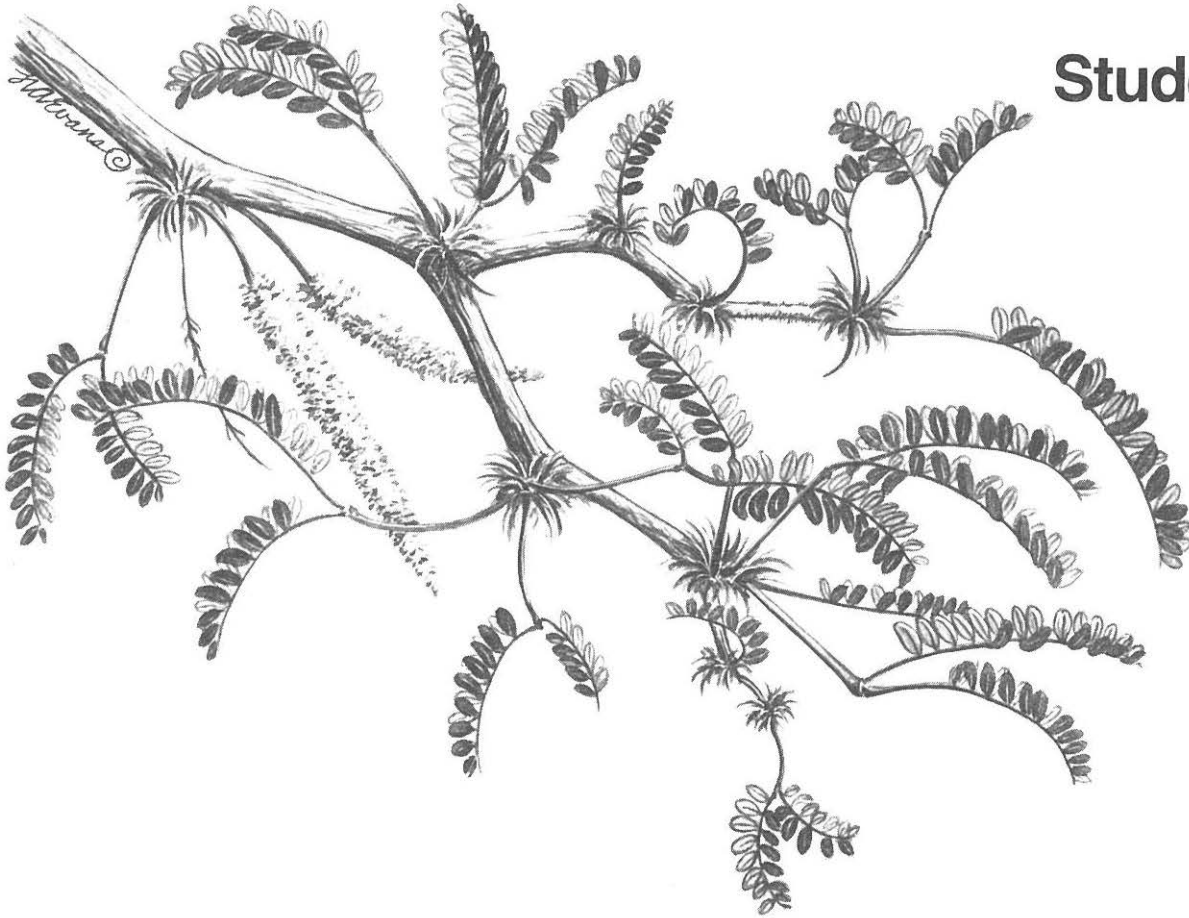
The major services provided are: (1) Self-paced, individualized programs in the basic skills of reading, writing, and mathematics, (2) Supplemental tutorial assistance for students enrolled in regular classes in a variety of subject areas, (3) Testing to assist students in course selection and educational goal setting.

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

Career Centers

Career Centers located in the Student Center at the West Campus and the Campus Center at the Downtown Campus provide information on various careers, training needed for different careers, salary projections, future outlooks for employment, special job requirements, resume writing, and job seeking skills. Assistance in developing life management skills or making career decisions is available through individual and group counseling, film strips, slides, tapes, computer systems, and written materials.

Student Life



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, and 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.

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 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 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 Human Development courses (HDE) 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 35 activities are available and others are developed when enough interest is shown. Activities include basketball, baseball, badminton, flag football, golf, ice cream eating contests, billiards, ping pong, seven-mile bicycle race, bucking horse contests, softball, swimming, tennis, volleyball, racquet ball, weight lifting contests, and several two-mile cross country runs.

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 for Pima Community College students enrolled for credit courses without additional cost under a blanket policy. The policy covers students for injuries incurred during college activities. Details of the coverage are available to students at the time of registration. Supplementary accident and sickness medical expense insurance may be purchased by students. Forms are available in each student service area.

Student Publications

Student publications include two newspapers, the "Aztec Campus News" and the "Downtowner", and two literary magazines, "Mazagine" and "Llueve 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 057 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 publishing "Mazagine" (a literary/arts publication) should register for Writing 062. "Mazagine" is nationally distributed and acclaimed and contributions are welcomed from anyone. Submit to "Mazagine" in CBN 127, West Campus, SASE.

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



Financial Aid

A complete financial aid program is offered to help students with the cost of school through scholarships, loans, grants, and jobs. The main purpose of this aid program is to help all interested students to be able to pay for college. This aid is available to all students without regard to age, ethnic background, or income. This aid is offered at the student services offices.

Types

STUDENT LOANS: The College offers a large number of student loans at low interest rates and deferred repayment at favorable terms. Among these are 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.

SCHOLARSHIPS: A number of scholarships have been set up for students by generous private donors. Awards range from \$100 to \$300 and often can be renewed for a second year. The current scholarships include:

- 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 Bank Scholarship

Source: Arizona Bank

Eligibility: Needy and academically deserving students, with preference to minority or disabled/handicapped

Value: \$300, one award 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
- Delta Nu Alpha Scholarship
Source: Delta Nu Alpha Organization
Eligibility: Promising and needy full-time students in the Transportation and Traffic Management Program
Value: \$150, number of awards varies
- 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: \$500, two awards each year
- 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

- 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
- 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 Foundation, Inc.

Source: Various Donors

Eligibility: Outstanding scholastic achievement and financial need

Value: \$140, 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 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

- Rotary Club of Tucson Scholarship

Source: Rotary Club of Tucson

Eligibility: Worthy and deserving students

Value: Varies, number of awards varies

- 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

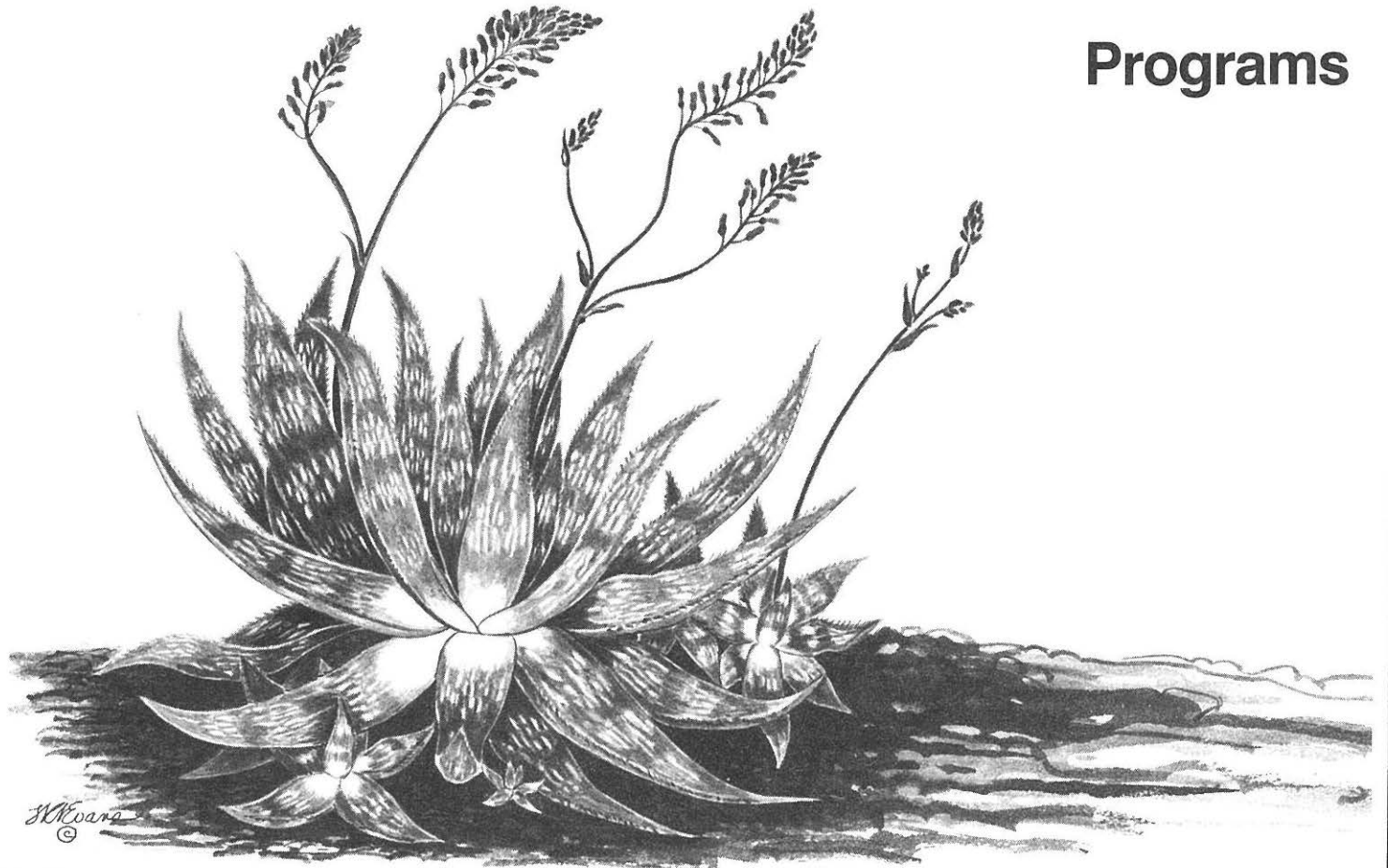
- Southern Arizona-Tucson Innkeeper Ranch and Resort Association Scholarship
Source: The Association
Eligibility: Promising second year students in the hospitality/tourism program
Value: \$120, two awards per year
- Suburban Women's Club Scholarship
Source: Suburban Women's Club of Tucson
Eligibility: Promising and needy students
Value: \$120, six awards per year
- George W. Thornton Memorial Scholarship
Source: Lee Brooks Thornton
Eligibility: Promising, needy students interested in Ecology or Licensed Practice Nursing
Value: \$240, one award per year
- Tucson Advertising Club Scholarship
Source: Tucson Advertising Club
Eligibility: Advertising majors
Value: \$60, ten awards per year
- Tucson Airport Authority Scholarships
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 Electric Power Scholarship
Source: Tucson Electric Power Company
Eligibility: Children of Tucson Electric Power Company employees
Value: \$220, two awards per year, renewable
- Tucson Jaycee-ettes Scholarship
Source: Tucson Jaycee-ettes
Eligibility: Full-time needy students in RN Program or Allied Health Program
Value: \$250, two awards per year

- Tucson Medical Center Scholarship
Source: Tucson Medical Center Auxiliary
Eligibility: Employees enrolled in Health Fields
Value: \$300, number varies
- Tucson Transportation Club Scholarship
Source: Tucson Transportation Club
Eligibility: Promising, needy full-time students in the Transportation and Traffic Management Program
Value: \$150, number of awards 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

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 April 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.

Programs



Degree Programs

Associate of Arts Degree

Anthropology-Archaeology
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 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 (Pre-Service Program)
Teacher-Director, Early Childhood Education (In-Service Program)
Wastewater Technology
Youth Care

30(4)

Associate of Science Degree

Associate Degree Nursing
Automotive Technology
Biology
Business Administration
Chemistry
Electronics Technology—Communications
Electronics Technology—Consumer
Electronics Technology—Industrial
Engineering—Aerospace or Mech
Engineering—Agricultural
Engineering—Chemical
Engineering—Civil
Engineering—Electrical
Engineering—Geological or Mining
Engineering—Metallurgical
Geology
Liberal Art & Science
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

30(7)

Associate of Applied Arts Degree

Applied Arts

1(0)

Associate of Applied Science Degree

Accounting
Administrative Assistant
Advertising Art
Air Conditioning and Sheet Metal Technology
Automotive Technology
Banking
Building Technology
Business Administration
Computer Programmer/Analyst
Computer Specialist, Small Business
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
Interpreter Training Program
Library Technology
Machine Tool Technology
Media Technology
Medical Assistant Program
Natural Resource Recreation
Postal Service Management
Real Estate, Sales/Brokerage
Recreation Leader
Restaurant, Culinary & Food Management
Savings and Loan
Seamstress, Professional
Secretary, Bilingual
Secretary, Executive
Secretary, General
Secretary, Legal
Secretary, Medical
Trade and Industrial Technology (Apprentice)

Certificates

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
Building Maintenance
Building Technology—Drywall
Building Technology—Painting
Credit Union
Culinary and Food Management
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
Media Technology
Nursing Assistant
Postal Service Management
Real Estate, Sales/Brokerage
Real Estate, Escrow
Restaurant Management
Savings and Loan
Secretary, Bilingual
Sheet Metal Fabrication
Social Services

Teacher Aide/Assistant (In-Service Program)
Teacher Aide/Assistant (Pre-Service Program)
Television Repair
Trade and Industrial Technology (Apprentice Major Area)
Training for Special Education
Transportation and Traffic Management
Travel Agent
Wastewater Technology
Welding a

Advanced Certificate

Accounting
Business Administration
Clerk-Typist
Commercial Art
Commercial Photography
Credit Union
Dental Assisting
Housekeeping-Executive
Interior/Functional Design
Library Technology
Postal Service Management
Management
Marketing
Practical Nurse
Real Estate, Sales/Brokerage
Real Estate, Escrow
Receptionist
Savings and Loan
Secretary, Bilingual
Social Services (Drug Counseling Subspeciality)
Systems Programmer
Travel-Tour Agency Manager
Training for Special Education
Transportation and Traffic Management
Training for Special Education
Transportation and Traffic Management
Wastewater Technology
Welding
Youth Care 2a

Technical Certificate

Air Conditioning, Heating and Ventilation
Automotive Mechanics
Building Maintenance
Building Technology—Drywall/Painting
Computer Operator
Data Entry Operator
Drafting, Architectural
Drafting, Electro-Mechanical
Drafting, Mechanical
Electronics Technology—Communications
Electronics Technology—Consumer
Electronics Technology—Industrial
Machinist's Standard
Sheet Metal Layout and Fabrication
Welding 15 (d)

Accounting

The accounting degree program trains students in the theory, systems and basic problems of business accounting. The student will have the background for a beginning career in areas like private, public and government accounting. Students who plan to become Certified Public Accountants should take the courses required for 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 050	3
Mathematics of Business	BUS 051	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 051	3
Human Relations	MAN 110	3
Business English	OED 151	3
		<hr/>
		15

Principles of Accounting II
Introduction to Computers
Tax Accounting
General Education Elective*
Speech Elective

Second Semester

ACC 102	3
CSC 100	3
ACC 204	3
	3-4
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 Organization and Management	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 070 or MTH 150
REA 100 series
WRT 101 and/or WRT 154
POL 110 and/or POL 111
SPE 120
SPA 050 and/or SPA 055
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 program offers two options—criminal justice and corrections—with courses serving three types of students: in-service, pre-service, and transfer. Students can gain skills needed to update their present duties, find a job, or transfer to a four-year school.

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

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

Students who enter an Administration of Justice program must see one of the instructors in the area.

Corrections Associate of Arts Degree For Direct Employment

Required Courses (62-65)		Cr. Hrs.
Introduction Administration of Justice	AJS 101	3
Criminal Law I	AJS 172	3
Fund. Crime & Delinquency or Institutional Field Services	AJS 260 AJS 245	3
Criminal Justice Procedures	AJS 216	3
Juvenile Justice Procedures	AJS 212	3
		<hr/> 15

General Education Requirements

Writing I	WRT 101	3
Technical Communications or Writing II	WRT 154 WRT 102	3
American National Government	POL 110	3
American State/Local Government	POL 111	3
Introduction Psychology I-II	PSY 100-101	6
Introduction Sociology	SOC 100	3
Mathematics of Business	BUS 051	3
Introduction Microeconomics	ECO 100	3
Business & Professional Communication	SPE 120	3
Electives*		<hr/> 17-20
		47-50

*Suggested Electives

Fund. Crime & Delinquency	AJS 260	3
First Aid	REC 121	2
Introduction to Youth Care	AJS 163	3
Police Communications and Human Relations	AJS 210	3
Institutional & Field Services	AJS 245	3
Introduction Social Welfare	SSE 133	3
Casework Methods	SSE 134	3
Group Work	SSE 235	3
Evaluation/Support of Drug User	SSE 217	3
Defensive Tactics	AJS 012	3
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/Technology	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
Criminal Investigation & Report Prep.	AJS 204	3
Program Planning & Organization	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
Introduction to Logic or Natural Science* (1)	PHI 120 or Natural Science elective	3-4
College Algebra* (2)(3)	MTH 150	3
American National Government	POL 110	3
Introduction Administration of Justice	AJS 101	3
Criminal Law I	AJS 172	3
		18-19
	Second Semester	
Writing II	WRT 102	3
Introduction to Logic or Natural Science* (1)	PHI 120 or Natural Science elective	3-4
Finite Math	MTH 170	3
American State/Local Government	POL 111	3
Fundamental Crime & Delinquency or Institutional Field Service	AJS 260	3
Introduction to Public Administration	AJS 245	3
	PAD 105	3
		18-19
	Third Semester	
Introduction to Microeconomics	ECO 100	3
Business & Professional Communication	SPE 120	3
Stat. Methods in Economics and Business	BUS 205	3
Juvenile Justice Procedures	AJS 212	3
Humanities or Foreign Language* (4)	HUM or Language	4
		16

	Fourth Semester	
Introduction to Macroeconomics	ECO 101	3
Introduction to Computers	CSC 100	3
Criminal Justice Procedures	AJS 216	3
Accounting for Government Agencies	ACC 173	3
Humanities or Foreign Language* (4)	HUM or Language	4
		<hr/> 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, and consult a faculty advisor at Pima College.

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) Upon transfer to the university, students will be expected to complete 6 units in each of 2 of the following fields: anthropology, cultural geography, psychology or sociology. If they have already completed MTH 150, students may select one of these social science courses in its place.

*(4) 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.
Introduction Administration of Justice	AJS 101	3
Criminal Law I-II	AJS 172, 272	6
Criminal Justice Procedures	AJS 216	3
Police Commission/Human Relations	AJS 210	3
		<hr/> 15

General Education Requirements

Writing I	WRT 101	3
Technical Communications	WRT 154	3
American National Government	POL 110	3
American State/Local Government	POL 111	3
Introduction to Sociology	SOC 100	3
Introduction to Psychology I-II	PSY 100-101	6
Mathematics of Business	BUS 051	3
Introduction to Microeconomics	ECO 100	3
Business & Professional Communication	SPE 120	3
Electives*		<hr/> 17-20
		<hr/> 47-50

*Suggested Electives

Patrol Procedures	AJS 071	3
Crime Scene Technology I	AJS 218	3
Crime Scene Technology II	AJS 273	3
Criminalistics Evidence	AJS 276	3
Advanced Criminalistics	AJS 277	3
AJS Field Experience	AJS 290	3
Cooperative Training	CED 198	3
Police Administration	AJS 208	3
Traffic Safety Functions	AJS 106	3
Organized Crime Investigation	AJS 220	3
Criminal Investigation & Report Prep.	AJS 204	3
Detention Super. Methods	AJS 240	3
Services: Instruction & Field	AJS 245	3
Introduction to Public Administration	PAD 105	3
Defensive Tactics	AJS 012	2
Firearms	AJS 214	2
Juvenile Justice Procedures	AJS 212	3
Typing I	OED 111	3
Political & Legal Aspects of Drug Use	SSE 127	3
Drugs in American Society	SSE 115	3
Fund. of Crime & Delinquency	AJS 260	3
Introduction to Youth Care	AJS 163	3
Introduction 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
Introduction to Logic or Natural Science* (1)	PHI 120 or Natural Science elective	3-4
College Algebra* (2)(3)	MTH 150	3
American National Government	POL 110	3
Introduction to Administration of Justice	AJS 101	3
Criminal Law I	AJS 172	3
		18-19
	Second Semester	
Writing II	WRT 102	3
Introduction to Logic or Natural Science* (1)	PHI 120 or Natural Science elective	3-4
Finite Math	MTH 170	3
American State/Local Government	POL 111	3
Criminal Law II	AJS 272	3
Introduction to Public Administration	PAD 105	3
		18-19
	Third Semester	
Introduction to Microeconomics	ECO 100	3
Business & Professional Communication	SPE 120	3
Stat. Methods in Economics & Business	BUS 205	3
Criminal Justice Procedures	AJS 216	3
Humanities or Foreign Language* (4)	HUM or Language	4
		16

	Fourth Semester	
Introduction to Macroeconomics	ECO 101	3
Introduction to Computers	CSC 100	3
Police Communications/Human Relations	AJS 210	3
Accounting for Government Agencies	ACC 173	3
Humanities or Foreign Language* (4)	HUM or Language	4
		<hr/> 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, and consult a faculty advisor at Pima College.

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) Upon transfer to the university, students will be expected to complete 6 units in each of 2 of the following fields: anthropology, cultural geography, psychology or sociology. If they have already completed MTH 150, students may select one of these social science courses in its place.

*(4) 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 offered in advertising art. The first two semesters of the whole program serve as a basic core of instruction in the areas of advertising art, graphic technology, and liberal arts. Studies in the third and fourth semesters center on higher skills and require joining in the Cooperative Education work experience. Both programs lead to direct employment.

Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Introduction to Business	BUS 100	3
Math (based on placement exam)	MTH	3
Advertising Art I	ADA 101	3
Advertising Design I	ADA 110	3
Production Technology & Processes I-II	ADA 111, 211	6
Drawing and Composition	ADA 103	3
		<hr/> 21

Associate of Applied Science Degree For Direct Employment

Required Courses (63)	First Semester	Cr. Hrs.
Introduction 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 & Professional Communication	SPE 120	3
Graphic Technology II	GRA 102	3
Production Technology & Processes I	ADA 111	3
Advertising Design II	ADA 120	3
		<hr/> 15

Third Semester		
Advertising Design III	ADA 210	3
Production Technology & Processes II	ADA 211	3
Advertising Drawing	ADA 203	3
Math (second course in sequence)	MTH	3
Co-op Education Training	CED 198	3
		<hr/>
		15
Fourth Semester		
Human Relations in Business	MAN 110	3
Production Technology & Processes III	ADA 212	3
Advertising Illustration	ADA 205	3
Advertising Design IV	ADA 220	3
Co-op Education Training	CED 199	3
		<hr/>
		15

Air Conditioning

Conditions much the same as found in industry are set up in a fully-equipped air conditioning lab. Students learn about both the heating and cooling cycles. They learn also how to take apart, repair, and rebuild all types of air conditioning and refrigeration units. These units may be found in a small appliance, a home, a small business or office, or a large factory.

A person who majors in this program may find that Cooperative Education offers an ideal way of gaining more actual work experience while attending classes. See 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, Psychology, Sociology or Philosophy		3
		<hr/> 19

Allied Health

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

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

Students can register at the beginning of each semester for the following courses: Emergency Medical Technician, Allied Health Services, and Nursing Assistant.

For other Allied Health Programs the student must apply to the selections committee by:

March 1 for classes starting in the fall

October 1 for classes starting in the spring

The student will know about his acceptance by:

May 1 for classes starting in the fall

December 1 for classes starting in the spring

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

Admission Policies:

Student who want to enroll in programs should:

1. Apply to the specific Allied Health program in addition to applying for admission to the college.
2. Show certain educational skills which may change from one program to another. They should look at the part of the catalog which tells about the program and/or talk with the admission secretary for Allied Health Programs to learn the necessary skills for each program.

The selections committee for Allied Health Programs will choose the students for each entering class. This method makes sure that the same selection practices and standards are used.

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

The Allied Health Admissions Secretary must have the completed student application form by the deadline.

Arizona residents of the Pima College district will be chosen first.

Admission Procedure:

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

Downtown Campus

Allied Health Service Programs—Beginning Level

- Nursing Assistants/Patient-Care Attendants
- Nursing Assistant
- Practical Nursing
- Practical Nursing Update

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
- RN Refresher

2. The completed application must include all official high school and college transcripts. The admissions secretary must have the completed application by the deadline for the next entering class. The student must ask the Registrar's Office to send Pima Community College transcripts to the admissions secretary. Applications received after the deadline will not be accepted.
3. Students can get information about pre-entrance testing and interviews from the admissions secretary in the Career and Advising Center.
4. By the selections date for each application period, the selections committee will tell the student of his/her acceptance into the program, placement as an alternate, or non-acceptance into the program.
5. If the student is accepted, he/she must send the admissions secretary a card showing that he/she will enroll in the program. No deposit is required. If a vacancy in the program occurs, an alternate will be enrolled. When the class is filled in each enrollment period, alternate placement will stop.

Health Core Curriculum:

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

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

SARAHHELP is the Southern Arizona Regional Allied Health Educational Linkage Program. This program helps to develop jobs for community college students and to attract will-trained health workers to rural Southern Arizona. Arizona College of Technology, Arizona Western College, Cochise College and Pima Community College work together to help solve rural health needs through combined educational programs. Counties served are Pima, Santa Cruz, Cochise, Yuma, and parts of Pinal County.

Our college district trains allied health students after high school. Our program works closely with the University of Arizona Medical Center and the greater Tucson and Phoenix hospitals. The program also works with health care centers in Cochise and Yuma counties.

Under SARAHHELP students study one semester to one year of liberal arts, pre-technical and beginning technical courses at their home college. Next they have one year of technical/clinical work at Pima Community College. Some clinical training may be at the student's home community (for example: Cochise County Hospital, Sierra Vista Community Hospital or the Yuma Regional Medical Center).

When the student completes the program, he/she will get a Pima College associate degree or an advanced certificate. The student will be able to take the national and/or state registry/licensure test in his/her area. SARAHHELP study allows students to get the best training found in Southern Arizona. The program avoids costly duplication of programs and encourages students to return to their home community for service.

Graduates can become ophthalmic dispensers, radiologic technologists, respiratory therapists or dental assistants.

Program

First year courses at the home community college consist of basic science, communications, social sciences and humanities. These courses are common to all the allied health programs. Introduction to Health Care (First Semester) gives the student an overview of health jobs, knowledge of health science fundamentals, delivery practices and applications.

The summer session (where applicable) and the second year curriculum at Pima Community College concentrate 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 SARAHELP 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 SARAHELP coordinator at the respective colleges for information on enrollment, fees, scholarship, stipend and housing.

Allied Health Services

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

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

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

Acceptance Into Program:

1. The student must be accepted by the college.
2. The student must complete the special application for the program.
3. The student must complete placement examinations in mathematics and reading. (Note—Students must read at the eighth grade level or higher)
4. The student must have an interview with the Allied Health Services Review Committee or with an individual committee member.
5. The student must have a physical examination which includes a TB test if he/she is accepted into the program.

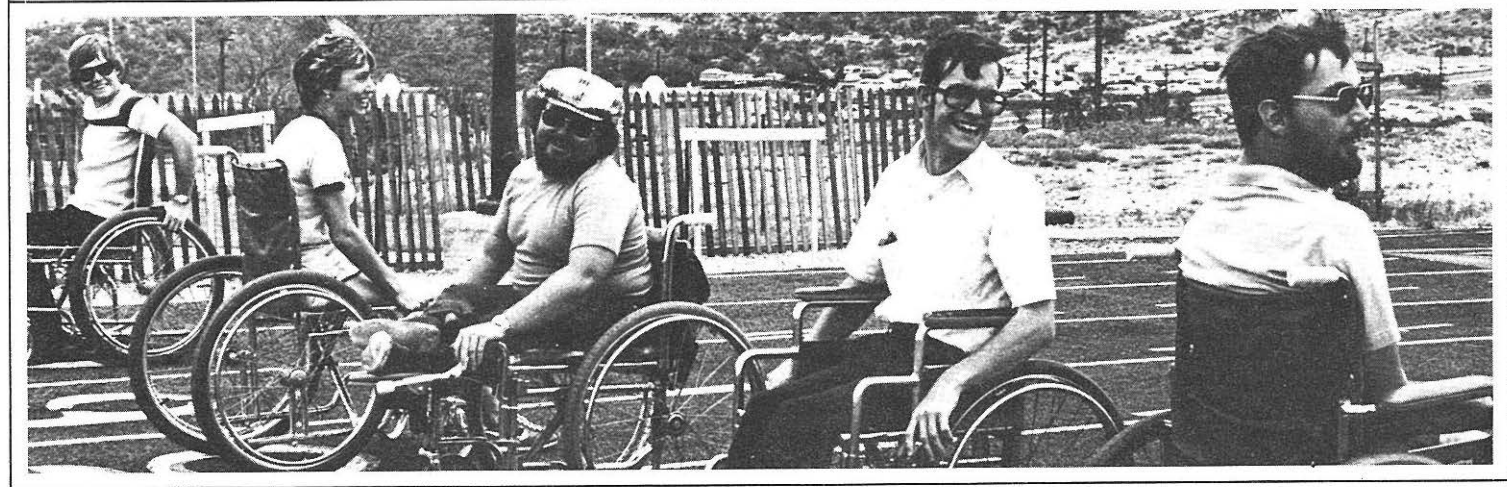
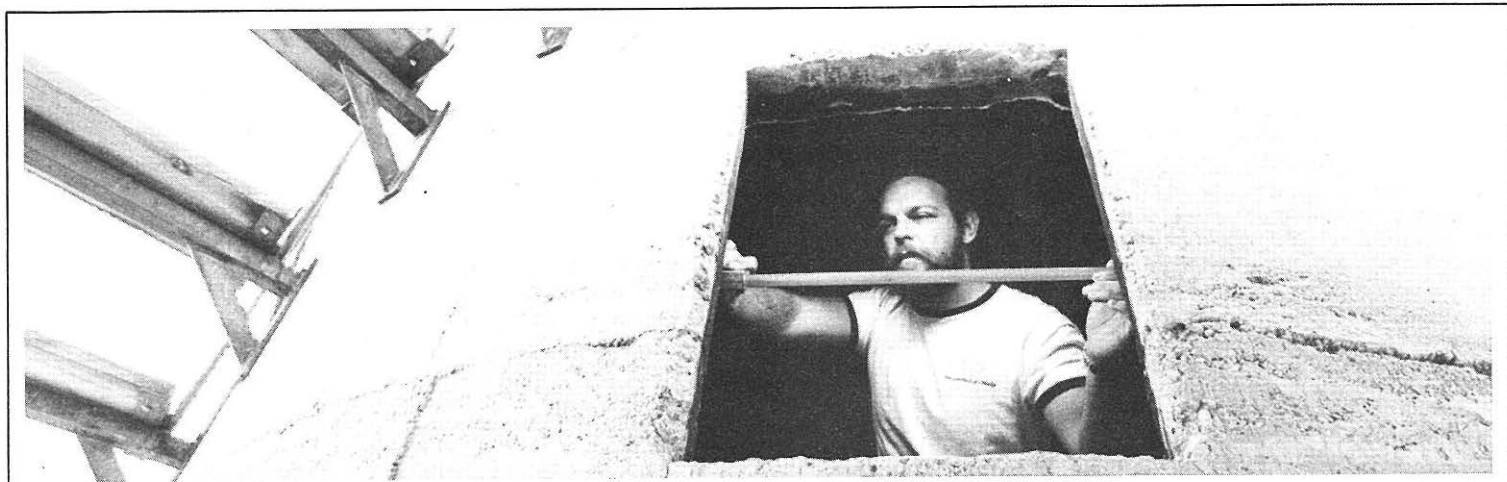
General Requirements:

Total credits—12 semester hours.

The student must complete with success all academic and clinical program requirements.

Basic Certificate For Direct Employment

Required Courses		Lec.	Lab	Cr. Hrs.
Principles Anatomy, Physiology	LSC 102	3	+	3
Introduction to Health Care	HCA 154	3	+	0
Skills, Allied Health Service	HCA 150	2	+	9
				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 preparing 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 (67-71)	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
		<hr/>
		17
	Second Semester	
Cultural Anthropology	ANT 210	3
Biological Anthropology	ANT 200	3
Foreign Language*		4
Geology II	ESC 121	4
Writing II	WRT 102	3
		<hr/>
		17

	Third Semester	
Archaeology	ANT 225	3
Individual Studies in Anthropology	ANT 290	3
Humanities**		3-4
Foreign Language*		4
Anthropology Option I or II***		4
		<hr/>
		17-18
	Fourth Semester	
The Nature of Language	ANT 215	3
Humanities**		4-6
Foreign Language*		4
Anthropology Option I or II***		3-4
Survival	REC 118	2
		<hr/>
		16-19
	Summary	
Major Requirements		21
Science Requirements		8
Writing		6
Language Proficiency and/or Electives*		16
Humanities**		8-9
Required Option I or II***		8-9
		<hr/>
		67-69

Notes:

*Fulfilled by either 4 semesters (2 years) or any one foreign language or 2 semesters (1 year) each of 2 different languages. Students meeting the language proficiency requirement may take 6-8 units of transferable electives selected in consultation with an advisor.

**Choose one of the following options:

- a. Humanities I and II (HUM 110, 111)
- b. Humanities I or II and 6 units from option c
- 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, 132; MUS 151, 201, 202

***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, Economics, History, Humanities, Political Science, Psychology, Religion or 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
Archaeology Surveying	ANT 276	3
Construction Surveying	ENG 110	3
or Elementary Surveying*	ENG 130	

*This course may be waived with consent of archaeology faculty advisor.

Applied Design

The Functional Design program provides the student with the skills and techniques needed for employment. It is not intended as a transfer program, but rather provides the student with experience in solving problems of design and production of a product. Drafting students may find this program very useful in furthering their skills. Emphasis in the commercial graphics courses are given in merchandising and marketing areas.

The Interior Design program consists of a series of highly practical courses leading to apprenticeship or direct employment. Interior Design offers the student a variety of skills and experience in such areas as landscaping, custom furniture design, built-ins, light-weight structures, and unique Southwestern environmental problems (heating, cooling and solar energy).

Functional Design Program Basic Certificate

Required Courses		Cr. Hrs.
Industrial Graphics	DES 111	3
Introduction to Functional Design	DES 150	3
Design for Living	DES 156	3
Industrial Functional Design	DES 250	3
Construction Drafting	DFT 110	4
		16

Interior Design Program Basic Certificate

Required Courses		Cr. Hrs.
Home Furnishings	DES 155	3
Design for Living	DES 156	3
Spatial Design	DES 255	3
Interior Environmental Design	DES 256	3
Practical Communications or	WRT 150	
Construction Drafting	DFT 110	3-4
		15-16

Interior/Functional Design Advanced Certificate

Required Courses	First Semester	Cr. Hrs.
Industrial Graphics	DES 111	3
Introduction to Functional Design	DES 150	3
Home Furnishings	DES 155	3
Design for Living	DES 156	3
Construction Drafting I	DFT 110	4
		16
Second Semester		
Light-Weight Structures	DES 151	3
Commercial Graphics or	DES 211	
Landscape Gardening	GTC 090	3
Industrial Functional Design	DES 250	3
Spatial Design	DES 255	3
Interior Environmental Design	DES 256	3
		15

Interior Design Associate of Arts Degree

Required Courses (62-66)	First Semester	Cr. Hrs.
Industrial Graphics	DES 111	3
Design for Living	DES 156	3
Writing I or Practical Communications	WRT 101	
	WRT 150	3
Construction Drafting I	DFT 110	4
Elective		3-4
		16-17
	Second Semester	
Light-Weight Structures	DES 151	3
Introduction to Functional Design	DES 150	3
Home Furnishings	DES 155	3
Writing II or Technical Communications	WRT 102	
	WRT 154	3
Business and Industry	MAN 110	3-4
		15-16
	Third Semester	
Industrial Functional Design	DES 250	3
Spatial Design	DES 255	3
Commercial Graphics	DES 211	3
Salesmanship	MKT 113	3
Electives		3-4
		15-16
	Fourth Semester	
Interior Environmental Design	DES 256	3
Communicographics	MET 050	3
Landscape Gardening	GTC 090	3
Applied Design or Cooperative Education	DES 280	
	CED 198	3
Electives		3-4
		15-16

Apprentice Related Instruction

Pima Community College works jointly with local and state apprenticeship groups to offer related instructions in a number of apprenticeship programs. Most programs require 1 year or more of on-the-job training. At the same time that apprentices learn a skilled craft or trade on the job, they also receive apprentice related classroom instruction which explains the principles and procedures used on the job.

Before students may enroll for apprentice related instruction, they must either receive on-the-job training with individual employers or they must be tested, selected, signed up (indentured) and registered with the U.S. Department of Labor's Bureau of Apprenticeship and Training. Apprentice related instruction at Pima Community College is presently offered in these areas:

Automotive	Lathing
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
	Substation Electrician

Certificate Program: Upon finishing all apprentice related instruction in a chosen program, a student will obtain a Certificate of Completion from Pima Community College. One is also able to work toward a degree while enrolled in apprentice programs.

Degree Program: Those working to gain an Associate of Applied Science degree (trade and industrial technology option) must meet the minimum degree requirement of 64 credit hours. Upon completing the apprenticeship, a student may receive from 12 to 28 hours of credit in related instruction and/or approved technical courses.

In addition to the 28 credit hours, these course requirements must also be met:

Course	Cr. Hrs.
Writing	6
Mathematics and/or Science	12
Social Sciences	6

The remaining 12 credit hours of electives should be chosen with help from the college apprenticeship coordinator.

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 6 hours from the following: anthropology, history, humanities, literature, philosophy, sociology, management)
12 hours	Electives
64 hours (total)	

Information on how to become an apprentice may be obtained from the Bureau of Apprenticeship Information Center, Department of Economic Security, Northside Office, 3202 North Oracle Road, Tucson, Arizona 85701, telephone 882-5097. Information on college-related instruction and non-apprentice building trade programs may be obtained from the Coordinator of Apprenticeship Training, Pima Community College, Downtown Campus.

Arts, Applied

(The Art area offers two programs of study--Applied Arts and Fine Arts.)

This program provides students the opportunity to gain experience in several media or to concentrate in a single area of interest. Art electives and supportive courses should be selected according to the major emphasis of interest. (Suggested sequence.)

Associate of Applied Arts Degree

Required Courses	First Semester	Cr. Hrs.
Basic Design	ART 100	3
Drawing I	ART 110	3
Art and Culture I	ART 130	3
Writing I	WRT 101	3
Humanities Elective*		3-4
		15-16
	Second Semester	
Color and Design	ART 115	3
Three Dimensional Design	ART 120	3
Art and Culture II	ART 131	3
Writing II	WRT 102	3
Humanities Elective*		3-4
		15-16

*Humanities Electives include: Art History, Humanities, Literature, Philosophy, Music Appreciation and History, and Drama History.

Third and Fourth Semesters

Art Requirements: Select any eight additional art courses from the following categories for a total of 24 credits. (Students may include ART 299.)

Arts and Crafts

Lapidary, ART 060*
Ceramics I, II, & III, ART 160, 260, 261
Metalwork, ART 170
Weaving, ART 179, 180
Fiber Structures, ART 181

Photography

Photography I & II, ART 140, 141
Commercial Photography, ART 143
History of Photography, ART 230

Art History

Masks, ART 136
Art of the 20th Century, ART 132
History of Art and Design, ART 231
Pre-Columbia Art, ART 135

Painting/Drawing and Sculpture

Drawing II, ART 210
Printmaking I, II, ART 212, 214
Life Drawing, ART 213
Sculpture, ART 220
Painting, ART 215
Silkscreen, ART 216

*non-transferable

General Education Requirements:

Select any two courses from the Social Sciences or Physical Sciences areas for a total of six to eight credits.

Arts, Fine

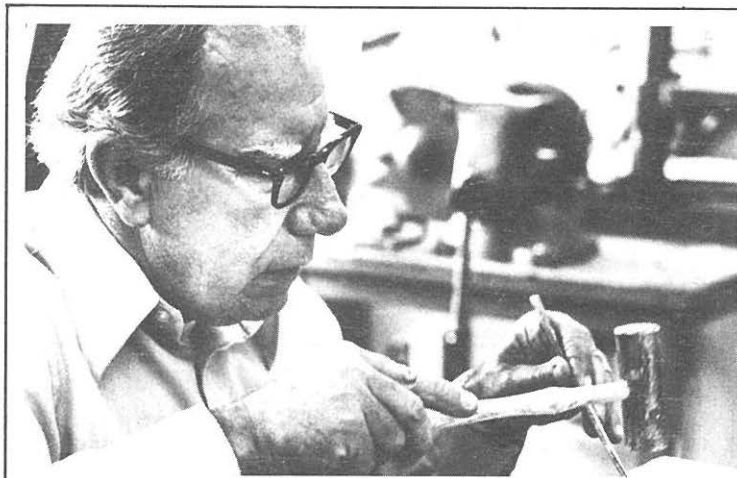
(The Art area offers two programs of study--Applied and Fine Arts.)

This program provides two years of study for the student who plans to transfer to a four-year school or professional school. Areas of study may be painting, sculpture, printmaking, crafts, art history, photography, drawing, and art education. Students should consult the catalog of the school to which they plan to transfer.

Associate of Arts Degree (Fine Arts Transfer)

Required Courses	First Semester	Cr. Hrs.
Basic Design	ART 100	3
Drawing I	ART 110	3
Art and Culture I	ART 130	3
Writing I	WRT 101	3
Humanities Elective*		3-4
		15-16
	Second Semester	
Color and Design	ART 115	3
Three Dimensional Design	ART 120	3
Art and Culture II	ART 131	3
Writing II	WRT 102	3
Humanities Elective*		3-4
		15-16
	Third Semester	
Drawing II or Life Drawing	ART 210 ART 213	3
Art Electives		6
Lab Science		4
Social Science Elective		3
		16
	Fourth Semester	
Art Electives		9
Social Science Elective		3
Math or Lab Science Elective		3-4
		15-16

*Humanities Electives include: Art, History, Humanities, Literature, Philosophy, Music History and Appreciation, and Drama History.



Automotive Technology

The AUT department offers a two-year Associate degree program, a two-year technical certificate program, and special interest courses.

Courses meet the needs of the beginner, the mechanic who wants to update his skills, and the do-it-yourself person. The degree program may let the student enter the automotive field beyond the mechanic position.

Students in the Mechanics Technical Certificate program are trained in general automotive repair. The four basic mechanic certificate programs offer courses for selected areas of automotive repair. Persons who later decide to move up to the technical certificate or degree level may use the basic certificate programs as the first step.

Programs can be arranged for students planning to attend four-year colleges. Students should follow the first two-year requirements of the school to which they plan to go.

All students taking lab courses must have safety glasses and work clothes.

A person majoring in Automotive Technology may find that Cooperative Education offers a good way to get extra experience while enrolled in classes. See 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
Automotive Engine Service Repair	AUT 122	3
Automotive Diesel Engines	AUT 124	3
Engine Tune-Up	AUT 125	4
Human Relations	MAN 110	3
		17

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
		<hr/>
		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
		<hr/>
		13
	Third Semester	
Engine Tune-Up	AUT 125	4
Automotive Chassis	AUT 138	4
Practical Communications	WRT 150	3
Human Relations	MAN 110	3
		<hr/>
		14
	Fourth Semester	
Drive Line	AUT 136	4
Automotive Brakes	AUT 140	4
Automotive Air Conditioning	AUT 142	3
		<hr/>
		11

Students who enter the program with advance standing or who desire additional training may take AUT 124, Automotive Diesel Engines in addition to the above program requirements.

*This course requires prerequisite or 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	
Automotive Electricity II	AUT 125	3 or 4
Automatic Transmission Rebuilding	AUT 129	3
Technical Math II	AUT 133	4
Technical Physics II	MTH 120	3
	PHY 102	3
		<hr/>
		16 or 17
	Third Semester	
Auto Engine Service Repair or Engine Tune-Up	AUT 122	
Automotive Chassis	AUT 125	3 or 4
Human Relations	AUT 138	4
Practical Communications	MAN 110	3
Introduction to Psychology I	WRT 150	3
	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

Students who enter the program with advance standing or who desire additional training may take AUT 124, Automotive Diesel Engines in addition to the above program requirements.

*This course requires prerequisite or 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. Course entry requires at least 30 months' experience in performing the duties of airframe and powerplant maintenance or at least 18 months' experience in performing duties that fit the desired rating. A review of experience must be made by the Downtown Campus instructor in all cases before registration. Basic certificates also are awarded to qualified students.

Airframe and Powerplant Mechanics

Basic Certificate

For Direct Employment

Required Courses		Cr. Hrs.
Airframe Mechanics	AVM 220	6
Airframe Systems & Components	AVM 221	6
Powerplant Mechanics	AVM 230	6
Combination Welding	WLD 110	3
Technical Math I	MTH 110	3
Human Relations	MAN 110	3
		<hr/> 27

Bilingual

Many subjects are offered through the bilingual-bicultural education program for persons already able to speak Spanish well. This is not a remedial program. It is a program aimed at gaining skills in Spanish for literacy, vocational, professional and cultural purposes.

Some 100 courses are offered under the bilingual program in the areas of drama, preschool education, machine shop, welding, electronics, folklore dancing, business, home economics, physical education, humanities, history, English as a second language (ESL), reading, literature, Spanish and others. The courses are listed in the catalog under the various subject areas.

Courses in the bilingual program except those with SPA or ESL in front of them offer students not only credit for the course but also credit in Spanish at no extra cost. Credit in Spanish is given at the 50 or 100 course level because it is thought that if a student can take a bilingual course taught partially in Spanish, he has a knowledge of the language.

The students may thus obtain 1 to 9 units extra Spanish credit, but this extra credit is not given automatically. It must be asked for before the end of the course. The actual number of extra credits will be decided by the instructor teaching the course and by the Spanish instructors, based on the results 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 -- cannot be transferred.); b) if a student is in a college transfer program, 2 credits may be given for Spanish 101 (Credits for this one may be considered separately or together, totaling 2 or 4 credits in that order. The same steps are followed with 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 extra credit cannot be given if credit in Spanish 101, 102, 50 and 55 had been earned before 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 hablen 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 or 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.

Building Technology

Basic Certificate in Building Maintenance

Required Courses		Cr. Hrs.
Building Materials	GTC 060	3
Plumbing	BLT 050	3
Introductory Mathematics	MTH 060	3
Elementary Welding	WLD 050	3
Carpentry I	BLT 055	3
Basic Electricity	GTC 010	3
Executive Housekeeping I	HSK 150	3
Practical Communications	WRT 150	3
		<hr/> 24

Basic Certificate in Drywall

Required Courses		Cr. Hrs.
Drywall I	BLT 090	3
Drywall II	BLT 094	3
Drywall Taping	BLT 092	3
Blueprint Reading	GTC 099	3
Introductory Mathematics	MTH 060	3
Practical Communications	WRT 150	3
Human Relations in Business & Industry	MAN 110	3
		<hr/> 21

Basic Certificate in Painting

Required Courses		Cr. Hrs.
Painting I	BLT 070	3
Painting II	BLT 072	3
Color and Color Harmony	BLT 080	3
Blueprint Reading	GTC 099	3
Introductory Mathematics	MTH 060	3
Practical Communications	WRT 150	3
Human Relations in Business & Industry	MAN 110	3
Drywall Taping	BLT 092	3
		<hr/> 24

Technical Certificate in Building Maintenance

Required Courses		Cr. Hrs.
Basic Certificate Requirements in Building Maintenance		24
Air Conditioning Fundamentals	ACD 101	3
Blueprint Reading	GTC 099	3
Construction Drafting I	DFT 110	3
Masonry	BLT 060	3
Combination Welding	WLD 110	3
Basic Construction Principles	GTC 065	3
Carpentry II	BLT 057	3
Building Materials Cost Estimating	GTC 061	3
Glazing	BLT 062	3
		<hr/> 52

Technical Certificate in Drywall/Painting

Required Courses		Cr. Hrs.
Basic Certificates in Drywall and Painting Requirements		30
Conventional and Airless Spray Painting	BLT 074	3
Blueprint Reading II	BLT 076	3
Wall Coverings	BLT 082	3
Supervision	MAN 122	3
Technical Mathematics	MTH 110	3
Technical Communications	WRT 154	3
		<hr/> 48

Associate of Applied Science

Required Courses	First Semester	Cr. Hrs.
Building Materials	GTC 060	3
Blueprint Reading	GTC 099	3
Introductory Mathematics	MTH 060	3
Practical Communications	WRT 150	3
Construction Drafting	DFT 110	4
Basic Construction Principles	GTC 065	3
		<hr/> 19
	Second Semester	
Applied Accounting	GEB 096	3
Technical Communications	WRT 154	3
Human Relations in Business & Industry	MAN 110	3
Supervision	MAN 122	3
Building & Materials Cost Estimating	GTC 061	3
Technical Mathematics	MTH 110	3
		<hr/> 18

Students may select courses from one of the two following options:
Drywall/Painting
Building Maintenance

Drywall/Painting Option

Required Courses	Third Semester	Cr. Hrs.
Drywall I	BLT 090	3
Drywall Taping	BLT 092	3
Painting I	BLT 070	3
Color and Color Harmony	BLT 080	3
Blueprint Reading II	BLT 076	3
		<hr/> 15
	Fourth Semester	
Drywall II	BLT 094	3
Painting II	BLT 072	3
Conventional and Airless Spray Painting	BLT 074	3
Wall Coverings	BLT 082	3
		<hr/> 12

Building Maintenance Option

Required Courses	Third Semester	Cr. Hrs.
Plumbing	BLT 050	3
Elementary Welding	WLD 050	3
Carpentry I	BLT 055	3
Basic Electricity	GTC 010	3
Executive Housekeeping	HSK 150	3
		<hr/> 15
	Fourth Semester	
Carpentry II	BLT 057	3
Air Conditioning Fundamentals	ACD 101	3
Combination Welding	WLD 110	3
Masonry	BLT 060	3
Glazing	BLT 062	3
		<hr/> 15

Business Administration

The Business Administration program offers two options: an Associate of Applied Science Degree, designed for direct employment with majors in Management or Marketing and an Associate of Science Degree, designed for transfer to a four-year college or university. Students planning to transfer should follow the requirements and consult an advisor of that four-year institution they plan to attend.

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. This program is designed to meet most four-year college business programs' first two-year requirements but is specifically articulated for the University of Arizona.

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 299 at the University of Arizona, 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 years' 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 (1)		3-4
American National Government	POL 110	3
Social Science Elective or Math (2)(3)		3
Introduction to Computers	CSC 100	3
Physical Education Elective (Optional)(4)		1
		16-17

		Second Semester	
Writing II	WRT 102	3	
PHI 120 or Natural Science (1)		3-4	
Finite Math	MTH 170	3	
Social Science Elective (2)		3	
Business and Professional Communication	SPE 120	3	
Physical Education Elective (Optional)(4)		1	
		<hr/>	
		16-17	
		Third Semester	
Principles of Accounting I	ACC 101	3	
Introduction to Microeconomics	ECO 100	3	
Humanities or Foreign Language Elective (5)		3-4	
Topics in Calculus	MTH 175	3	
Statistical Methods I	BUS 205	3	
		<hr/>	
		15-16	
		Fourth Semester	
Principles of Accounting II	ACC 102	3	
Introduction to Macroeconomics	ECO 101	3	
Humanities or Foreign Language Elective		3-4	
Statistical Methods II	BUS 206	3	
Social Science Elective or CSC 160 (2)(6)		3	
		<hr/>	
		15-16	

Note:

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

(1) 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.)

(2) Social Science Elective: Students must complete 6 units of social science courses selected from the following areas: Anthropology, Sociology, Psychology or Cultural Geography (ESC 103).

(3) Math: Students who haven't already completed College Algebra (MTH 150) need to do so. The prerequisite for MTH 150 is MTH 130, or two years of high school algebra. Math placement tests are available; if interested, see an advisor.

(4) Physical Education Elective: Students may select any two transferable courses in Physical Education to fulfill this requirement. For exceptions to this requirement, consult with an advisor. University of Arizona Policy on Physical Education: All students admitted with fewer than 13 units must successfully complete two units of physical education, normally by the end of their freshman year. All students admitted with at least 13 but fewer than 25 units must complete one unit of physical education. Students admitted with 25 units or more are excused from this requirement, as are veterans, students 23 years of age or over, married women with children, and students registered for fewer than 7 units of university credit. The physical education requirement must be met by activity courses. Theory classroom subjects in physical education are not a substitute for the basic activity requirement. In the fall semester, MUS 200B may be substituted for physical education.

(5) Humanities or Foreign Language Elective: Choose one of the following options.

- A. 2 semesters of a single foreign language (8 units)
- B. Humanities 110 and 111 (8 units)
- C. HUM 110 or HUM 111, plus 6 units from option D (10 units)
- D. Not less than 9 units from the following three 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, 130.
 - 3. ART 130, 131, 132; MUS 151, 201, 202.

(6) Students who intend to major in accounting, information systems or operations management, will enroll in COBOL Programming (CSC 160).

Business Administration Associate of Applied Science Degree

The Business Administration for direct employment program is designed to provide education and on the job training to develop and improve the skills, business knowledge, and judgment of students preparing for, or now engaged in a business career. This program has been developed with the assistance and endorsement of the business community.

Associate of Applied Science Degree For Direct Employment

Required Courses (60-65)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Introduction to Business	BUS 100	3
Human Relations	MAN 110	3
Business Math	BUS 051	3
General Education Elective*(1)		3
		<hr/> 15
	Second Semester	
Business & Professional Communication	SPE 120	3
Marketing	MKT 111	3
Business Communications	OED 251	3
Option A or B*(2)		6
		<hr/> 15
	Third Semester	
Principles of Accounting I	ACC 101	3
Supervision	MAN 122	3
Business Law I	BUS 200	3
Seminar I	BUS 295	1
Option A or B*(2)		3
Business Internship (Optional)*(3)	BUS 290	3
		<hr/> 16

Fourth Semester		
Principles of Accounting II	ACC 102	3
General Education Elective*(1)		3
Business Elective*(4)		3
Seminar II	BUS 296	1
Option A or B*(2)		3
Business Internship (Optional)*(3)	BUS 290	3
		<hr/> 16

*(1) General Education Elective: Reading 100 is required unless assessment test provides proof of college level reading capability. Electives must be selected from the following list: PSY 100, ECO 100, PHI 120, SOC 100, POL 110, MTH 130, MTH 150, WRT 154, WRT 102, and PAD 105. Courses that compliment the specific career goals of the student may be approved by their instructor/advisor.

*(2) Students majoring in Marketing will select courses from Option A and those majoring in Management will select courses from Option B.

Option A	
Salesmanship	MKT 113
Advertising	MKT 125
Retailing	MKT 139
Consumer Behavior	MKT 141
Advertising Layout and Design	MKT 127

Option B	
Small Business Management	MAN 124
Personnel Management	MAN 276
Labor/Management Relations	MAN 278
Business Organizational Management	MAN 280

*(3) Internship is available to selected students upon application and recommendation of advisor. Student receives three hours credit for successful completion of minimum of 15 hours of work weekly in an approved training station supervised and evaluated by both on-the-job supervisor and teacher/coordinator. If you do not select the internship to complete your program, you may take any courses from the following areas other than your major: MAN, MKT, CSC, BUS, ACC, FIN, RLS.

*(4) Business Elective must be selected from the following list: CSC 100, BUS 201, ACC 201, ACC 204, ECO 101, RLS, FIN, or OED.

**Certificate
for Direct Employment**

Required Courses (30 units)

Students will receive a Certificate in Business Administration upon completion of first and second semesters of the Associate of Applied Science Degree Program.

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

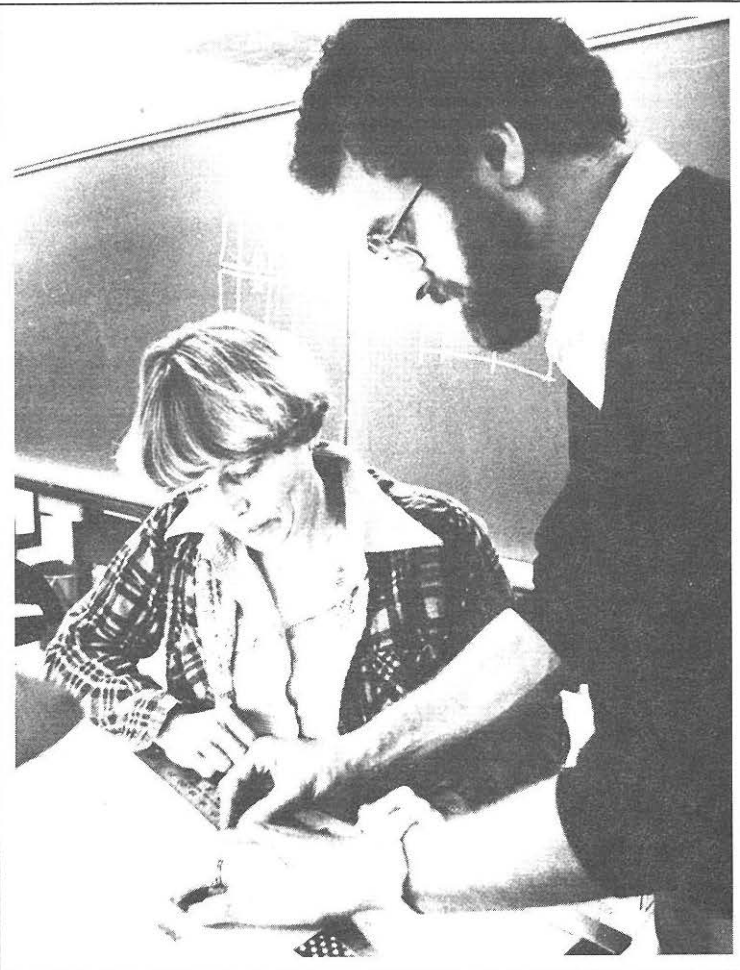
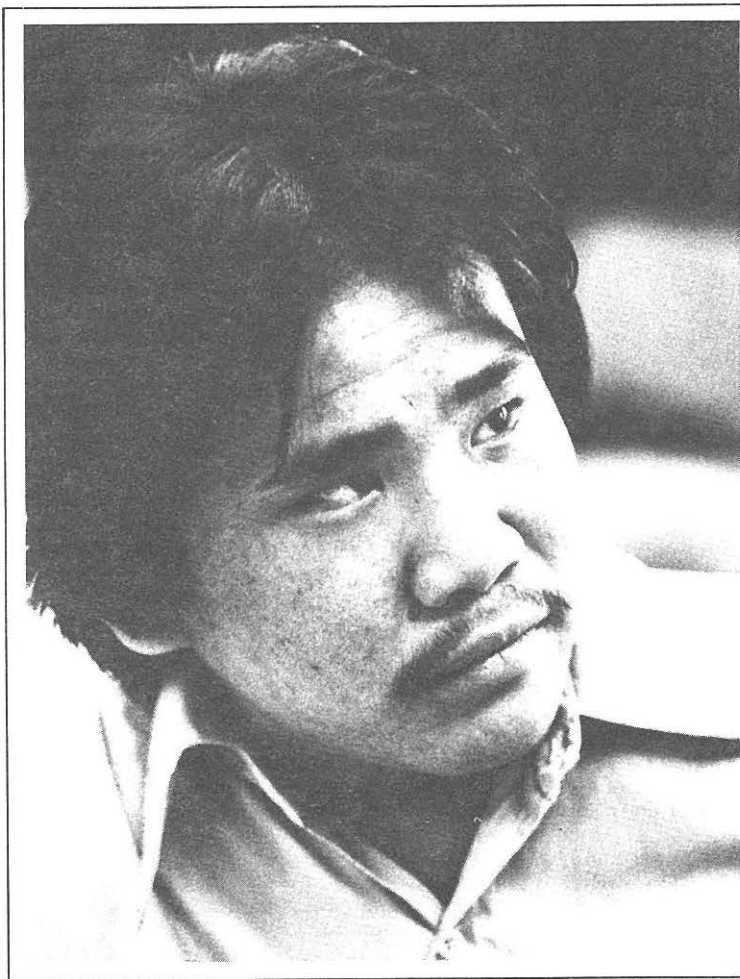
Fourth Semester

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
		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

Computer Science programs consist of one, two and four semesters of study. The four-semester program leads to an Associate of Applied Science degree.

When a student completes a shorter program, he/she will get a certificate. The certificate will show whether the student has studied to be a computer operator or a data entry operator.

If a student enters the pre-computer science program in preparation for more study in business administration, engineering, mathematics or other fields at an upper level school, he/she should take courses in calculus, basic computer science and statistics.

Students who plan to transfer to an upper level school should follow the requirements of that school.

The continuing education program is planned for students who hold an Associate of Applied Science degree in Computer Science. These students should 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
Introduction to Business	BUS 100	3
Writing I	WRT 101	3
Reading	REA 100 series	4
Mathematics of Business or Algebra II	BUS 051	3
Job Entry Procedures	MTH 130	3
	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
Introduction 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	CED 198	3
		<hr/> 15-16

Computer Operator Technical Certificate For Direct Employment

Required Courses (35-37)	First Semester	Cr. Hrs.
Introduction to Computers	CSC 100	3
Computer Operations	CSC 150	3
Algebra II or Mathematics of Business	MTH 130	3
Reading	BUS 051	3
Introduction to Business	REA 100 series	4
Edit Language for Programming & Operations	BUS 100	3
Job Entry Procedures	CSC 197	1
	CSC 195	1
		<hr/> 18
	Second Semester	
Principles of Accounting I	ACC 101	3
Systems Operations & 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 (63-65)	First Semester	Cr. Hrs.
Introduction to Computers	CSC 100	3
Principles of Accounting I	ACC 101	3
Writing I	WRT 101	3
Reading	REA 100 series	4
Algebra II or	MTH 130	
College Algebra	MTH 150	3
Edit Language for Programmer & Operator	CSC 197	1
		<hr/> 17
	Second Semester	
COBOL Programming	CSC 160	3
Principles of Accounting II	ACC 102	3
Writing II	WRT 102	3
Reading (if required) or Elective		3-4
College Algebra or CSC Elective**	MTH 150	3
		<hr/> 15-16
	Third Semester	
Microprocessor Fundamentals	CSC 250	3
Systems Analysis	CSC 280	3
Advanced COBOL/File Management	CSC 260	4
Select two courses in continuing sequence with fourth semester.		6
A Statistical Methods I	BUS 205	(3)
B Finite Math	MTH 170	(3)
C Co-op Training	CED 198	(3)
D Introduction to Microeconomics	ECO 100	(3)
E Cost Accounting	ACC 203	(3)
F CSC 200 level elective		(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 Language or Fundamentals of Assembly Language	CSC 274 CSC 270	4
Select two courses following sequence of third semester		6-7
A Statistical Methods II	BUS 206	(3)
B Topics Calculus	MTH 175	(3)
C Co-op Training	CED 199	(3)
D Introduction to Macroeconomics	ECO 101	(3)
E Elective*		(3-4)
F CSC 200 level elective		(3)
		<hr/> 14-16

*Select from humanities or philosophy.

**CSC courses numbering 140 and higher.

**Systems Programmer*
Advanced Certificate
For Direct Employment**

Required Courses (29)	First Semester	Cr. Hrs.
FORTAN IV Programming	CSC 140	3
Operating Systems	CSC 296	3
Analytical Geometry/Calculus I	MTH 180	3
		<hr/> 9
	Second Semester	
Systems Programming Theory	CSC 290	3
MACRO-10 Assembly Language	CSC 274	4
Analytical Geometry/Calculus II	MTH 185	3
		<hr/> 10
	Third Semester	
Current Topics in CSC	CSC 294	3
Analytical 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.

*Prerequisite for program is AAS degree in Computer Science or equivalent.

Computer Specialist for Small Business

The Small Business Computer Specialist program will:

- give students the skills needed to serve as a computer specialist in a "one-man shop."
- help currently employed computer workers with the continuing education to change their careers to the small computer field.
- give practical training in the operation and programming of mini and/or micro computers.
- use varied methods to show the teaching relationships among business electronics and computers.
- help small businesses which have their first computer to train competent workers to install, program and run the computer.

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

Required Courses (65-68)	First Semester	Cr. Hrs.
Introduction to Computers	CSC 100	3
Writing I or Practical Communications	WRT 101 WRT 150	3
Algebra II or College Algebra	MTH 130 MTH 150	3
Intro. to Computer Operations	CSC 150	3
Reading	REA 100 series	4
Edit Language for Programmers & Operators	CSC 197	1
		17

	Second Semester	
COBOL Programming	CSC 160	3
Writing II or Technical Communications	WRT 102 WRT 154	3
Reading (if required) or Elective*		3-4
Advanced Computer Operations	CSC 155	3
Elective*		3
Job Entry Procedures	CSC 195	1
Work Stand/Job Attitudes	CSC 196	1
		17-18
	Third Semester	
Microprocessor Fundamentals	CSC 250	3
RPG Programming	CSC 170	3
Accounting I	ACC 101	3
System Analysis	CSC 280	3
Elective*		3-4
		16-17
	Fourth Semester	
Accounting II	ACC 102	3
Systems Design	CSC 281	3
IBM/370 Assembly Language or MACRO-10 Assembly Language	CSC 270 CSC 274	4
Data Processing Projects II or Current Topics in Computer Science	CSC 298 CSC 294	3
Microprocessor Applications	CSC 255	3
		16

*Select from: MAN 122, MAN 124, ACC 203, CSC 140, CSC 274, HUM 110, HUM 111, PHI 120, PSY 100, PSY 101, ETR 001, ETR 100.

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 who complete this program will graduate with a certificate from Pima Community College and will be eligible to take the National Certification Examination and state licensure examination.

Acceptance Into Program:

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

General Requirements:

- Total credit: 35 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 (35)	First Semester	Lec.		Lab	Cr. Hrs.
Personal Development	HDE 120	1	+	0	1
Writing I	WRT 101	3	+	0	3
Intro. Dental Assisting	DAT 061	3	+	0	3
Dental Assisting I	DAT 062	2	+	3	3
Oral Radiography	DAT 063	2	+	3	3
Dental Materials	DAT 064	2	+	3	3
Pre-Clinical Procedures	DAT 065	0	+	6	2
					18
	Second Semester				
Speech	SPE 102	3	+	0	3
Dental Assisting II	DAT 066	2	+	3	3
Dental Assisting III	DAT 067	2	+	3	3
Clinical Procedures	DAT 068	0	+	24	8
					17

Dental Laboratory Technology

The total program is made up of four semesters of classes. It includes 1492 clock hours of laboratory practice. Graduates will receive an Associate of Applied Science degree with a major in Dental Laboratory Technology. They will also be able to take the National Board for Certification recognized graduates examination. After three years of work experience, these people will be able to take the certified dental technician practical examination given by the National Board for Certification.

Prospective candidates seeking admission into the Dental Laboratory Technology Program are required to complete the following application procedure prior to entry into the program:

1. Complete Pima Community College application.
2. Complete program application.
3. Submit high school transcript or G.E.D. and, if applicable, official college transcripts. Candidates must be high school graduates to meet the requirements of the Council on Education and Accreditation of the American Dental Association.
4. Complete general aptitude test battery, administered and interpreted in Student Development.
5. Complete Dental Laboratory soap carving test. See program facilitator for testing schedule.
6. When steps 1-5 are completed, a conference with the program facilitator is recommended to review the results and, if necessary, the alternatives available.
7. All completed applications will be dated, and the first 16 who meet minimum established requirements of steps #4 and #5, above, will be accepted.
8. All additional qualified applicants will be placed, by date of completed application, on an alternate list and will be accepted, in the event that previously accepted applicants do not take their seat in the class. All alternates not accepted into the program must re-submit and update their program application for the following year.
9. Steps 1-5 must be completed by March 1, each year, to be considered for enrollment in the program each fall.

Associate of Applied Science Degree For Direct Employment

Required Courses (68)	First Semester	Lec.		Lab	Cr. Hrs.
Fundamentals of Chemistry I	CHM 110	3	+	3	4
Introduction to 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
Fundamentals of Chemistry II	CHM 111	3	+	3	4
Introduction 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 Management	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		1	+	0	1
Dental Laboratory III	DLT 204	2	+	3	3
Dental Metallurgy II	DLT 205	2	+	6	4
Ceramics	DLT 206	0	+	6	2
Introduction to Infectious Diseases	LSC 117	3	+	0	3
					16

Drafting Technology

Architectural Drafting

Students can select from a basic certificate program, an advanced program, and a two-year Associate of Applied Science degree program. The degree program offers courses in drafting techniques, building construction systems and materials. This training may lead to work in an architect's office and in construction related fields. (Not meant for transfer to a four-year college.)

Architectural Drafting Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Construction Drafting I-II	DFT 110, 120	8
Nine credit hours selected from the following:		9
Construction Determinants I-II	DFT 114-115	(6)
Building Utilities & Site Work	DFT 123	(3)
Construction Drafting III-IV	DFT 130-140	(8)
Independent Study	DFT 149	(3)
Technical Drafting I	DFT 150	(4)
Construction Surveying	ENG 110	(3)
Blueprint Reading	GTC 099	(3)
		<hr/> 17

Architectural Drafting Technical Certificate For Direct Employment

Required Courses (32)	First Semester	Cr. Hrs.
Construction Drafting I	DFT 110	4
Elective Skill Course*		3
Math Elective	MTH	3
Writing I or	WRT 101	
Practical Communications	WRT 150	3
Elective		<hr/> 3
		16

	Second Semester	
Construction Drafting II	DFT 120	4
Elective Skill Courses*		6
Math Elective	MTH	3
Writing II or	WRT 102	
Technical Communications	WRT 154	3
		<hr/> 16

*Elective courses to be selected from the following:

Construction Determinants I-II	DFT 114-115	(6)
Building Utilities & Site Work	DFT 123	(3)
Construction Drafting III-IV	DFT 130, 140	(8)
Independent Study	DFT 149	(3)
Construction Surveying	ENG 110	(3)
Geometric Dimensioning & Tolerancing	DFT 160	(3)

Architectural Drafting Associate of Applied Science Degree For Direct Employment

Required Courses	First Semester	Cr. Hrs.
Construction Drafting I	DFT 110	4
Construction Determinants I*(1)	DFT 114	3
Math Elective*(2)	MTH	3
Writing I or	WRT 101	
Practical Communications	WRT 150	3
Art or Design Elective	ART or DES	3
Physical Activity Elective	PED	1
		<hr/> 17

	Second Semester	
Construction Drafting II	DFT 120	4
Construction Determinants II*(1)	DFT 115	3
Math Elective*(2)	MTH	3
Writing II or	WRT 102	
Technical Communications	WRT 154	3
Art or Design Elective	ART or DES	3
Physical Activity Elective	PED	1
		<hr/> 17

Third Semester		
Construction Drafting III	DFT 130	4
Building Utilities and Site Work	DFT 123	3
Life, Physical or Social Science Elective		3
Math Elective*(2)	MTH	3
Electives		3
		<hr/>
		16
Fourth Semester		
Construction Drafting IV	DFT 140	4
Construction Surveying or Elementary Surveying*(3)	ENG 110	
Life, Physical or Social Science Elective	ENG 130	3
Business and Professional Communications		3
Electives	SPE 120	3
		2
		<hr/>
		15

*(1) DFT 115 may be taken before DFT 114.

*(2) Students completing MTH 150 and MTH 155 may use 3 credits of MTH elective as general electives.

*(3) ENG 130 prerequisites: MTH 150 and MTH 155 or MTH 160.

Life, Physical, or Social Science Electives:

Introductory Chemistry I, II	CHM 101, 102
General Chemistry I, II	CHM 120, 121
Earth Sciences	ESC 101, 102, 103, 115, 120, 121
Life Sciences	LSC 022, 103, 104, 150, 151
Physics	PHY 101, 102, 112 121, 122
Anthropology	ANT
Psychology	PSY 101, 102
Sociology	SOC

Suggested Electives:

Art History	ART
Art Studio Courses	ART
Computer Science	CSC
Design	DES
Light Weight Structure Design	DES 151
Literature	LIT
Technical Drafting	DFT 150
Engineering Graphics	ENG 120
How to Study	EXP 099
Fire Science	FSC
General Technology	GTC
Introduction to Western Civilization I, II	HIS 101, 102
Humanities	HUM 110, 111
Introduction to Philosophy	PHI 101, 102
Introduction to Logic	PHI 120
Speech	SPE
Welding	WLD
Technical Communications	WRT 154, 254

Electro-Mechanical Drafting

This two-year program which leads to an Associate of Applied Science degree allows the students to develop skills which prepare them for a career in drafting as found in several types of industry. Also available is a one-year technical drafting certificate program.

Electro-Mechanical Drafting Technical Certificate Program

Required Courses	First Semester	Cr. Hrs.
Technical Drafting I	DFT 150	4
Intro. Math (or equivalent)	MTH 060	3
Manufacturing Processes	MAC 240	3
Elective Skill Course*		3-4
Writing I or Practical Communications	WRT 101 WRT 150	3
		16-17
	Second Semester	
Technical Drafting II	DFT 151	4
Manufacturing Processes	MAC 245	3
Electronic Drafting	DFT 154	4
Technical Math	MTH 110	3
Writing II or Tech. Communications	WRT 102 WRT 154	3
		17

*Elective skill courses to be selected from the following:

Machine Shop	MAC 100	(4)
Intro. to Electronics	ETR 001	(4)
Intro. to Computers	CSC 100	(3)
Construction Drafting I	DFT 110	(3)
Industrial Graphics	DES 111	(3)
Technical Physics	PHY 101	(3)

Electro-Mechanical Drafting Associate of Applied Science Degree

Required Courses	First Semester	Cr. Hrs.
Technical Drafting I	DFT 150	4
Manufacturing Processes	MAC 240	3
Intro. Math (or equivalent)	MTH 060	3
Writing I or Practical Communications	WRT 101 WRT 150	3
Human Relations	MAN 110	3
		16
	Second Semester	
Technical Drafting II	DFT 151	4
Manufacturing Processes	MAC 245	3
Technical Math I	MTH 110	3
Writing II or Technical Communications	WRT 102 WRT 154	3
Intro. Electronics	ETR 001	3
		16
	Third Semester	
Electro-Mechanical Design	DFT 155	4
Electronic Drafting	DFT 154	4
Technical Physics	PHY 101	3
Industrial Graphics	DES 111	3
Elective		3
		17
	Fourth Semester	
Independent Study	DFT 149	1-3
Engineering Graphics	ENG 120	3
Intro. Computers	CSC 100	3
Elective		3
Elective		3
		13-15

Suggested Electives:

Machine Shop	MAC 110
Functional Design	DES 150 or 250
Elementary Welding	WLD 050
Technical Math II	MTH 120
Tool Design	DFT 153
Construction Drafting I	DFT 110
Humanities	HUM 110-111
Geometrical Dim.	DFT 160
Reading 100 series	REA 100

Mechanical Drafting

This is a two-year Associate in Applied Science degree program which gives experiences in fundamental techniques and drafting practices for work in many kinds of drafting related industries.

**Mechanical Drafting
Technical Certificate**

Required Courses	First Semester	Cr. Hrs.
Technical Drawing I	DFT 150	4
Developmental Writing or Writing I	WRT 070 WRT 101	3
Technical Math I*	MTH 110	3
Manufacturing Processes I	MAC 240	3
Human Relations	MAN 110	3
		<hr/>
		16
	Second Semester	
Technical Drawing II	DFT 151	4
Practical Communications or Writing II	WRT 150 WRT 102	3
Technical Math II	MTH 120	3
Manufacturing Processes II	MAC 245	3
Functional Design I	DES 150	3
		<hr/>
		16

**Mechanical Drafting
Associate of Applied Science Degree**

Required Courses	First Semester	Cr. Hrs.
Technical Drawing I	DFT 150	4
Developmental Writing or Writing I	WRT 070 WRT 101	3
Technical Math I*	MTH 110	3
Manufacturing Processes I	MAC 240	3
Human Relations	MAN 110	3
		<hr/>
		16
	Second Semester	
Technical Drawing II	DFT 151	4
Practical Communications or Writing II	WRT 150 WRT 102	3
Technical Math II*	MTH 120	3
Manufacturing Processes II	MAC 245	3
Introduction to Electronics	ETR 001	4
		<hr/>
		17
	Third Semester	
Technical Drawing III	DFT 152	4
Technical Physics I	PHY 101	3
Electronic Drafting	DFT 154	4
Functional Design I	DES 150	3
Suggested Elective		3
		<hr/>
		17

	Fourth Semester	
Tool Design	DFT 153	4
Engineering Graphics	ENG 120	3
Industrial Graphics	DES 111	3
Introduction to Computers	CSC 100	3
Geometric Tolerances	DFT 160	3
		<hr/>
		16

Suggested Electives:

Machine Shop	MAC 110	(4)
Functional Design	DES 150	(3)
Construction Drafting	DFT 120	(4)
Humanities I or II	HUM 110, 111	(4)
Cooperative Education**	CED 198	(3)

*Mathematics Options - Any Two (2) Courses

Algebra I	MTH 070	(3)
Algebra II	MTH 130	(3)
College Algebra	MTH 150	(3)
Trigonometry	MTH 155	(3)

**Co-op can be taken in the third and fourth semester with approval of co-op coordinator and faculty advisor.

Drama

The Drama program leading to an associate degree is made up of a basic group of courses and four different major areas of study from which a person may choose. Drama education prepares students for transfer to a four-year college leading to a Bachelor of Fine Arts Degree in Drama Education. It provides training in performing and other areas of theatrical productions. Students in this field are advised to begin studies toward a teaching minor.

Drama Production prepares students for transfer to a four-year college leading to a Bachelor of Fine Arts in drama (production). A large amount of experience and training in performing and all other areas of production is given.

Drama Theory gives some training in performing and other areas of theatrical production but the main goal is to see drama as literature. Students in this field are prepared for transfer to a four-year college leading to a Bachelor of Arts Degree with a major in Drama Theory.

Applied Drama is not a transfer program. This area of study offers different activities in theatrical situations concentrating on application of skills in productions.

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		<hr/>
		12
	Second Semester	
Introduction to Acting II	DRA 106	3
Stagecraft II	DRA 121	3
Writing II	WRT 102	3
Social Science Elective		<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, Speech, Music, Art, Dance, Fencing, LIT 131—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 Literature	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 051	3
Electives		2-4
		<hr/>
		8-10

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

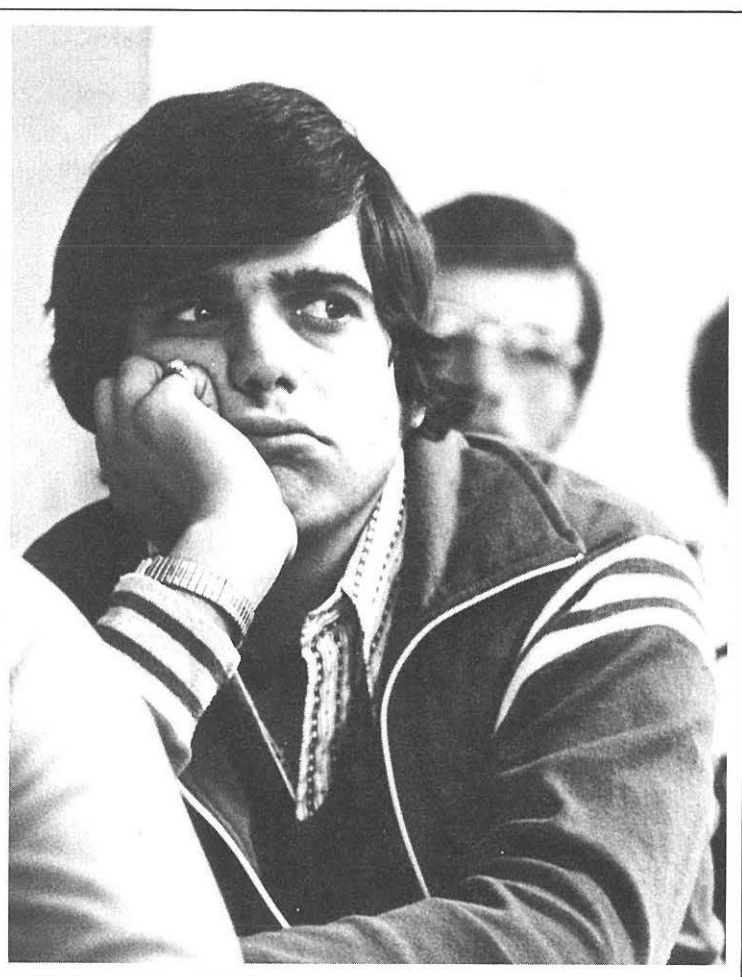
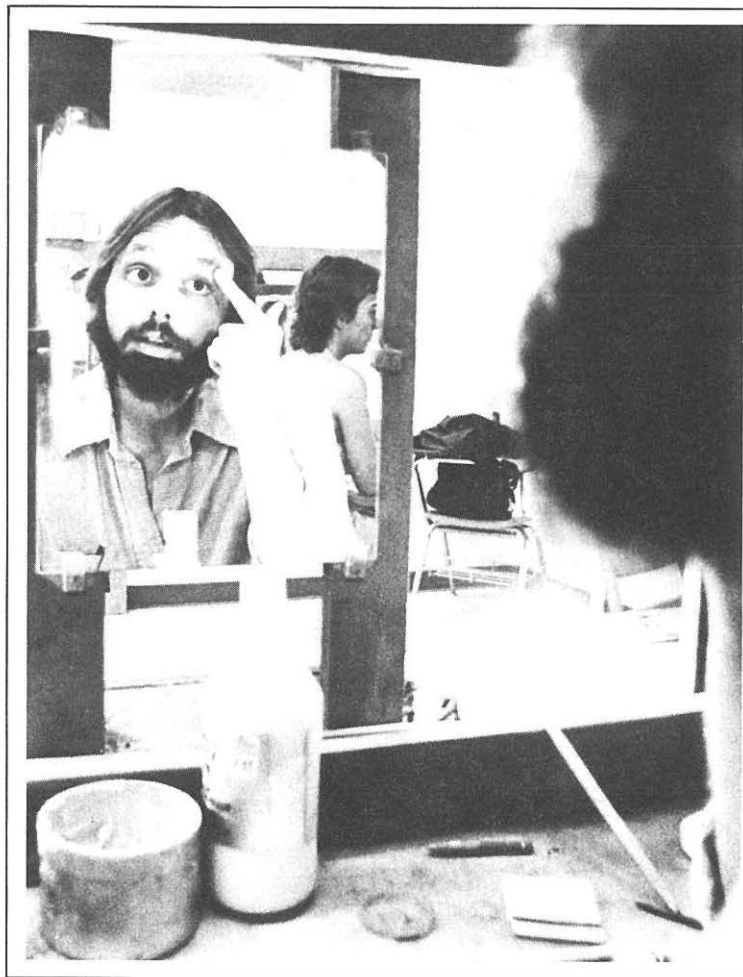
Required Courses (63-66)	First Semester	Cr. Hrs.
Core Curriculum—Drama		(39)
Electives		3-5
	Second Semester	
Teaching Minor		3
Electives		1-2
		<hr/>
		4-5
	Third Semester	
Intermediate Acting I	DRA 248	3
Lab Science or Science for Teachers		4
		<hr/>
		7
	Fourth Semester	
Intermediate Acting II	DRA 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		(39)
Voice and Articulation	SPE 115	2
Electives		1-3
		3-5
	Second Semester	
Oral Interpretation of Literature	SPE 136	3
Electives		1-2
		4-5
	Third Semester	
Intermediate Acting I	DRA 248	3
Laboratory Science		4
		7
	Fourth Semester	
Intermediate Acting II	DRA 249	3
Laboratory Science		4
		7

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

Required Courses (63)	First Semester	Cr. Hrs.
Core Curriculum—Drama		(39)
Foreign Language		4
	Second Semester	
Foreign Language		4
	Third Semester	
Foreign Language		4
Lab Science		4
		8
	Fourth Semester	
Foreign Language		4
Lab Science		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 as Teacher/Directors and as Teacher Aide/ Assistants in both pre-service and in-service programs. The in-service program for Teacher Aide/ Assistant provides the student with the opportunity to receive certification as a Child Development Associate.

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 and Elementary Education.

Teacher Aide/Assistance (Pre-Service Program) Certificate for Direct Employment

Required Courses (30)	First Semester	Cr. Hrs.
Introduction to Education	ECE 118	3
Teaching Techniques	ECE 126	3
Literature/Social Studies for Children	ECE 108	3
Understanding Children	ECE 116	3
Reading or Writing	REA 100/WRT 101	3
		<hr/> 15
	Second Semester	
Child Care Programs I	ECE 128	3
Development of Classroom Tools	ECE 115	3
Music/Art for Children	ECE 112	3
Communication Skills for Children	ECE 110	3
Practicum	ECE 240	3
		<hr/> 15

Teacher-Director (Pre-Service Program) Associate of Arts Degree for Direct Employment

Required Courses (60)	First Semester	Cr. Hrs.
Introduction to Education	ECE 118	3
Teaching Techniques	ECE 126	3
Literature/Social Studies for Children	ECE 108	3
Understanding Children	ECE 116	3
Reading or Writing	REA 100/WRT 101	3
		<hr/> 15
	Second Semester	
Child Care Programs I	ECE 128	3
Development of Classroom Tools	ECE 115	3
Music/Art for Children	ECE 112	3
Communication Skills for Children	ECE 110	3
Practicum	ECE 240	3
		<hr/> 15
	Third Semester	
The Growing Years or	ECE 106	
Child Development or	ECE 117	
Human Development	ECE 107	3
Techniques for the Special Child	ECE 111	3
Child Care Programs II	ECE 130	3
Math/Sciences for Children	ECE 124	3
General Education Electives*		3
		<hr/> 15
	Fourth Semester	
Foods for Children	FSN 124	3
Effective Parenthood	ECE 114	3
Practicum	ECE 240	3
Supervision & Administration	ECE 120	3
General Education Electives*		3
		<hr/> 15

***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		3
Social Sciences		3

**Teacher Aide/Assistant (In-Service)
Certificate for Direct Employment**

Required Courses		Cr. Hrs.
Environmental Design for the Early Childhood Center	CDA 120	3
Planning the Early Childhood Program	CDA 121	4
Observing Young Children	CDA 122	2
The Family and Early Childhood Education	CDA 123	3
Enhancing Intellectual Development in the Early Childhood Setting I	CDA 124	3
Enhancing Intellectual Development in the Early Childhood Setting II	CDA 125	3
Enhancing Personality Development in the Early Childhood Setting	CDA 126	3
Creative Expression in the Early Childhood Setting	CDA 220	3
Enhancing Physical Development in the Early Childhood Setting	CDA 221	2
Meeting the Special Language and Cultural Needs of Children in Groups or	CDA 222	2
Crafts in the Early Childhood Setting	CDA 223	2
Management Functions in the Operation of the Early Childhood Center	CDA 224	2
		<hr/> 30

**Teacher-Director (In-Service Program)
Associate of Arts Degree
For Direct Employment**

Required Courses		Cr. Hrs.
Environmental Design for the Early Childhood Center	CDA 120	3
Planning for the Early Childhood Program	CDA 121	4
Observing Young Children	CDA 122	2
The Family and Early Childhood Education	CDA 123	3
Enhancing Intellectual Development in the Early Childhood Setting I	CDA 124	3
Enhancing Intellectual Development in the Early Childhood Setting II	CDA 125	3
Enhancing Personality Development in the Early Childhood Setting	CDA 126	3
Creative Expression in the Early Childhood Setting	CDA 220	3
Physical Development in the Early Childhood Setting	CDA 221	2
Meeting the Special Language and Cultural Needs of Children in Groups or	CDA 222	2
Crafts in the Early Childhood Setting	CDA 223	2
Management Functions in the Operation of the Early Childhood Center	CDA 224	2
		<hr/> 30
Additional Required Courses		
Child Development	ECE 117	3
Techniques for the Special Child	ECE 111	3
Effective Parenthood	ECE 114	3
Foods for Children	FSN 124	3
Electives from below		<hr/> 18
		30

Writing	Psychology	Sociology
Humanities	History	Economics
Social Sciences	Political Science	Anthropology

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

Persons planning to enter this field of Child Development and Family Relations 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 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.

Education

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

Students should, however, follow the requirements of the upper division school to which they plan to transfer. Students should meet with their advisor for correct course selection.

In addition to the above listed requirements, students majoring in Elementary or Early Childhood Education who plan to receive an Associate of Arts degree in Pre-Education are required to take the following two courses:

- ECE 118 Introduction to Education
- ECE 126 Teaching Techniques

Electronics Technology

The Electronics Technology program offers many opportunities for the student. The certificate programs and elective courses enable students looking for the shortest route to employment to specialize. These credits may later be applied to a degree program.

The two-year Associate of Applied Science degree program is for direct employment training. The Associate of Science degree program is for students who plan to transfer to a four-year technology school.

Students are encouraged to participate in the Cooperative Education program which offers important benefits in updating present job skills, preparing for a job, and qualifying for a better job.

Throughout the program emphasis is placed on vocational training and practical applications. Extensive laboratory experiences are offered to reinforce classroom theory and develop skills in the use of basic test equipment. Up to date trainers and test equipment are available for use by students in advanced and specialized courses.

Students with no prior electronics experience or having a weak math background should take Introduction to Electronics (ETR 001) and Algebra I (MTH 070) as program entry prerequisites.

Advisors are available and a written plan to satisfy the requirements of the students immediate and highest educational-occupational goals should be jointly developed and recorded each semester. Students should plan their school, work, family, and play 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	MTH 115	3
Fundamentals of Electronics	ETR 100	6
Electronics Math II	MTH 125	3
Electronics 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	MTH 115	3
TV Repair I/Black & White	ETR 140	6
TV Repair/Color	ETR 145	6
Human Relations or Small Business Management	MAN 110 MAN 124	3
(MAN 124 has ACC 101 prerequisite)		
		24

Consumer Electronics Basic Certificate For Direct Employment

Suggested Course Sequence		Cr. Hrs.
Fundamentals of Electronics	ETR 100	6
Electronics Math I	MTH 115	3
Electronic Circuits/Systems I	ETR 105	6
TV Repair I/Black & White	ETR 140	6
Home Entertainment Equipment Repair	ETR 150	6
		27

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

Suggested Course Sequence (46-54)		First Semester	Cr. Hrs.
Electronics Math I		MTH 115	3
Fundamentals of Electronics		ETR 100	6
Technical Drafting I		DFT 150	3
			12
		Second Semester	
Electronics Math II		MTH 125	3
Digital Electronics		ETR 110	3
Electronics Circuits/Systems I		ETR 105	6
Practical Communications		WRT 150	3
			15

		Third Semester	
Technical Communications	WRT 154	3	
Option 1*		6	
		<hr/>	
		9	
			Fourth Semester
Electronic Drafting	DFT 154	3	
Human Relations or	MAN 110		
Small Business Management	MAN 124	3	
(MAN 124 has ACC 101 prerequisite)			
Option 2*		6	
Option 3* (for Consumer Electronics only)		0-6	
		<hr/>	
		12-18	

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

Communications Electronics

Option 1 ETR 230 (6)

Option 2 ETR 235 (6)

Consumer Electronics

Option 1 ETR 140 (6)

Option 2 ETR 145 (6)

Option 3 ETR 150 (6)

Industrial Electronics

Option 1 ETR 274 (6)

Option 2 ETR 276 (6)

Note:

The following are electronics elective courses:

Introduction to Electronics	ETR 001	4
FCC Amateur License Preparation	ETR 050	3
C.B. Radio for Operators	ETR 051	2
Shop and Bench Wiring	ETR 052	3
Small Appliance Repair	ETR 053	3
Second Class FCC License	ETR 290	3
First Class FCC License	ETR 295	3
Cooperative Education (Alternating Plan, Full-Time Work)	CED 296	6
Cooperative Education (Parallel Plan, Part-Time Work)	CED 198	3

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

Suggested Course Sequence (62-74)	First Semester	Cr. Hrs.
Electronics Math I	MTH 115	3
Fundamentals of Electronics	ETR 100	6
Technical Drafting I	DFT 150	3
Practical Communications	WRT 150	3
Electives (Any Area)		0-3
		<hr/>
		15-18
		Second Semester
Electronics Math II	MTH 125	3
Electronics Circuits/Systems I	ETR 105	6
Digital Electronics	ETR 110	3
Technical Communications	WRT 154	3
Electives (Any Area)		0-3
		<hr/>
		15-18
		Third Semester
Human Relations or	MAN 110	
Small Business Management	MAN 124	3
(MAN 124 has ACC 101 prerequisite)		
Introductory Physics I	PHY 121	4
Electives (Any Area)		5-6
Option 1*		6
		<hr/>
		18-19
		Fourth Semester
Electronic Drafting	DFT 154	3
Introductory Physics II	PHY 122	4
Electives (Any Area)		0-3
Option 2*		6
Option 3* (for Consumer Electronics only)		0-6
		<hr/>
		16-19

*Students should choose appropriate course options from the three specializations given.

Communications Electronics

Option 1 ETR 230 (6)

Option 2 ETR 235 (6)

Consumer Electronics

Option 1 ETR 140 (6)

Option 2 ETR 145 (6)

Option 3 ETR 150 (6)

Industrial Electronics

Option 1 ETR 274 (6)

Option 2 ETR 276 (6)

Note: The following are electronics elective courses:

Introduction to Electronics	ETR 001	4
FCC Amateur License Preparation	ETR 050	3
C.B. Radio for Operators	ETR 051	2
Shop and Bench Wiring	ETR 052	3
Small Appliance Repair	ETR 053	3
Second Class FCC License	ETR 290	3
First Class FCC License	ETR 295	3
Cooperative Education (Alternating Plan, Full-Time Work)	CED 296	6
Cooperative Education (Parallel Plan, Part-Time Work)	CED 198	3

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

Suggested Course Sequence (60-75)	First Semester	Cr. Hrs.
College Algebra	MTH 150	3
Fundamentals of Electronics	ETR 100	6
Technical Drafting	DFT 150	3
Writing I	WRT 101	3
Electives*		0-4
		15-19
	Second Semester	
Trigonometry	MTH 155	3
Digital Electronics	ETR 110	3
Electronics Circuits/Systems I	ETR 105	6
Writing II	WRT 102	3
Electives*		0-4
		15-19
	Third Semester	
Analytic Geometry & Calculus I	MTH 180	3
Electronic Drafting	DFT 154	3
Electives*		6-7
Option 1**		7
		19-20
	Fourth Semester	
Analytic Geometry & Calculus II	MTH 185	3
Elementary Circuit Theory***	ENG 245	3
Electives*		0-3
Option 2**		6
Option 3**(for Consumer Electronics only)		0-6
		12-21

*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 three specializations given:

Communications Electronics

Option 1 ETR 280 (6)

Option 2 ETR 235 (6)

Consumer Electronics

Option 1 ETR 140 (6)

Option 2 ETR 145 (6)

Option 3 ETR 150 (6)

Industrial Electronics

Option 1 ETR 274 (6)

Option 2 ETR 276 (6)

***Prerequisites for ENG 245 for Electronics Technology Students ONLY are changed to: ETR 100, ETR 110, MTH 180 and concurrent enrollment in MTH 185.

Note: The following are electronics elective courses:

Introduction to Electronics	ETR 001	4
FCC Amateur License Preparation	ETR 050	3
C.B. Radio for Operators	ETR 051	2
Shop and Bench Wiring	ETR 052	3
Small Appliance Repair	ETR 053	3
Second Class FCC License	ETR 290	3
First Class FCC License	ETR 295	3
Cooperative Education (Alternating Plan, Full-Time Work)	CED 296	6
Cooperative Education (Parallel Plan, Part-Time Work)	CED 198	3

Electronics Digital Technology

The Digital Electronics Program provides the student with training and experience on microprocessors, minicomputers, digital communications equipment, and computer peripherals. Students will work with industrial quality equipment to learn both programming and maintenance of digital equipment.

The rapidly expanding local digital electronics industry has created a high demand for trained digital electronics technicians as well as the opportunity for students to work at cooperative education work stations while attending school.

Associate of Applied Science Degree

First Year	First Semester	Cr. Hrs.
Electronics Math I	MTH 115	3
Fundamentals of Electronics	ETR 100	6
Writing I	WRT 101	3
Measurements & Const.	ETR 120	2
Elective		3
		17
	Second Semester	
Electronics Math II	MTH 125	3
Electronic Circuits	ETR 105	6
Writing II	WRT 102	3
Digital Electronics	ETR 110	3
		15

Second Year

Electronic Analysis
 Digital Systems
 Digital Devices I
 Elective

First Semester

ETR 253 3
 ETR 255 6
 ETR 250 4
 3

 16
Second Semester

Digital Devices II
 Computer Peripherals
 Microprocessors
 Optional Elective Co-op

ETR 251 6
 ETR 257 4
 ETR 256 6

 16
Electives:

Fortran	CSC 140
Co-op	CED 198, 199, 296
Drafting	DFT 150, 154
Advanced Circuits	ETR 230
Psychology	PSY 100, 102
Humanities	HUM 110-111
Sociology	SOC 100
History	HIS 101, 102

Students who may transfer to a four-year college or university should take the math sequence MTH 070, MTH 130, MTH 150, MTH 155.

Writing 150, 154 may be substituted for Writing 101, 102.

Emergency Medical Technology

This program covers learning within the field of the emergency medical technician ambulance (EMT-A). The course, 114 clock hours, is a solid introduction to the field of pre-hospital emergency medical care. Emphasis is placed on basic aspects of emergency disease conditions, recognition and treatment of emergency medical and traumatic conditions. It also introduces the operation aspects of emergency care in the pre-hospital setting.

Students who complete the program will be issued a certificate of course completion from Pima Community College. Current Arizona Department of Health Services regulations allow program graduates who present a need for state EMT certification an affiliation with a pre-hospital provider of emergency services to take the Arizona EMT Registry Examination. Program graduates with enough work experience may be eligible to take the national certifying examination through the National Registry of Emergency Medical Technicians.

Acceptance Into the Program:

- Completion of college and EMT acceptance requirements.
- It is highly recommended that students obtain certification in Basic Cardiac Life Support (CPR) prior to entrance in the EMT Program. Information regarding classes in BCLS can be obtained by contacting the American Red Cross, American Heart Association, or by calling the EMT Program office.

Note: Priority in admission will be given to persons affiliated with agencies providing pre-hospital emergency services (ambulance service, 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 Enrollment

		Lec.	Lab	Cr. Hrs.
Emergency Medical Tech.	EMT 051	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 (64-71)

	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Anal. Geometry & Calculus I	MTH 180	3
General Chemistry I	CHM 120	4
Physical Education Elective	PED	1
Option 1		3
Option 2		3-4
		17-18

Second Semester

Writing II	WRT 102	3
Anal. Geometry & Calculus II	MTH 185	3
General Chemistry II	CHM 121	3-4
Introductory Physics I*	PHY 131	4
Physical Education Elective	PED	1
Option 3		3-4
		17-19

Third Semester

Anal. Geometry & Calculus III	MTH 215	4
Eng. Mechanics-Statics	ENG 210	3
Introductory Physics II**	PHY 132	4
Option 4		3-4
		14-15

Fourth Semester

Linear Algebra & Differential Equations	MTH 220	4
Mechanics of Materials***	ENG 230	3
Option 5		3-4
Option 6		3-4
Option 7		3-4
		16-19

Aerospace or Mechanical Engineering

Option 1 Fortran IV Programming	CSC 140	3
Option 2 Engineering Graphics	ENG 120	3
Option 3 Elective		3-4
Option 4 Elective		3-4
Option 5 Elective		3-4
Option 6 Eng. Mechanics-Dynamics	ENG 220	3
Option 7 Numerical Anal. for Eng.	ENG 250	3

Agricultural Engineering

Option 1 Fortran IV Programming	CSC 140	3
Option 2 Engineering Graphics	ENG 120	3
Option 3 Elective		3-4
Option 4 Elective		3-4
Option 5 Elective		3-4
Option 6 Organismic Biology I	LSC 205	4
Option 7 Numerical Anal. for Eng.	ENG 250	3

Chemical Engineering

Option 1 Fortran IV Programming	CSC 140	3
Option 2 Elective		3-4
Option 3 Elective		3-4
Option 4 Organic Chemistry I	CHM 240	4
Option 5 Elective		3-4
Option 6 Organic Chemistry II	CHM 241	4
Option 7 Elective		3-4

Civil Engineering

Option 1 Fortran IV Programming	CSC 140	3
Option 2 Engineering Graphics	ENG 120	3
Option 3 Elementary Surveying	ENG 130	3
Option 4 Elective		3-4
Option 5 Elective		3-4
Option 6 Eng. Mechanics-Dynamics	ENG 220	3
Option 7 Numerical Anal. for Eng.	ENG 250	3

Electrical Engineering

Option 1 Fundamentals of Electronics	ETR 100	6
Option 2 None		0
Option 3 Fortran IV Programming	CSC 140	3
Option 4 Intro. to Digital Systems	ENG 240	3
Option 5 Elementary Circuit Theory	ENG 245	3

Cr. Hrs.

Option 6 Elective		3-4
Option 7 Numerical Anal. for Eng.	ENG 250	3
*Take PHY 210 instead of PHY 131		
**Take PHY 216 instead of PHY 132		
***Take PHY 221 instead of ENG 230		

Geological or Mining Engineering

Option 1 Fortran IV Programming	CSC 140	3
Option 2 Engineering Graphics	ENG 120	3
Option 3 Elementary Surveying	ENG 130	3
Option 4 Elective		3-4
Option 5 Elective		3-4
Option 6 Elective		3-4
Option 7 Elective		3-4

Metallurgical Engineering

Option 1 Fortran IV Programming	CSC 140	3
Option 2 Elective		3-4
Option 3 Elective		3-4
Option 4 Elective		3-4
Option 5 Elective		3-4
Option 6 Elective		3-4
Option 7 Elective		3-4

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)

The ESL 050 program is for students who want to learn spoken and written American English. Students are placed in classes by the results of a language test. The student will learn basic skills in listening, speaking and reading and writing American English in this course.

Courses:

		Cr. Hrs.
Elementary Grammatical Patterns	ESL 050	6
Intermediate Grammatical Patterns (Level 1)	ESL 051	3
Intermediate Grammatical Patterns (Level 2)		
Intermediate Reading and Writing (Level 1)	ESL 052	3
Intermediate Reading and Writing (Level 2)		
Advanced Grammatical Patterns	ESL 053	3
Advanced Reading	ESL 054	3
Advanced Writing	ESL 055	3
Composition I	ESL 057	3
Composition II	ESL 058	3
American English Pronunciation	ESL 060	3

Exploratory or General Studies

A general or exploratory studies program which meets individual interests may be arranged by meeting with a counselor or faculty advisor. Courses can be chosen from many subject areas. An Associate of Arts degree will be granted when 60 credit hours of study are completed. Students may transfer to another program at any time subject to exact course requirements of that program. Students with an Associate of Arts degree in general or exploratory studies who transfer to a four-year school may need more courses to complete a four-year degree.

Finance

Pima Community College works jointly with many financial institutions in the Tucson area to offer the two-year Associate of Applied Science degree. This program allows for many specialty options within the finance industry. Numbered among these are banking, savings and loan associations, and credit unions. Basic and advanced certificate programs also are offered in savings and loan in credit union.

Banking Associate of Applied Science Degree For Direct Employment

Required Courses (60)	First Semester	Cr. Hrs.
Principles of Bank Operations	FIN 102	3
Introduction to Macroeconomics	ECO 101	3
Math (based on placement exam)	MTH	3
Elective*		3
Banking Elective**		3
		<hr/> 15
	Second Semester	
Principles 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
Principles 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
Introduction to Macroeconomics	ECO 101	3
Principles of Accounting I	ACC 101	3
Credit Union Operations	FIN 231	3
Credit Union Advanced Management	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)	First Semester	Cr. Hrs.
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
Introduction to Macroeconomics	ECO 101	3
Elective*		3
Elective**		3
		<hr/> 15
	Third Semester	
Credit Union Operations	FIN 231	3
Principles of Accounting I	ACC 101	3
Introduction to Microeconomics	ECO 100	3
Business Law I	BUS 200	3
Elective*		3
		<hr/> 15
	Fourth Semester	
Credit Union Advanced Management	FIN 232	3
Advertising	MKT 125	3
Principles 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.

***May select a 200 level RLS or FIN course as an option.

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

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

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

Required Courses	Cr. Hrs.
Basic Certificate Requirements	12
Financial Institutions	FIN 212
Supervision	MAN 122
Introduction to Political Science	POL 100
Real Estate Principles	RLS 101
Business & Professional Communication	SPE 120
Elective*	3
	<hr/> 3
	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)	First Semester	Cr. Hrs.
Savings & Loan Business Operations	FIN 101	3
Insurance of Savings Accounts	FIN 104	3
Human Relations	MAN 110	3
Business & Professional Communication	SPE 120	3
Math (based on placement exam)	MTH	3
		<hr/>
		15
	Second Semester	
Principles of Accounting I	ACC 101	3
Introduction 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	
Principles of Accounting II	ACC 102	3
Introduction 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.

Fire Science

The Fire Science program provides pre-service and in-service training in fire fighting. The program deals with the technical, managerial, paramedical, and human aspects of fire fighting. It also deals with modern methods of fire prevention and suppression. A little more than half of the 63 credit hours required for a degree in fire science are in courses which relate to the field. These courses prepare the student to become fully qualified for service in municipal, rural, governmental, industrial, or private fire departments and other agencies in the fire protection field. It also prepares the student to move toward managerial and command positions.

The other part of the program consists of required related general education courses and choices from a wide range of courses which aid the student to develop support skills.

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

Required Courses		Cr. Hrs.
Introduction to Fire Science	FSC 051	3
Fundamentals of Fire Prevention	FSC 052	3
Hazardous Materials I-II	FSC 053, 061	6
Advanced Fire Prevention	FSC 054	3
Hydraulics & Fire Suppression	FSC 062	3
Fire Apparatus & Equipment	FSC 063	3
Fire Protection Systems	FSC 064	3
Building Construction for Fire Protection	FSC 065	3
Fire Suppression Tactics	FSC 066	3
Rescue Practices and First Aid	FSC 067	3
		<hr/>
		33

General Education Requirements:

Writing I	WRT 101	3
Technical Communications	WRT 154	3
Algebra I (or more advanced)	MTH 070	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 (REC 078)
 Fire Science
 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.

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 that requires 24 credit hours and an Associate of Applied Science degree that requires 60 credit hours. The first two semesters of the total program serve as a basic core of instruction in the areas of graphic technology, advertising art, and liberal arts. During the third and fourth semesters students may choose to major in graphic technology as well as join in the Cooperative Education work experience. This program leads the way to direct employment.

Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Introduction 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.
Introduction to Business	BUS 100	3
Practical Communications	WRT 150	3
Graphic Technology I	GRA 101	3
Prod. Technology & Proc. I	ADA 111	3
Binding and Finishing	GRA 103	3
		<hr/>
		15
	Second Semester	
Math (based on placement test)	MTH	3
Business & Professional Communication	SPE 120	3
Graphic Technology II	GRA 102	3
Prod. Technology & Proc. II	ADA 211	3
Offset Photography—Stripping & Platemaking	GRA 104	3
		<hr/>
		15
	Third Semester	
Color Theory & Practice	GRA 201	3
Offset Presswork	GRA 202	3
Estimation Printing & Materials	GRA 203	3
Math (second course in sequence)	MTH	3
Co-op Education Training	CED 198	3
		<hr/>
		15
	Fourth Semester	
Advanced Offset Presswork	GRA 222	3
Advanced Stripping & Platemaking	GRA 221	3
Human Relations in Business	MAN 110	3
Offset Operations & Maintenance	GRA 232	3
Co-op Education Training	CED 199	3
		<hr/>
		15

Home Economics

The Home Economics area offers students assistance in the following areas:

- Career Preparation
- Personal Development for Home and Family Living

Career preparation sections help students to prepare themselves for:

- Alteration Specialist
- Professional Seamstress
- Fashion Design
- Fast Food Industry
- Food and Beverage Service
- Hotel-Motel Operations

**Alteration Specialist
Basic Certificate
For Direct Employment**

Required Courses	Cr. Hrs.
Clothing Construction I	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 Management	MAN 110 3
Electives (See advisor)	MAN 124 9
	<hr/>
	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	CED 198	6
Electives (See advisor)		9
		<hr/> 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	CED 198	6
		<hr/> 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	WRT 101	
Practical Communications	WRT 150	3
Electives*		<hr/> 9
		24

***Suggested Electives**

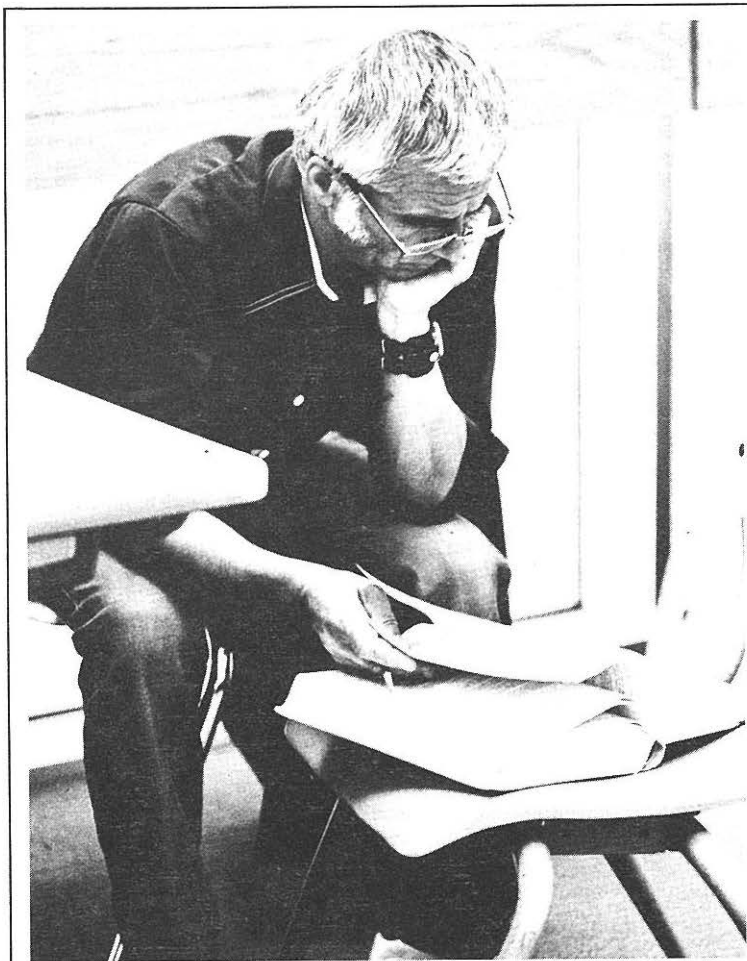
Stagecraft/Production I	DRA 120	3
Drawing I	ART 110	3
Fundamentals of Chemistry I	CHM 110	4
Introduction to Psychology I	PSY 100	3
Human Development	ECE 107	3
Advertising Drawing	ADA 203	3

Home Economics Transfer Programs:

Transfer programs should be arranged on a one-to-one basis with an advisor so that a student can fulfill the first two year requirements at Pima and then finish the last two years' course work at the college to which the student plans to transfer. The programs offered by four year colleges 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
- Home Economics and Journalism
- Home Economics Extension Education

Interior design majors who plan to transfer must see an advisor in the Fine, Applied and Communicative Arts Area at the West Campus.



Hospitality Education Program

This program prepares students for public service. The hospitality industry includes hotels, motels, clubs, food and drink businesses and tourist services. Tucson's growth offers many jobs within this industry.

Students already in the field may update their skills. Those planning to enter may develop beginning skills. The Southern Arizona hospitality industry asked that the college offer the program options. It helps with subject development and supplies many instructors. Courses give theory and practice. They cover management and profits. Customer satisfaction is stressed.

Hotel-Motel Operations Options:

Food and Beverage Service Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Introduction to Hotel-Motel Management	HMM 100	3
Food and Beverage Management	HMM 104	3
Food Study	FSN 113	3
Professional Food Services	FSN 214	3
Cooperative Education	CED 198	3
		15

Hotel-Motel Operations Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Introduction to Hotel-Motel Management	HMM 100	3
Front Office Procedures	HMM 101	3
Hotel-Motel Accounting	HMM 102	3
Supervisory Housekeeping	HMM 103	3
Cooperative Education	CED 198	3
		15

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

Required Courses (63)	First Semester	Cr. Hrs.
Introduction to Hotel-Motel Management	HMM 100	3
Front Office Procedures	HMM 101	3
Writing I or Practical Communications	WRT 101	3
Math (determined by placement test)	WRT 150	3
Cooperative Education	MTH	3
	CED 198	3
		15
Second Semester		
Hotel-Motel Accounting	HMM 102	3
Supervisory Housekeeping	HMM 103	3
Food and Beverage Management	HMM 104	3
Human Relations in Business and Industry	MAN 110	3
Hotel-Motel Operations	HMM 110	3
Cooperative Education	CED 198	3
		18
Third Semester		
Advanced Hotel-Motel Accounting or Principles of Accounting II	HMM 202	3
Professional Food Services	ACC 102	3
Marketing of Hospitality Services	FSN 214	3
Elective*	HMM 203	3
Cooperative Education	CED 199	3
		15
Fourth Semester		
Hotel-Motel Financial Management	HMM 204	3
Labor-Management Relations	MAN 278	3
Electives**		6
Cooperative Education	CED 199	3
		15

*Select from humanities, psychology, sociology or philosophy.

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

Restaurant, Culinary and Food Management Options:

Restaurant Management Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Mathematics of Business	BUS 051	3
Hospitality Management - Law	HMM 111	3
Cooperative Education	CED 198	3
Human Relations in Business and Industry	MAN 110	3
Introduction to Restaurant and Food Service	RCF 101	3
		<hr/> 15

Culinary and Food Management Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Cooperative Education	CED 198	3
Supervision	MAN 122	3
Introduction to Restaurant and Food Service	RCF 101	3
Food Service Specialties I/Culinary Prep	RCF 102	3
Food Service Specialties II/Baking	RCF 103	3
		<hr/> 15

Restaurant, Culinary and Food Management Associate of Applied Science Degree For Direct Employment

Required Courses (61)		First Semester	Cr. Hrs.
Restaurant Sanitation and Operations		FFI 101	3
Restaurant Cash Register Operations and Inventory Control		FFI 102	3
Cooperative Education		CED 198	3
Writing Fundamentals or Practical Communication or Writing I		WRT 100 or WRT 150 or WRT 101	3
Introduction to Restaurant and Food Service		RCF 101	3
			<hr/> 15
		Second Semester	
Hotel-Motel Accounting		HMM 102	3
Hospitality Management-Law		HMM 111	3
Cooperative Education		CED 198	3
Human Relations in Business and Industry		MAN 110	3
Food Service Specialties I/Cul Prep		RCF 102	3
			<hr/> 15
		Third Semester	
Mathematics of Business		BUS 051	3
Cooperative Education		CED 199	3
Supervision		MAN 122	3
Food Service Specialties II/Baking		RCF 103	3
Elective*(one)			3
			<hr/> 15
		Fourth Semester	
Cooperative Education		CED 199	3
General Biology I		LSC 103	4
Food Service Specialties III/ Garde-Manger		RCF 104	3
Electives**(two)			6
			<hr/> 16

***Choose one of the following electives:**

Principles of Accounting I	ACC 101
Introduction to Microeconomics	ECO 100
Small Business Management	MAN 124
Salesmanship	MKT 113
Foreign Language	

****Choose two of the following electives:**

Tax Accounting	ACC 204
Personnel Management	MAN 276
Labor/Management Relations	MAN 278
Business Organization and Management	MAN 280
Advanced Techniques in Garde-Manger	RCF 105
Advanced Techniques in Gourmet Dining	RCF 106

Travel-Tourism Operations Options:

Travel Agent

Basic Certificate

For Direct Employment

Required Courses		Cr. Hrs.
Human Relations	MAN 110	3
Introduction to Psychology	PSY 100	3
Cooperative Education	CED 198	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	CED 198	3
Travel-Tour Agency Management	TVL 201	3
Current Issues and Problems in Travel-Tourism	TVL 202	3
		<hr/>
		30

Housekeeping Departments/Hospitality Industry Options:

Housekeeping-Executive

Basic Certificate

For Direct Employment

Required Courses		Cr. Hrs.
Executive Housekeeping I	HSK 150	3
Executive Housekeeping II	HSK 151	3
Cooperative Education	CED 198	3
Elective*		3
		<hr/>
		12

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

Required Courses		Cr. Hrs.
Basic Certificate Requirements		12
Introduction to Microeconomics	ECO 100	3
Supervision	MAN 122	3
Human Relations in Business and Industry	MAN 110	3
Cooperative Education	CED 198	3
Electives*		6
		<hr/> 30

*Electives to be chosen from Writing 150, Psychology 100, Management 280.

Fast Food Industry Option:

**Fast Food Industry
Basic Certificate
For Direct Employment**

Required Courses		Cr. Hrs.
Human Relations in Business and Industry	MAN 110	3
Introductory Mathematics	MTH 060	3
Restaurant Sanitation and Operations	FFI 101	3
Restaurant Cash Register Operations and Inventory Control	FFI 102	3
Cooperative Education	CED 198	3
		<hr/> 15

Interpreter Training Program

The total program consists of four semesters of classes totaling a minimum of 63-65 credit hours to complete the Associate of Applied Science Degree in Interpreter Training. The program includes a minimum of 55 to 57 credit hours of campus lecture, 4 credit hours of laboratory study, and 6 credit hours of practicum work in the community.

To facilitate program offerings, modules are designed that may be short courses or in-service training for persons needing basic communications skills with the deaf. Other offerings will be available for students wanting to further develop a specialization area in interpreting.

Acceptance into the Program

In addition to meeting general requirements for admission into Pima County Community College, the applicant must:

1. Demonstrate a reading competency at the tenth (10th) grade level.
2. Provide evidence of successfully completing (B or better) a basic signed language course equivalent to SLG 101.
3. Complete an Interpreter Training Program Application.

General Requirements

Total Credit: 63-65 credit hours

Work in Residence: 31 credit hours in major course work

Restrictions: Transfer sign language courses limited to eight (8) credit hours.

**Interpreter Training Program
Associate of Applied Science Degree
For Direct Employment**

Required Courses	First Semester	Cr. Hrs.
The Community and the Exceptional Person	SLG 100	3
Manual Communication I	SLG 101	4
Spelling	REA 071	1
Reading 100 Series	REA 100	4
Humanities Elective*		3-4
		15-16
	Second Semester	
Manual Communications II	SLG 102	4
History of Deafness	SLG 120	3
Introduction to Psychology	PSY 100	3
Introduction to Oral Communication	SPE 102	3
Humanities Elective		3-4
		16-17
	Third Semester	
Psycho-Social Aspects of Deafness	SLG 150	3
Principles of Etiology and Audiology	SLG 180	3
Manual Communications III	SLG 201	4
Interpreting I	SLG 220	3
Elective**		3
		16
	Fourth Semester	
Manual Communications IV	SLG 202	4
Interpreting II	SLG 250	3
Practicum	SLG 290	6
Elective		3
		16
Total		63-65

*Humanities Electives: Art History; Humanities I, II; Literature; Music; Philosophy.

**Students should contact program advisor for appropriate electives.

Journalism

Students planning to enter a two-year liberal arts program should take courses in news writing and mass communications. Experience in producing a publication is offered through a lab course, JRN 57. Students planning to transfer to a four-year college should follow the first two-year program of study required by the school which they plan to attend.

**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
		<hr/>
		17

	Fourth Semester	
Social Science Elective		3
Foreign Language		4
Science or Math Elective		4
Humanities II	HUM 111	4
Elective**		3
		<hr/>
		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 084	3

Liberal Arts and Sciences

The Liberal Arts and Sciences program is designed to meet the educational needs of students who wish a broad educational approach to a degree program. Included among the many areas in which students may major are behavioral and social sciences, humanities, languages, literature, mathematics, natural sciences, and writing.

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 institution 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	WRT 101, 102	6
Humanities Electives*(1)		8-10
Foreign Language*(2)		16
Behavioral or Social Sciences*(3)		9
Mathematics and/or Sciences*(4)		8-9
Transferable Electives		11-13
Physical Education Activity		
Courses*(5)		<hr/> 2
		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 131, 166, 241, 242, 261, 265, 270, 271, 272
 - 2. PHI 101, 130
 - 3. ART 130, 131, 132; 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) Choose one of the following options:
- (a) Two semesters (8 units) of a single lab science.
 - (b) 8/9 units of college-level mathematics (MTH 150 & above).
 - (c) Combination of 9 units in at least two departments selected from the above listed math and science areas and/or Introduction to Logic (PHI 120).
- * (5) Students should consult the catalog of the institution to which they plan to transfer for possible exemptions.

Library Technology

This program prepares students for entry-level jobs as library technicians. Such jobs may be in either the Public Services or Technical Services units of any type of library: public, special, school or college. Students may choose either the Advanced Certificate Program (30 credits) or the A.A.S. Degree Program (63 credits). All students should obtain advice from the Coordinator of Library Services (884-6821) before scheduling classes.

Advanced Certificate For Direct Employment

Required Courses (30)	First Semester	Cr. Hrs.
Basic Reference	LMT 050	3
Library Technical Services I	LMT 053	3
Typing II	OED 112	3
Supervision	MAN 122	3
Instructional Media Technology I	MET 081	3
		15
	Second Semester	
Library Technical Services II	LMT 054	3
Library Public Services	LMT 052	3
Indexing and Abstracts	LMT 055	3
Equipment Repair and Maintenance	MET 070	3
Elective*		3
		15

*Elective may be chosen from list of suggestions which follows A.A.S. program description.

Associate of Applied Science Degree For Direct Employment

Suggested Semester Sequence (63)	First Semester	Cr. Hrs.
Library Public Services	LMT 052	3
Writing I or Practical Communications	WRT 101	3
Typing II	OED 112	3
Humanities I	HUM 110	4
Social Science Elective		3

Second Semester		
Basic Reference	LMT 050	3
Writing II or	WRT 102	
Technical Communications	WRT 154	3
Introduction to Computers	CSC 100	3
Instructional Media Technology I	MET 081	3
Physical Science Elective		4
		<hr/> 16

Third Semester		
Library Technical Services I	LMT 053	3
Equipment Repair & Maintenance	MET 070	3
Records Management A	OED 131A	1
Records Management B	OED 131B	1
Word Processing—Reprographics	OED 221A	1
Humanities II	HUM 111	4
Supervision	MAN 122	3
		<hr/> 16

Fourth Semester		
Cooperative Education or	CED 198	
Library Practicum	LMT 056	3
Indexing and Abstracts	LMT 055	3
Library Technical Services II	LMT 054	3
Telecommunications—TV Production	MET 090	3
Elective*		3
		<hr/> 15

***Elective may be chosen from the following suggestions:**

Payroll and Applied	ACC 050
Accounting Systems	ART 140
Photography I	ECE 108
Literature for the Young Child	OED 141
Legal Terms	OED 162
Medical Terms	MET 050
Communigraphics	

Life Sciences

Life Sciences offers an Associate of Science degree for transfer in these areas:

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

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

Students who enter the Life Science Program must take the Math Placement Test in the Math-Science Alternative Learning Center.

The student should meet with a Life Science Advisor to plan courses.

Students who want course work in Pre-Dental Hygiene, Pre-Forestry, Pre-Physical Therapy and Pre-Optometry can also be advised in course selection.

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

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

The American Veterinary Medical Association sets minimum standards for admission to veterinary school. Students are generally not considered for admission to veterinary school unless they have finished sixty semester credits of pre-professional credit.

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

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

Biology Pre-Dental Pre-Medical Pre-Veterinary

Associate of Science Degree For Transfer

Suggested Courses (63-65)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Analytic Geometry & Calculus I* or Topics in Calculus	MTH 180	3
Humanities Elective***	MTH 175	3-4
General Chemistry I	CHM 120	4
Social Sciences Elective		3
		<hr/> 16-17
	Second Semester	
Writing II	WRT 102	3
Analytic Geometry & Calculus II or Introduction to Statistics*	MTH 185	3
General Chemistry II	MTH 210	3
Organismic Biology I	CHM 121	4
Social Sciences Elective	LSC 205	4
		<hr/> 3
		17
	Third Semester	
Humanities Elective***		3-4
Analytic Geometry & Calculus III* or Physics** or Foreign Language	MTH 215	4
Organismic Biology II	LSC 206	4
Organic Chemistry I	CHM 240	4
		<hr/> 4
		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 choices. The program in agriculture is designed to meet the needs of students by joining a broad knowledge of agriculture with elements of general education. Upon finishing a pre-agriculture program, a student might wish to pursue one of the fields of study listed at a four-year school.

Agricultural Communications	General Agriculture
Agricultural Economics	Horticulture
Agricultural Education	Landscape Architecture
Agri-Mechanics & Irrigation	Natural Resources Recreation
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
Introduction Geology I	ESC 120	4
Transfer Elective		3
		17
	Second Semester	
Writing II	WRT 102	3
General Chemistry II	CHM 121	4
Introduction to Oral Communication	SPE 102	3
Trigonometry	MTH 155	3
Transfer Elective		3
		16
	Third Semester	
Organismic Biology I	LSC 205	4
Introduction Physics I	PHY 121	4
Technical 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
Introduction 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 who plan to pursue a course of study which leads to a medical technology degree and/or certificate should consider the courses which follow. Exact requirements of the school which grants the degree may vary and students should check with the school to which they plan to transfer. A background of high school algebra, biology, and chemistry is recommended.

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	
Introduction to Statistics	MTH 210	3
Organic Chemistry I	CHM 240	4
Introduction Physics I	PHY 121	4
Human Anatomy/Physiology II*	LSC 121	4
		15

	Fourth Semester	
Organic Chemistry II	CHM 241	4
Introduction Physics II	PHY 122	4
Social Science Elective		3
Humanities Elective		4
		<hr/>
		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 of literature.

Pre-Pharmacy

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

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

A five-year program became required for the pharmacy degree in 1960. Schools of pharmacy vary in requiring one or two years of pre-pharmacy before being admitted. The student should contact the school of his choice for exact 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
Introduction to 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
Introduction Physics I	PHY 121	4
Introduction 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
Introduction to Physics II	PHY 122	4
Introduction 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 programs offer a broad range of techniques used in metals manufacturing. These may include machine shop, welding and sheet metal. Support courses are also offered in manufacturing processes, quality control, metallurgy, drafting and numerical control. A two-year degree program is offered as well as basic certificate and technical certificate programs.

A person who majors in machine tool practices may find Cooperative Education offers an ideal way of gaining more actual work experience while attending classes.

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 I	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
Introduction 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

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 110	4
Social Science Elective*	GER 110	3
		<hr/> 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 111	4
Social Science Elective*	GER 111	3
		<hr/> 16

Anal. Geometry & Calculus III
Introductory Physics I
Intermediate French I
(or German)
Humanities Elective*
Physical Education

Third Semester

MTH 215	4
PHY 131	4
FRE 210	
GER 210	4
	3-4
PED	1
	<hr/> 16-17

Fourth Semester

Linear Algebra & Diff. Equations	MTH 220	4
Introductory Physics II	PHY 132	4
Intermediate French II (or German)	FRE 211	4
Humanities Elective*	GER 211	3-4
Physical Education	PED	1
		<hr/> 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 Media Technology Program, students will have the basic knowledge and skills for entry into the areas of communigraphics, reprographics, telecommunications, and audio visual equipment repair and maintenance. The program prepares students for para-professional roles in education, public service, business, and industry. Each of the areas is presented through discussion of modern techniques and 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 basic certificate programs require 21 credit hours. An Associate of Applied Science degree program requires 64 credit hours.

Basic Certificate for Direct Employment

Suggested Semester Sequence (21)	First Semester	Cr. Hrs.
Television Production	MET 090	3
Communigraphics I	MET 050	3
Media Technology I	MET 081	3
		<hr/> 9
	Second Semester	
Cinematography I	MET 053	3
Repair and Maintenance	MET 070	3
Implications of Media Technology	MET 084	3
Telecomm-Television Workshop	MET 091	3
		<hr/> 12

Associate of Applied Science Degree For Direct Employment

Suggested Semester Sequence (64)	First Semester	Cr. Hrs.
Communigraphics I	MET 050	3
Media Technology I	MET 081	3
Writing I	WRT 101	3
Television Production	MET 090	3
Science or Math		4
		<hr/> 16
	Second Semester	
Cinematography I	MET 053	3
Media Technology II	MET 082	3
Writing II	WRT 102	3
Humanities I	HUM 110	4
Social Science Elective		3
		<hr/> 16
	Third Semester	
Repair and Maintenance	MET 070	3
Telecomm-Television Workshop	MET 091	3
Introduction to Computers	CSC 100	3
Science or Math		4
Co-op Training	CED 198	3
		<hr/> 16
	Fourth Semester	
Implications of Media Technology	MET 084	3
Co-op Training	CED 199	3
Art	ART	3
Electives		7
		<hr/> 16

Military Science

The first goal of the Army and Air Force ROTC programs is to furnish leaders suitable for commissioning as Reserve Officers. The secondary goals are to develop self-discipline, integrity, a sense of duty and leadership ability.

ROTC is offered to 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 held 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 combine the first and third semesters of ROTC in the fall and the second and fourth semesters in the spring thus gaining in one year the 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 the 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 and the student's \$25 will be refunded. Refunds are at the West Campus only.

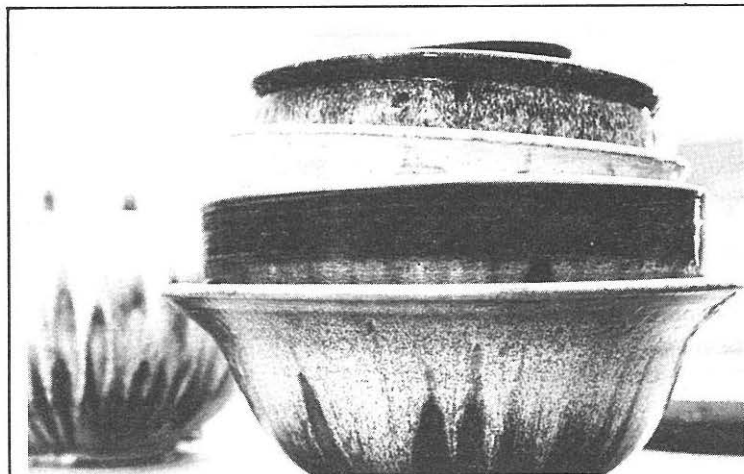
Students who complete the first two years of the program and continue their ROTC training receive a tax-free subsistence pay of \$100 per month during their junior and senior years at four year colleges.

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
		<hr/> 8

Army ROTC

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



Music

The Associate of Arts Degree offers the first two years of courses in music often required by four-year colleges. Arizona's three universities also require that all students who transfer their applied work be examined. Because of different or specific degree requirements each student must meet with the music faculty for advice about programs. Students also should follow the first two year study requirements of the four-year school to which they plan to transfer.

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

Associate of Arts Degree For Transfer

Required Courses (69)	First Semester	Cr. Hrs.
The Structure of Music I	MUS 125	3
Aural Perception I	MUS 127	1
Band or Chorale	MUS 120	
	MUS 130	2
Applied Music/Private Inst.	MUS 145	2
Piano Class I	MUS 141	1
Writing I	WRT 101	3
Electives*		4
		<hr/>
		16
	Second Semester	
The Structure of Music II	MUS 126	3
Aural Perception II	MUS 128	1
Band or Chorale	MUS 120	
	MUS 130	2
Applied Music/Private Inst.	MUS 146	2
Piano Class II	MUS 142	1
Writing II	WRT 102	3
Electives*		4
		<hr/>
		16

The Structure of Music III
Aural Perception III
History and Lit. of Music I
Band or
Chorale
Applied Music/Private Inst.
Piano Class III
Electives*

Third Semester

MUS 225	3
MUS 227	1
MUS 201	3
MUS 120	
MUS 130	2
MUS 147	2
MUS 143	1
	<hr/>
	7

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Fourth Semester

The Structure of Music IV
Aural Perception IV
History and Lit. of Music II
Band or
Chorale
Applied Music/Private Inst.
Piano Class IV
Electives*

MUS 226	3
MUS 228	1
MUS 202	3
MUS 120	
MUS 130	2
MUS 148	2
MUS 144	1
	<hr/>
	6

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*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 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.
Principles of Anatomy & Physiology	LSC 102	3	+	3
Introduction to Health Care	HCA 154	3	+	0
Skills, Allied Health Services	HCA 150	2	+	9
				12

Note:

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

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 more experienced registered 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 will be eligible to take the Arizona State Board Registered Nurse Licensing examination.

Acceptance into Program:

- Completion of associate degree nursing application packet.
- 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.
- Transfer of credits for nursing courses to be approved according to college policy.

General Requirements:

- Total credit: 66 credit hours.
- 35 credit hours of major courses (Nursing).
- 31 credit hours of general education courses.

Minimal Grade Achievement:

"C" level in all courses.

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

Required Courses (66)	First Semester	Lec.	Lab	Cr. Hrs.	
Anatomy/Physiology I	LSC 120	3	+	3	4
Introduction to Health Care	HCA 154	3	+	0	3
Writing I	WRT 101	3	+	0	3
*A.D. Nursing I	NRS 170	4	+	12	8
					18
	Second Semester				
Anatomy/Physiology II	LSC 121	3	+	3	4
Introduction to Psychology I	PSY 100	3	+	0	3
*A.D. Nursing II	NRS 172	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 280	4	+	15	9
					16
	Fourth Semester				
A.D. Nursing IV	NRS 282	4	+	15	9
Introduction to Sociology	SOC 100	3	+	0	3
Elective					4
					16

#All courses listed in each semester must be completed prior to progressing to the following semester.

*Advanced placement is contingent upon successfully passing placement testing.

**Pre-Baccalaureate Nursing
For Transfer****

Required Courses (66)	Cr. Hrs.
Fund. Chemistry I-II	8
CHM 110-111	8
Anatomy/Physiology I-II	8
LSC 120-121	8
Microbiology I-II	8
LSC 207-208	8
Human Development or Child Development	3
ECE 107	3
ECE 117	3
College Algebra	3
MTH 150	4
Introduction to Physics I	4
PHY 121	34
General Education Requirements	
Writing I-II	6
WRT 101-102	6
Introduction to Psychology I-II	6
PSY 100-101	3
Introduction to Sociology	3
SOC 100	3
U.S. Social Problems	8
SOC 101	8
HUMANITIES I-II	3
HUM 110-111	3
Introductory Statistics	3
MTH 210	3
Introduction to Cultural Anthropology	3
ANT 110	32

**Students should be familiar with the requirements of the college they plan to attend.

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 works 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 or taken concurrently with the nursing course. 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).
- Approval and recommendation by the campus Allied Health Services Review Committee.

General Requirements:

- Total credit: 37 credit hours.
- Work in residence: minimum 17 credit hours of major (NRS) courses to be completed in residence.
- Physical examination to include T.B. screening to be completed upon acceptance to program.
- The student must complete with success all program requirements in theory, skills and clinicals.

Advanced Certificate For Direct Employment

Required Courses (37)	First Semester	Lec.	Lab	Cr. Hrs.
Principle Anatomy/Physiology	LSC 102	3	3	4
Introduction to Health Care	HCA 154	3	0	3
Writing I or Practical Communications	WRT 101 WRT 150	3 (3)	0	3
Practical Nursing I	NRS 070	4	12	8
		13	15	18

28

Second Semester				
Survey of Human Diseases	LSC 106	3	3	4
Introduction to Psychology I	PSY 100	3	0	3
Introduction to Sociology	SOC 100	3	0	3
Practical Nursing II	NRS 072	4	15	9
		13	18	19

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Office Education

Office Education in the secretarial and clerical fields offers a variety of courses and programs. Two-year programs which lead to an Associate of Applied Science degree are given in these areas: Administrative Assistant, Executive Secretary, General Secretary, Legal Secretary and Medical Secretary. One year advanced certificate programs for clerk-typist and receptionist are available. Bilingual secretary certificate and degree programs are offered.

The office occupations curriculum gives training in shorthand, typewriting, business and management subjects and in operating office machines. General education is also included.

Clerk-Typist Advanced Certificate For Direct Employment

Required Courses (34)	First Semester	Cr. Hrs.
Typing II	OED 112	3
Mathematics of Business	BUS 051	3
Payroll/Applied Accounting Systems	ACC 050	3
Business English	OED 151	3
Human Relations	MAN 110	3
		15
	Second Semester	
Calculating Machines	OED 121	2
Word Processing	OED 221	4
Office Procedures	OED 271	4
Business Communications	OED 251	3
Typing III	OED 211	3
Records Management	OED 131	3
		19

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

Required Courses (31)	First Semester	Cr. Hrs.
Business English	OED 151	3
Typing II	OED 112	3
Mathematics of Business	BUS 051	3
Office Procedures	OED 271	4
Elective*		3
		16
	Second Semester	
Payroll/Applied Accounting Systems or	ACC 050	
Business Communications	OED 251	3
Word Processing	OED 221	4
Calculating Machines	OED 121	2
Human Relations	MAN 110	3
Records Management	OED 131	3
		15

*For medical receptionist, the elective should be Medical Office Procedures (OED 161). For legal receptionist, the elective should be Legal Terms (OED 141).

Administrative Assistant Associate of Applied Science Degree For Direct Employment

Required Courses (65-66)	First Semester	Cr. Hrs.
Business English	OED 151	3
Typing II	OED 112	3
Mathematics of Business	BUS 051	3
Business & Professional Communication	SPE 120	3
Reading	REA 100 series	4
		16

Second Semester		
Typing III	OED 211	3
Records Management	OED 131	3
Human Relations	MAN 110	3
Introduction to Computers	CSC 100	3
Business Communications	OED 251	3
		<hr/>
		15

Third Semester		
Business Law I	BUS 200	3
Calculating Machines	OED 121	2
Supervision	MAN 122	3
Principles of Accounting I	ACC 101	3
Office Procedures	OED 271	4
Introduction to Microeconomics	ECO 100	3
		<hr/>
		18

Fourth Semester		
Business Law II	BUS 201	3
Principles of Accounting II	ACC 102	3
Word Processing	OED 221	4
Business Organization & Management	MAN 280	3
General Education Elective*		3-4
		<hr/>
		16-17

***General education elective can be selected from:**

Humanities I	HUM 110	(4)
Introduction to Psychology I	PSY 100	(3)
Introduction to Sociology	SOC 100	(3)
Introduction 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 151	3
Shorthand I	OED 101	3
Typing I	OED 111	3
Mathematics of Business	BUS 051	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 131	3
Word Processing	OED 221	4
		<hr/>
		15

Third Semester		
Typing III	OED 211	3
Shorthand III	OED 201	3
Office Procedures	OED 271	4
Principles of Accounting I or Payroll/Applied Accounting Systems	ACC 050	3
Introduction to Computers or Introduction to Business	CSC 100	3
Elective	BUS 100	3
		<hr/>
		19

Fourth Semester		
Human Relations	MAN 110	3
Business Law I	BUS 200	3
Shorthand IV	OED 202	3
Business Communications	OED 251	3
General Education Elective**		3-4
		<hr/> 15-16

*Recommended: Reading (REA 100 series)

**General education elective can be selected from:

Humanities I	HUM 110	(4)
Introduction to Psychology I	PSY 100	(3)
Introduction to Sociology	SOC 100	(3)
Introduction 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 151	3
Shorthand II	OED 102	3
Typing II	OED 112	3
Mathematics of Business	BUS 051	3
Elective*		3-4
		<hr/> 15-16
Second Semester		
Business Communications	OED 251	3
Shorthand III	OED 201	3
Typing III	OED 211	3
Human Relations	MAN 110	3
Principles of Accounting I or Payroll/Applied Accounting Systems	ACC 101	
	ACC 050	3
		<hr/> 15

Third Semester		
Word Processing	OED 221	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 131	3
General Education 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)
Introduction to Psychology I	PSY 100	(3)
Introduction to Sociology	SOC 100	(3)
Introduction 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

		Units
Option		
1	Office Procedures	OED 271 (4)
2	Introduction to Business	BUS 100
or	Introduction to Computers	CSC 100 (3)
3	Shorthand IV	OED 202
or	Principles of Accounting II	ACC 102 (3)
4-5	Electives	(3)

Legal Secretary

Option		
1	Legal Terms	OED 141 (3)
2	Legal Secretarial Procedures I	OED 142 (3)
3	Legal Secretarial Procedures II	OED 242 (3)
4	Business Law II	BUS 201
or	Criminal Law I	AJS 172 (3)
5	Shorthand IV	OED 202
or	Office Procedures	OED 271 (4)

Medical Secretary

Option		
1	Medical Office Procedures	OED 161 (3)
2	Medical Terms	OED 162 (3)
3	Medical Transcription	OED 263 (3)
4	Medical Terms II	OED 262 (3)
5	Electives	(3)

**Bilingual Secretary
Basic Certificate
For Direct Employment**

Required Courses		Cr. Hrs.
Typing II	OED 112	3
Español Comercial*	OED 252	2
Prácticas de Oficina*	OED 271	4
Business English	OED 151	3
Intensive Spanish* for Native Speakers I or Intermediate Spanish I*	SPA 101 SPA 210	4
		16

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 Prácticas 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 4 courses listed below)		
Typing II	OED 112	3
Español Comercial*	OED 252	2
Prácticas de Oficina*	OED 271	4
Business English	OED 151	3
Español Inten. Para Estud. de habla Hispana I* or Intermediate Spanish I*	SPA 101 SPA 210	4
		16

Plus the Following:

Business Math	BUS 051	3
Shorthand II	OED 102	3
Business Communications	OED 251	3
Typing III	OED 211	3
Literatura Creativa I*	SPA 205	3
Español Inten. Para Estud. de Habla Hispana II*	SPA 102	
or Intermediate Spanish II**	SPA 211	4
		<hr/>
		19

Note: Shorthand I is a prerequisite for Shorthand II. A certain proficiency in reading and writing Spanish is a prerequisite for OED 252, Español Comercial (Commercial Spanish) and OED 271, 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 151	3
Intermediate Spanish I or Español Inten. Para Estud. de Habla Hispana I*	SPA 210	
Elective	SPA 101	4
		<hr/>
		3-4
		<hr/>
		16-17

Second Semester

Typing III	OED 211	3
Shorthand II	OED 102	3
Business Math	BUS 051	3
Business Communications	OED 251	3
Intermediate Spanish II* or Español Inten. Para Estud. de Habla Hispana II*	SPA 211	
	SPA 102	4
		<hr/>
		16

Third Semester

Human Relations	MAN 110	3
Calculating Machines	OED 121	2
Español Commercial*	OED 252	2
Shorthand III	OED 201	3
Literatura Creativa I*	SPA 205	3
General Education Elective**		3-4
		<hr/>
		16-17

Fourth Semester

Literatura Creativa II*	SPA 206	3
Prácticas de Oficina*	OED 271	4
Records Management	OED 131	3
Introducción a Negocios*	BUS 100	3
Spanish Elective***		3
		<hr/>
		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 theory and practice to prepare students for jobs. These jobs may be as an optical laboratory technician or as an ophthalmic dispenser and/or a contact lens technician in private offices and clinics. Other jobs may be found as private practitioners, optical laboratory managers, ophthalmic salesmen, and ophthalmic research technicians. The program consists of two years of theory and practice. 240 hours are to be spent in an externship during the last half of the second year. Those who complete the program will receive an Associate of Science degree in Ophthalmic Dispensing Technology from Pima Community College. For self employment in Arizona, the graduate must finish 12 calendar months of apprenticeship to sit for the state board exam.

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.

Restriction:

- 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 WRT 150	3	+	0	3
Algebra I	MTH 070	3	+	0	3
Fundamental Physics	PHY 105	3	+	3	4
Optical Orientation I	ODT 051	5	+	3	6
					16
	Second Semester				
Writing II or Technical Communications	WRT 102 WRT 154	3	+	0	3
Math Elective**		3	+	0	3
Social Science Elective	SOC or PSY	3	+	0	3
Optical Orientation II	ODT 052	3	+	3	4
Optical Laboratory* or Elective* (facilitator's app.)	ODT 053	1	+	6	
		3	+	0	3
					16
	Third Semester				
Optical Dispensing I	ODT 054	4	+	6	6
Contact Lenses I	ODT 055	4	+	3	5
Ophthalmic Assistant* or Elective* (facilitator's app.)	ODT 056	2	+	3	
		3	+	0	3
					14
	Fourth Semester				
Contact Lenses II	ODT 057	4	+	3	5
Optical Dispensing II	ODT 058	4	+	0	4
Senior Seminar	ODT 059	2	+	0	2
Co-op Education	CED 198	0	+	15	3
					14

*Students in the second and third semesters must take either ODT 053 or ODT 056. 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 051 Mathematics of Business; MTH 090 Elementary Geometry; MTH 130; Algebra II.

Physical Education

Physical education at Pima College is based on the philosophy of leisure education for life. Physical education fulfills its leisure obligation through the avenue of skill development. It is suggested that students wishing to enroll in physical education courses should consult with a faculty member for specific information. Options available to students are: service activity classes, special interest classes, and teaching majors and minors. Students considering the teaching program should become familiar with the catalog of the senior college to which they intend to transfer.

Some courses may require a special fee and/or a special style of dress to insure safety while participating. It is the responsibility of the student to have in the college nurse's office a record of a current valid medical examination, demonstrating acceptable health standards dated prior to enrollment in physical education classes. Health insurance is necessary, and available during registration.

Associate of Arts Degree For Transfer

Required Courses (63)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Introduction to Psychology	PSY 100	3
Introduction to Leisure Education*(1)	PED 139	3
Pro-Activities*(2)		2-4
Folk & Square Dance	PED 144	2
Facilities for Physical Education & Recreation*(1)	PED 120	2
		<hr/> 15-17
	Second Semester	
Writing II	WRT 102	3
First Aid	REC 121	2
History of Physical Education	PED 149	2
Practicum I	PED 001	1
Elementary School Physical Education*(1)	PED 130	3
Pro-Activities*(2)		2-4
Social Science Elective*(3)		3
		<hr/> 16-18

Third Semester		
Humanities I	HUM 110	4
Math *(4)		3
U.S. History I or U.S. History II	HIS 141 HIS 142	3
Human Anatomy & Physiology I	LSC 120	4
Practicum II	PED 002	1
Pro-Activities*(2)		2-4
		<hr/> 17-19
Fourth Semester		
Humanities II	HUM 111	4
National & State Constitutions	POL 112	3
Sports Officiating	PED 145	2
Designed Exercise	PED 146	2
Human Anatomy & Physiology II	LSC 121	4
Pro-Activities*(2)		2-4
		<hr/> 17-19

*(1) Highly recommended elective.

*(2) All of the following Pro-Activity classes are required. Each Physical Education major should enroll in 4 sections each semester. (PED 131-138)

Wrestling (Men)	Soccer
Volleyball	Basketball
Self-Defense	Tennis
Baseball (Men)	Badminton
(Women if they want)	Softball
Modern Dance (Women)	Track & Field
(Men if they want)	

*(3) Choose one Social Science elective from the following:

Introduction to Sociology, SOC 100
Introduction to Cultural Anthropology, ANT 110

*(4) Choose one of the following Math courses:

Algebra II, MTH 130
Survey of Math Thought, MTH 135
Math for Elementary Education Majors, MTH 140

Note: Additional recommended electives:

Child Growth & Development, ECE 117
Nutrition, FSN 114
Introduction to Health Science, HED 136
Foundations of Athletic Training, PED 125

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
Introduction 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
Introduction 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 Algebra & Diff. Equations	MTH 220	4
Introduction 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.

Postal Service Management

The Postal Service Management certificate and degree program has been designed in cooperation with the Tucson Management Sectional Center (MSC) United States Postal Service. A curriculum has been established to develop and enhance skills of persons presently employed by the Postal Service. The program certificate and degree options utilize the career-ladder concept. This means that a student may smoothly progress from the basic certificate requiring 16 hours to the advanced certificate requiring an additional 18 hours and then to the Associate of Applied Science Degree which requires an additional 30 hours for a program total of 64 credit hours. Program courses include a study of the Postal Service history and organization, labor management relations, employee services, mail processing, finance, delivery and collection, customer service, and postal problem analysis.

Basic Certificate For Direct Employment

Required Courses (16)	First Semester	Cr. Hrs.
Writing Fundamentals or Practical Communications	WRT 100 or WRT 150	3
Principles of Accounting I	ACC 101	3
Postal Service History & Organization	PSM 100	3
Reading Improvement	REA 101	4
Mathematics of Business*	BUS 051	3
		<hr/> 16

*Prerequisite: MTH 060

Advanced Certificate For Direct Employment

Persons planning to apply for the advanced certificate must have completed the first semester Basic Certificate program.

Required Courses (34)	Second Semester	Cr. Hrs.
Writing I or Technical Communications	WRT 101 or WRT 154	3
Principles of Accounting II*	ACC 102	3
Human Relations in Business and Industry	MAN 110	3
Postal Service Labor-Management	PSM 120	3
Postal Employee Services	PSM 130	3
Mail Processing I	PSM 140	3
		<hr/> 18

*Prerequisite: ACC 101

Associate of Applied Science Degree

The two semesters of the Advanced Certificate Program are the first two semesters of the Associate of Applied Science degree program.

Required Courses (64)	Third Semester	Cr. Hrs.
Introduction to Macro-economics	ECO 101	3
Business & Professional Communication	SPE 120	3
Supervision	MAN 122	3
Postal Service Finance	PSM 200	3
Mail Processing II*	PSM 240	3
		<hr/> 15

*Prerequisite: PSM 140

	Fourth Semester	
Introduction to Computers	CSC 100	3
Business Organization and Management*	MAN 280	3
Postal Delivery & Collection	PSM 250	3
Postal Problems Analysis	PSM 260	3
Postal Customer Services	PSM 270	3
		<hr/> 15

*Prerequisites: ACC 101,

Pre-Law

Colleges of Law often have no exact prelegal course requirements. Although a Bachelor's degree is required, the degree itself may be in any four-year program which the student selects. Students are encouraged to prepare their programs with advisors.

Besides a four-year degree, an acceptable score on the law school admissions test (LSAT) is required to enter a college of law. Each has its own requirements for grade point average and LSAT scores.

The courses listed are suggested courses which may be taken to add to students' programs.

Public Administration

The Public Administration transfer program is for students who are interested in jobs in departments or agencies of municipal, state, or federal governments. Students who complete the program will get an Associate of Arts degree in Public Administration.

Students who want to get an Associate of Arts degree in Corrections or Criminal Justice should see the catalog section marked Administration of Justice.

Transfer students will follow the program of the school to which they plan to go. These students should meet with a Pima advisor.

Associate of Arts Degree For Transfer

Required Courses (62-66)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Introduction to Logic or Natural Science*(1)	PHI 120	3-4
American National Government	POL 110	3
Social Science Elective or Math*(2)		3
Business & Professional Communication	SPE 120	3
Physical Education Elective	PED	1
		16-17
	Second Semester	
Writing II	WRT 102	3
Introduction to Logic or Natural Science*(1)	PHI 120	3-4
Finite Math	MTH 170	3
American State & Local Government	POL 111	3
Social Science Elective*(3)		3
Physical Education Elective	PED	1
		16-17

	Third Semester	
Introduction to Public Administration	PAD 105	3
Introduction to Microeconomics	ECO 100	3
Stat. Methods in Business & Ind. I	BUS 205	3
Humanities or Foreign Language*(4)		3-4
Introduction to Computers	CSC 100	3
		15-16
	Fourth Semester	
Accounting for Public Agencies	ACC 173	3
Environmental Factors in the Admin. Process	PAD 215	3
Introduction to Macroeconomics	ECO 101	3
Elective (see advisor)		3
Humanities or Foreign Language*(4)		3-4
		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) Students who haven't already completed College Algebra (MTH 150) need to do so. The prerequisite for MTH 150 is MTH 130, or two years of algebra. Math placement tests are available; if interested, see an advisor.

*(3) 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.

*(4) 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

Theory and practice are provided to train graduates for immediate job openings as radiologic technologists in hospitals, clinics, and medical offices or for transfer into special four-year programs.

Program Description:

The total program is made up of four semesters on campus and at least 2,000 hours of training in the radiology department of a local hospital. Students who are successful in completing all required courses in their first year will be scheduled to enter the hospital part of their program at the start of their second year. Graduates will receive an Associate of Science degree in Radiologic Technology. They will be able to apply for registration with the American Registry of Radiologic Technologists.

Acceptance Into Program:

- Completion of College and Allied Health program applications and acceptance requirements.
- High School Diploma or G.E.D. Certificate. Submission of high school transcripts and college credits of all schools attended including Pima Community College District transcript (if applicable).
- Two semesters of high school algebra or the college equivalent.
- One year of high school chemistry or the college equivalent.
- Evaluation and acceptance by West Campus Allied Health Programs Selections Committee.

Advising:

Individual applicants are requested to schedule an appointment with a Radiologic Technology advisor.

General Requirements:

- Total Credits: 104 semester hours.

Minimal Grade Achievement:

"C" level.

Associate of Science Degree For Direct Employment

Required Courses (104)	First Semester	Lec.		Lab	Cr. Hrs.
Writing I	WRT 101	3	+	0	3
Introduction to Health Care	HCA 054	3	+	0	3
Algebra II	MTH 130	3	+	0	3
Human Anatomy & Physics I	LSC 120	3	+	3	4
Radiologic Fund.	RAD 071	3	+	3	4
					17
	Second Semester				
Survey of Human Diseases	LSC 106	3	+	0	3
Human Anatomy & Physics II	LSC 121	3	+	3	4
Rad. Processing & Technology	RAD 072	3	+	3	4
Rad. Positioning I	RAD 073	3	+	3	4
					15
	Third Semester				
Writing II	WRT 102	3	+	0	3
Rad. Positioning II	RAD 081	4	+	3	5
Radiologic Physics I	RAD 082	4	+	3	5
Clinical Procedures I	RAD 083	0	+	6	2
Radiologic Biology, Nuclear Medicine & Therapy	RAD 084	3	+	0	3
					18
	Fourth Semester				
Introduction to Psychology I	PSY 100	3	+	0	3
Rad. Positioning III	RAD 085	4	+	3	5
Clinical Procedures II	RAD 086	0	+	6	2
Radiologic Physics II	RAD 088	4	+	3	5
Elective*		3	+	0	3
					18
	Fifth Semester (Summer)				
Hospital Extern. Pract. I	RAD 091	0	+	40	12
	Sixth Semester				
Hospital Extern. Pract. II	RAD 092	0	+	40	12
	Seventh Semester				
Hospital Extern. Pract. III	RAD 093	0	+	40	12

*(Coordinator's permission required)

Real Estate

The Real Estate Program is designed to fulfill industry needs in the Tucson area. There are basically two program options; one in Sales/Brokerage which includes a two-year Associate of Applied Science Degree, and Basic and Advanced Certificates; the second option offers Basic and an Advanced Certificate in Real Estate Escrow.

Real Estate Sales/Brokerage

This real estate option prepares persons to handle the sales of private residences, apartment 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 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.
Principles of Accounting	ACC 101	3
Business Law I	BUS 200	3
Math (based on placement test)	MTH	3
Writing I or	WRT 101	
Practical Communications	WRT 150	3
Real Estate Principles	RLS 101	3
		<hr/>
		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
Business & Professional		
Communication	SPE 120	3
		<hr/>
		30

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

Required Courses (60)		
	First Semester	Cr. Hrs.
Principles 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	3
Elective**	WRT 150	3
		<hr/> 15
	Second Semester	
Business Law I	BUS 200	3
Introduction to Microeconomics	ECO 100	3
Business & Professional Communication	SPE 120	3
Real Estate Practices	RLS 102	3
Salesmanship	MKT 113	3
		<hr/> 15
	Third Semester	
Introduction 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 Management or Principles of Accounting II	MAN 124	
	ACC 102	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 real estate industry.

Real Estate Escrow

This program option is designed for persons preparing for employment as escrow agents, officers, or supervisors. It also provides professional education for those currently employed.

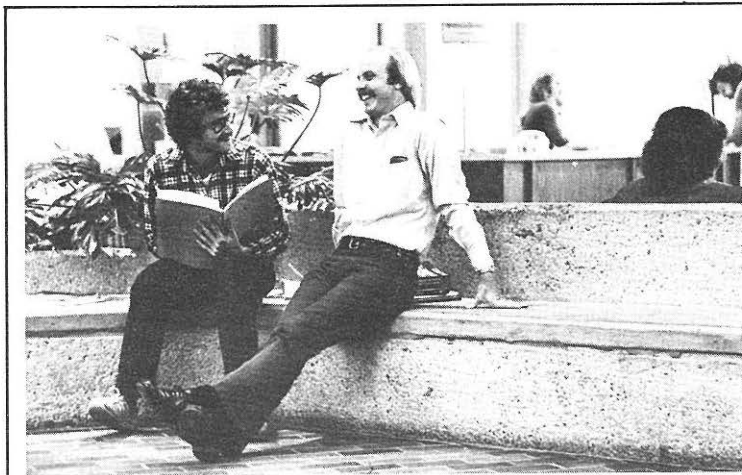
**Basic Certificate for
Direct Employment**

		Cr. Hrs.
Escrow Principles	RLS 120	3
Escrow Practices	RLS 121	3
Real Estate Principles	RLS 101	3
Principles of Accounting I or Mathematics of Business	ACC 101	3
Elective*	BUS 051	3
		<hr/> 15

**Advanced Certificate
For Direct Employment**

Basic Certificate Requirements (15)		Cr. Hrs.
Escrow Problems	RLS 210	3
Real Estate Law	RLS 201	3
Real Estate Finance	FIN 205	3
Electives*		6
		<hr/> 30

*Recommended by advisor to satisfy individual student requirements.



Recreation

Recreation, or the use of leisure time, is one of the fastest growing phases of life. With more interest in recreation there is a need for trained recreation personnel. Training should be in both the technical aspects of the field and in leadership. Recreation programs at PCC are divided into three areas.

- 1) recreational leader
- 2) national resource recreation
- 3) pre-professional transfer program.

Students in the program will be able to enter careers as a recreation aide, park aide, activity specialist, facility manager, or natural resource technician. With more education and recreation experience, the student will be able to apply for careers of greater responsibility. Students who plan careers with state, municipal, or federal agencies will have 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 051	3
Introduction to Parks & Recreation	REC 101	3
Ecology I	LSC 150	4
Option A or B		3-5
		16-18
	Second Semester	
Writing II or Technical Communications	WRT 102	
Business & Professional Communications	WRT 154	3
Outdoor Recreation-Education	SPE 120	3
Survival	REC 115	3
Ecology II	REC 118	2
Option A or B	LSC 151	4
		1-3
		16-18

	Third Semester	
Recreation Administration & Finance	REC 103	3
Public Relations & Communigraphics	REC 074	3
Survey of Western Flora	LSC 171	3
Geology of the Western U.S.	ESC 110	3
Option A or B		3-6
		15-18
	Fourth Semester	
Group Leadership	REC 102	2
Conservation of Natural Resources	LSC 170	3
Western Land Vertebrates	LSC 172	3
Cooperative Recreation Training	REC 299	3
Option A or B		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.

Federal Lands & Management	REC 076	1
Federal Lands & Urbanization	REC 077	1
Federal Lands & Fire Control Pollution	REC 078	2
Federal Lands & Visitor Service	REC 079	1
Introduction to Game Management	LSC 173	3
Human Relations	MAN 110	3
Recreation Systems & Management	REC 052	3
Park Administration	REC 059	3
Water Recreation & Resources	REC 075	3
Facilities for Physical Ed. & Recreation	PED 120	2
Camping & Hiking and/or Advanced Trapshooting	REC 150 REC 256	1-2

Option B—Recreation Leader

Employment possibilities include youth organization, community centers, commercial recreation areas, playground, 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 051	3
Program Planning	REC 114	3
Recreation for Special Groups	REC 116	3
Recreational Games	REC 119	2
Facilities for Physical Ed. & Recreations	PED 120	2
First Aid	REC 121	2
Camping & Hiking and/or	REC 150	
Advanced Trapshooting	REC 256	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.
Required Courses (68)		
Introduction to Parks & Recreation	REC 101	3
Group Leadership	REC 102	2
Administration & Finance	REC 103	3
Survival	REC 118	2
Outdoor Recreation Education	REC 115	3
Program Planning & Organization	REC 114	3
Recreational Games	REC 119	2
		<hr/>
		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
		<hr/>
		50

Respiratory Therapy

Respiratory Therapy is a health science specialty which deals with the treatment, management, and care of patients with deficiencies and abnormalities associated with respiration and circulation. It is the therapeutic use of medical gases and their administering devices, environmental control, humidity and aerosols, inhaled medications, ventilator management, chest physiotherapy and rehabilitation, airway management, and cardiopulmonary resuscitation. Respiratory Therapy also employs a variety of techniques used in the diagnosis, monitoring, and treatment of patients with cardiopulmonary disorders.

Following the physician's orders, Respiratory Therapy personnel must work closely with other members of the health care team including physicians, nurses, physical therapists, and other health technologists.

Following completion of this AMA-approved program, the graduate is qualified for immediate employment, may apply for entry into an internship or baccalaureate program, and can apply for registration through the National Board for Respiratory Therapy (NBRT). The Registered Respiratory Therapist (RRT) usually works in hospitals, clinics, or laboratories. Employment also exists within commercial companies in sales or within contract service agencies. The registered therapist may choose to work strictly as a clinician, or perhaps in other areas such as management, medical research, or education in the hospital, college, or university setting.

This program gives the theory and practice to prepare students for jobs as Respiratory Therapists. It also prepares for transfer into four year programs.

The program consists of one year of support course work followed by a summer session and one year of major course work. Students who are accepted into the program and complete all required courses will be scheduled to enter the hospital portion of their program beginning with the first semester of the major work.

Graduates will receive an Associate of Science degree in Respiratory Therapy.

General Requirements for Acceptance:

1. Applicant must be a high school graduate or have a G.E.D.
2. Preference is given to Arizona residents.
3. An applicant will not be considered for acceptance into the program unless all prerequisite program requirements have been met. Please review these requirements carefully.
4. Application requirements must be completed by March 1 of each year to be considered for enrollment.

Requirements for Acceptance into the Associate Degree Curriculum:

- Receipt of high school or college level (if applicable) transcripts
- Completion of Pima College and Respiratory Therapy program applications
- Completion of one year of high school chemistry or CHM 110 or its equivalent
- Receipt of placement examination results in math and reading comprehension
- Personal pre-admission conference with program chairman
- Approval by selections committee

Requirements for Acceptance into the Respiratory Therapy Major Curriculum—Third Semester:

- Completion of Pima College and Respiratory Therapy program applications
- Students holding an associate degree or higher degree and wishing to enter directly into the major (third semester) coursework must have completed the following courses or their equivalent:
 - a. Chemistry 110 and 111 including labs
 - b. Math 070
 - c. Human Anatomy and Physiology 120 and 121 including labs
- Receipt of high school and college transcripts
- Personal pre-admission conference with program chairman
- Approval by selections committee

Academic Requirements:**Certificate program—44 credit hours of Respiratory Therapy coursework****Associate Degree program—78 credit hours**

- Work in residence: minimum of 44 credit hours of major (RTH) courses to be completed in residence
- Correspondence and extension study: as arranged by the program chairman

Minimum Grade Achievement:

"C" level

**Associate of Science Degree
For Direct Employment**

Required Courses (78)	First Semester	Lec.	Lab	Cr. Hrs.
Introduction to Health Care	HCA 154	3	0	3
Human Anatomy & Physiology I	LSC 120	3	3	4
Algebra I	MTH 070	3	0	3
Fund. Chemistry II	CHM 111	3	3	4
Writing I	WRT 101	3	0	3
				17
	Second Semester			
Writing II	WRT 102	3	0	3
Human Anatomy & Physiology II	LSC 121	3	3	4
Infectious Diseases	LSC 117	3	0	3
Introduction to Psychology I	PSY 100	3	0	3
Humanities Elective		3	0	3
				16
	Third Semester			
Intro. to Respiratory Therapy	RTH 071	3	6	5
Respiratory Physiology	RTH 082	5	0	5
				10

	Fourth Semester			
Diseases I	RTH 086	4	0	4
Clinical Medicine	RTH 073	3	0	3
Respiratory Care I	RTH 083	4	0	5
Clinical Procedures I	RTH 091	0	15	5
				<hr/> 17
	Fifth Semester			
Diseases II	RTH 089	4	0	4
Respiratory Care II	RTH 084	4	3	5
Clinical Procedures II	RTH 092	0	24	8
				<hr/> 17

Note: Students who have received an associate degree or higher degree need only to complete the requirements for acceptance into the Respiratory Therapy major curriculum and the required courses listed under the third through fifth semesters (44 credit hours) to qualify for an advanced certificate in Respiratory Therapy.

Sheet Metal

Students are taught under conditions much the same as found in industry in a fully equipped sheet metal lab. They learn to compute size layout and to build duct work for use in air conditioning installations. The students are also taught how to adapt to other areas of the sheet metal industry.

A person who majors in this program may find Cooperative Education offers an ideal way of gaining more actual work experience while attending classes. See 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
		<hr/> 23

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
		<hr/> 44

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	
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, Sociology 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

Social Services

The Social Services program prepares students for jobs in many community service agencies. These jobs may deal with mental health, welfare, child care, education, retardation counseling, outreach and client advocacy. Agencies which offer jobs are funded by city, county, and state governments, religious groups, private non-profit organizations, and neighborhood groups.

The associate degree graduate is a member of the human services team in a growing field on the local and national level in which there is a strong effort to approach social problems on a more human and individual basis.

Job responsibilities for the graduate include working with clients, handling initial interviews, collecting data, making home visits, making recommendations for staff action, outreach and advocacy, and easing communication channels between the professional worker and the client.

Various study programs have been designed to meet the needs of students. Both a one-year certificate program and a two-year associate of arts program are available. Students who plan to transfer to four-year schools can meet the first and second year requirements at Pima Community College but must check the first two-year requirements of the school they plan to attend. A sub-specialty in drug counseling is available within the social services program. This course of study includes units on various treatment modes including 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 to counselor functions.

The various study programs require that students receive up to 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.
Introduction to Social Welfare	SSE 133	3
Introduction to Psychology I	PSY 100	3
Writing I	WRT 101	3
Electives		6
		<hr/> 15
	Second Semester	
Group Work	SSE 235	3
Community Organization & Development	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		6
		<hr/> 15
	Second Semester	
Casework Methods	SSE 134	3
Writing II	WRT 102	3
Introduction to Sociology	SOC 100	3
Electives		6
		<hr/> 15
	Third Semester	
Group Work	SSE 235	3
Oral Communication	SPE 102	3
SSE Field Experience	SSE 290	3
Electives		6
		<hr/> 15
	Fourth Semester	
Community Organization and Development	SSE 216	3
Electives		9
Social Service Elective		3
		<hr/> 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.
Drugs in American Society	SSE 115	3
	Second Semester	
Political and Legal Aspects of Drug Use	SSE 127	3
	Third Semester	
Treatment of the Drug Abuser	SSE 218	3
	Fourth Semester	
Evaluation and 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—School of Social Work, Undergraduate Program

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.
Social Gerontology I	SOC 166	3
Social Gerontology II	SOC 167	3
Interviewing Techniques- Social Services	SSE 234	3
Group Technique Applications	SSE 237	3
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 Govt. & Politics	POL 111	3
Introduction 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 helps students to prepare for careers that require personal contact with the public: business, law, education, politics, public relations, sales and religion. Those who plan to transfer to a four-year college will find that the program has courses often required of a speech major in the first four semesters of study. Students must check the exact requirements of the college to which they plan to transfer.

The goal of the speech program is to improve skills in public address, interpersonal and group communication, and to increase an understanding of how communication takes place in social and career settings.

Associate of Arts Degree For Transfer

Suggested Semester Sequence (68)	First Semester	Cr. Hrs.
Introduction to Oral Communications	SPE 102	3
Forensics	SPE 125	1
Writing I	WRT 101	3
Foreign Language		4
Science/Math Elective		3-4
Elective		3
		<hr/>
		17-18
	Second Semester	
Public Speaking	SPE 110	3
Writing II	WRT 102	3
Foreign Language		4
Science/Math Elective		3-4
Introduction to Logic as a suggested elective	PHI 120	3
		<hr/>
		16-17

Voice and Diction
Humanities Elective*
Introduction to Psychology I
Foreign Language
Argumentation & Debate

Third Semester

SPE 105	2
	3-4
PSY 100	3
	4
SPE 124	3
	<hr/>
	15-15

Fourth Semester

Oral Interpretation of Literature	SPE 136	3
Humanities Elective*		3-4
Introduction to Psychology II	PSY 101	3
Foreign Language		4
Small Group Discussion	SPE 130	3
		<hr/>
		16-17

*For course elective, consult the catalog of the college to which you plan to transfer.

Training for Special Education Program

Paraprofessionals in the Training for Special Education Programs need a general understanding of special children and of specific training in teaching techniques for special children. The specific objectives for the Training for Special Education Programs are to:

1. Train paraprofessionals in the various handicapping conditions.
2. Train paraprofessionals to recognize high risk children and to refer them to appropriate personnel.
3. Train paraprofessionals in assessment and prescriptive diagnostic procedures.
4. Train paraprofessionals to use appropriate teaching techniques.
5. Train paraprofessionals about programs and services of community agencies working with handicapped children.

Basic Certificate For Direct Employment

Required Courses (18)	First Semester	Cr. Hrs.
*Writing		3
Techniques for the Special Child	ECE 111	3
Teaching Techniques	ECE 126	3
Alternative Approaches to Problem Behaviors	TSE 144	3
Development of Classroom Tools	ECE 115	3
Manual Communications I	SLG 101	3
		<hr/> 18

*Minimum Writing Competency Level, WRT 101.

Advanced Certificate For Direct Employment

Persons planning to apply for the advanced certificate must have completed the first semester Basic Certificate Program.

Required Courses (33-34)	Second Semester	Cr. Hrs.
Understanding Children	ECE 116	3
Communication Skills for Young Children or	ECE 110	3
Special Speech & Language Techniques*	TSE 142	
Techniques for Teaching Multiple Handicapped	TSE 130	3
Behavior Modification for Special Education	TSE 132	3
Practicum or Co-op*	TSE 190 (199)	3-4
		<hr/> 15-16

*Selected in consultation with a program advisor.

Associate of Applied Science

The first semester, Basic Certificate, and the second semester, Advanced Certificate Courses are to be completed prior to entering the Associate of Applied Science Degree in Training for Special Education. The third and fourth semesters are as follows:

Required Courses (66-70)	Third Semester	Cr. Hrs.
Math*		3
Effective Teacher Relations	TSE 250	3
Introduction to Psychology	PSY 100	3
Teaching Methods for Special Education	TSE 236	3
Char. of Learning Disabilities I	TSE 238	3
General Education Elective**		3-4
		18-19

*Minimum Math Competency Level, MTH 070

	Fourth Semester	
Writing*		3
Char. of Learning Disabilities II	TSE 239	3
Techniques for Mentally Handicapped	TSE 240	3
General Education Elective**		3-4
Practicum/Co-op***	TSE 290 or CED 198	3-4
		15-17

*Writing Competency Level, WRT 102

**Electives should be selected in consultation with the program advisor.

***Selected in consultation with a program advisor.

Transportation and Traffic Management Program

The transportation certificate and degree programs have been designed in cooperation with the major shippers of commodities, representatives of all available carrier modes, the Tucson Transportation Club, Tucson Movers Association, and Delta Nu Alpha Transportation Fraternity. A curriculum has been established to develop skills for new entrants to the transportation industry and to enhance the skills of persons currently involved in transportation.

The program certificate and degree options utilize the career ladder concept. This means that a student may smoothly progress from the Basic Certificate, requiring 18 credit hours, to the Advanced Certificate, requiring 18 additional hours and then to the Associate of Applied Science Degree which requires an additional 35 hours for a program total of 71 credit hours. Program flexibility allows credit for cooperative education, speciality courses to meet specific educational demands for career advancement, and contains a course sequence that provides graduates a suitable background for further study in the transportation industry.

**Basic Certificate
For Direct Employment**

Required Courses (18-19)	First Semester	Cr. Hrs.
Fundamentals of Transportation	TTM 101	3
Economics of Transportation	TTM 102	3
Mathematics of Business*(1)	BUS 051	3
Introduction to Computers	CSC 100	3
Elective*(2)		3-4
Typing I	OED 111	3
		<hr/> 18-19

**Advanced Certificate
For Direct Employment**

Required Courses (36-37)	Second Semester	Cr. Hrs.
History of Regulations*(3)	TTM 103	3
Rates and Tariffs*(3)	TTM 104	3
Introduction to Business	BUS 100	3
Writing I or Practical Communications	WRT 101	3
Elective*(4)	WRT 150	3
Principles of Accounting	ACC 101	3
		<hr/> 18

*(1) Prerequisite: MTH 060

*(2) MKT 111, Cooperative Training, or 3 credit hours of Transportation courses numbered 100 or less (if offered).

*(3) Prerequisites: TTM 101 and TTM 102 or consent of the instructor.

*(4) MAN 122, Cooperative Training, or 3 credit hours of Transportation courses numbered 100 or less (if offered).

Associate of Applied Science Degree

The two semesters of the Advanced Certificate Program are the first two semesters of the Associate of Applied Science degree program.

Required Courses (71-72)	Third Semester	Cr. Hrs.
Intro. to Microeconomics	ECO 100	3
Business Law I	BUS 200	3
Humanities I	HUM 110	4
Principles of Accounting II	ACC 102	3
General Education Elective*(1)		3
Principles of Air Transportation or Principles of Motor Transportation*(2)	TTM 201 TTM 202	3
		<hr/> 19
	Fourth Semester	
Humanities II	HUM 111	4
Business Finance	FIN 213	3
General Education Elective*(3)		3
Interstate Commerce Law and Regulations*(2)	TTM 203	3
Principles of Traffic Management*(2)	TTM 204	3
		<hr/> 16

*(1) General Education Electives:

REA 100, SPE 120, PSY 100, 101, SOC 100, 101, and POL 110, 111

*(2) Prerequisite: TTM 101 and 102 or consent of the instructor.

*(3) General Education Electives(s):

WRT 154, REA 100, SPE 120, PSY 100, 101, SOC 100, 101 and POL 110, 111

Wastewater Technology

The Wastewater Technology certificate and degree programs offer courses which train students to become skilled wastewater plant operators and maintenance personnel. These operators will be able to work and communicate directly with engineers, chemists, and supervisory personnel. At the present, the State of Arizona, through the Department of Health Services, Bureau of Water Quality Control, certifies operators for jobs through grade level exams. This program covers both the technical and practical areas needed to help prepare the student to take exams 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	CED 198	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 & Wastewater	WWT 203	2
Technical Communications	WRT 154	3
Supervision	MAN 122	3
Cooperative Education	CED 198	3
		<hr/> 32

Associate of Applied Science Degree For Direct Employment

Required Courses (65)	First Semester	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	CED 198	3
		<hr/> 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	CED 198	3
		<hr/>
		15

Third Semester		
Advanced Biological Wastewater Treatment	WWT 201	3
Applied Chemistry in Water and Wastewater	WWT 203	2
Wastewater Collection Systems	WWT 209	3
Applied Chemical & Microbiological Analysis	WWT 215	3
Technical Mathematics II	MTH 120	3
Cooperative Education	CED 199	3
		<hr/>
		17

Fourth Semester		
Wastewater Treatment Processes	WWT 205	2
Wastewater Hydraulics	WWT 220	3
Physical-Chemical Sewage Treatment	WWT 225	3
Wastewater Treatment Plant & Collection System Design		
& Construction	WWT 235	3
Human Relations	MAN 110	3
Cooperative Education	CED 199	3
		<hr/>
		17

Welding

This program is conducted in a new building designed for welding instruction. Students are taught in classroom and lab areas like those found in industry.

Welding students may find Cooperative Education a way of gaining work experience while attending classes. See a Cooperative Education Teacher-Coordinator for details.

Basic Certificate For Direct Employment

Required Courses		Cr. Hrs.
Oxy-Acetylene Welding	WLD 150	4
Arc 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
		<hr/>
		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
		<hr/>
		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

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

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

3

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

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Youth Care

The program will offer an advanced certificate (required 33 credit hours) and an Associate of Applied Science Degree (required 62-68 credit hours). Within these options enough flexibility will exist for the student to choose from several specific competency areas through which to increase individual skills. The program will offer a balance between core and general education requirements. It will offer a balance between academic instruction and supervised field experience. Students within this program will be closely supervised by faculty advisors.

Youth Care

Advanced Certificate

(33 units required)		Cr. Hrs.
Introduction to Youth Care	YCA 163	3
Effective Parenting	ECE 114	3
Casework Methods	SSE 134	3
Group Work	SSE 235	3
Youth Care Techniques	YCA 263	3
Field Experience*	YCA 290	6
Reading 100 series†	REA 100	4
Writing I or	WRT 101	3
Practical Communications	WRT 154	3
Speech Elective		3
First Aid	REC 121	2
Total Units Required		33

*Field Experience must be taken in the second semester.

†Four units of electives may be substituted for this requirement if the student can demonstrate competency required for satisfactory course completion of the REA 100 series.

Youth Care

Associate of Applied Science Degree

Required Courses (62-68)	First Semester	Cr. Hrs.
Introduction to Youth Care	YCA 163	3
Human Development or Child Development	ECE 107 ECE 117	3
Reading 100 series*	REA 100 series	4
Writing I or Practical Communication	WRT 101 WRT 150	3
Introduction to Psychology Elective	PSY 100	3
		<u>2-3</u>
		18-19
	†Second Semester	
Field Experience	YCA 290	3
Writing II or Technical Communications	WRT 102 WRT 154	3
Effective Parenting	ECE 114	3
Casework Methods	SSE 134	3
Speech Elective		<u>3</u>
		15
	Third Semester	
Juvenile Justice Procedures	AJS 212	3
Group Work	SSE 235	3
Youth Care Techniques	YCA 263	3
Math or Natural Science elective		3-4
Electives		<u>3-6</u>
		15-19

†Fourth Semester

Youth Care Techniques	YCA 263	3
Field Experience	YCA 290	3
Social Science Elective#		3
Electives		<u>5-6</u>
		14-15

*Four units of electives may be substituted for this requirement if the student can demonstrate competency required for satisfactory course of the REA 100 series.

†Student should take no more than a total of 15 units when participating in the YCA 290 course.

#Satisfied from Sociology, Psychology or Anthropology.

Total Units

Core Requirements	30
General Education Requirements	22-23
Electives	<u>10-15</u>
	62-68

Recommended Electives

Program Planning	REC 114	3
First Aid	REC 121	2
Food Study	FSN 113	3
Behavior Modification	PSY 104	3
Crisis Intervention	SSE 236	3
Drugs in American Society	SSE 115	3
Introduction to Social Welfare	SSE 133	3
Normal Personality	PSY 103	3
Introduction to Alcohol Abuse	SSE 116	3
Child Abuse Intervention and Protection	AJS 146	3
Understanding the Young Child	ECE 116	3
Conversational Spanish I	SPA 050	4
Fund. of Crime and Delinquency	AJS 260	3
Techniques for the Special Child	ECE 111	3
Defensive Tactics	AJS 012	2



Courses



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	101	Principles of Accounting	3 cr. hrs.	3 periods
course prefix	course number	course title	semester hours of credit	hours of lecture &/or lab per week

When total periods per week consist of lecture and laboratory periods, the number of each is 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/3 lec.

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/3 lec.

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 Principios de Contabilidad I /3 cr. hrs./3 periods/3 lec.

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/3 lec.

□Prerequisite: ACC 101.

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/3 lec.

Conventional accounting principles are combined with conventional fund accounting material to provide government and institution employees, 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/3 lec.

□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/3 lec.

□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/3 lec.

□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/3 lec.

□Prerequisite: ACC 101.

Course includes the study of personal income tax and tax on business operations.

ADMINISTRATION OF JUSTICE**AJS 012 Defensive Tactics/2 cr. hrs./2 periods/2 lec.**

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 071 Patrol Procedures/3 cr. hrs./3 periods/3 lec.

□Prerequisite: AJS 101 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/3 lec.**

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/3 lec.**

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 146 Child Abuse Intervention and Protection
3 cr. hrs./3 periods/3 lec.**

This course includes the many definitions and forms of child abuse; recognition of its symptoms; family dysfunctions; the interaction with and counseling with the parental abuser; and the utilization of available community resources.

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 Youth Care/3 cr. hrs./3 periods/3 lec.

Surveys the rights, roles and responsibilities of a youth care specialist in the supervision and treatment of children in 24-hour care outside the home, including detention, residential facilities for youth, and foster care. Topical units include the concept of youth care work, understanding the child's behavior, communication skills, problem solving and effective discipline, interviewing and counseling skills and structuring recreation and creative programs. (Identical to YCA 163.)

AJS 172 Criminal Law I /3 cr. hrs./3 periods/3 lec.

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/3 lec.**

□Prerequisite: AJS 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/3 lec.

□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/3 lec.**

□Prerequisite: AJS 101 (or concurrent enrollment) 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/3 lec.

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 aspect, 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/3 lec.

□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/3 lec.**

□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/3 lec.

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/3 lec.

□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/3 lec.

□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/3 lec.**

□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/3 lec.

□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/3 lec.**

□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/3 lec.

□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/3 lec.

□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.

ADVERTISING ART

ADA 101 Advertising Art I /3 cr. hrs./4 periods (3 lec., 1 lab)

Basic layout procedures for the various advertising mediums including: direct mail, newspaper ads, magazine ads, billboards, brochures, stationery and television. Also covered will be the history, objectives, structure and opportunities of advertising art.

ADA 103 Drawing and Composition/3 cr. hrs./5 period (2 lec., 3 lab)

The basic essentials of light, shading, proportion, form and perspective are stressed. Students will learn to render products in a realistic manner using markers.

ADA 110 Advertising Design I /3 cr. hrs./5 periods (2 lec., 3 lab)

Layout for various advertising mediums using size, contrast, organization and color. Areas stressed are type indicating skills and the development of ideas using thumbnails, roughs and comprehensives.

ADA 111 Production Techniques and Processes I
3 cr. hrs./5 periods (2 lec., 3 lab)

Basic skills in preparing art work for the printer. Areas covered are inking, paste-up, typesetting, copy fitting, photo-sizing, photo-cropping, statmaking, overlay and dropout cutting, and keyline.

ADA 120 Advertising Design II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 103, 110.

Combining products with type in the layout for various advertising mediums. Continued practice in type indication and the use of size, contrast, organization and color.

ADA 203 Advertising Drawing/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 103.

Proportions, light, shading, form and anatomy of the human figure are covered. Markers will be used.

ADA 205 Advertising Illustration/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 103, 203.

Advanced drawing, rendering and composition for industry and publications are covered. Rendering work is done in all media including ink, wash, air-brush, acrylics and markers.

ADA 210 Advertising Design III /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 120.

Layout and design of ads, brochures, billboards, stationery, logos, direct mail, menus, posters and television commercials are covered.

ADA 211 Production Techniques and Processes II
3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 111.

Continued practice and development of production skills including two color printing techniques. Students will design and produce brochures, posters, flyers and ads "camera ready" and keylined..

ADA 212 Production Techniques and Processes III
3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 211.

Continued practice and development of production skills including three and four color printing techniques.

ADA 220 Advertising Design IV /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 210.

Continued practice and skill development in layout and design. Completion of a portfolio will be stressed.

AIR CONDITIONING

ACD 101 Air Conditioning Fundamentals

3 cr. hrs./3 periods/3 lec.

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: ACD 101 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 multi-zone 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/3 lec.

□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/3 lec.

□Prerequisite: ACD 250.

Bid preparation and procedures including materials quantity, make-up sheets, equipment usage, manpower requirements, labor rates, amount of contract work, progress reports, material ordering procedures, overhead and profits.

ANTHROPOLOGY

ANT 100 Human Origins and Pre-History/3 cr. hrs./3 periods/3 lec.

The emergence of the human species from its origins, based on our understanding of the archaeological and fossil record.

ANT 110 Introduction to Cultural Anthropology

3 cr. hrs./3 periods/3 lec.

A survey of cultural anthropology and linguistics; and an introduction to the comparative study of cultures. Emphasis is on non-literate cultures.

ANT 120 Introduction to the History and Peoples of the Southwest

3 cr. hrs./3 periods/3 lec.

What is the Southwest? This course is an interdisciplinary survey of the ecological, cultural, linguistic, ethnic, political, economic, aesthetic, and geographic realities of the peoples of this region.

ANT 121 Contemporary Indian Groups of the Southwest

3 cr. hrs./3 periods/3 lec.

A study of contemporary Indian Cultures of the Southwest with emphasis on Arizona.

ANT 122 Papago History and Culture/3 cr. hrs./3 periods/3 lec.

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 122.)

ANT 123 The Anthropology of Music and Dance in Contemporary Society/3 cr. hrs./3 periods/3 lec.

3 cr. hrs./3 periods/3 lec.

An introduction to music and dance studied in their cultural context. Emphasis is on the American Southwest.

ANT 127 History and Culture of the Mexican-American in the Southwest I /3 cr. hrs./3 periods/3 lec.

Who is the Mexican-American? What is his cultural heritage, and what has happened to it in the United States? (Same as History 127.)

ANT 128 The Mexican-American in Transition

3 cr. hrs./3 periods/3 lec.

What is it like to be a Mexican-American in today's society? Problems resulting from differences in cultures, values and needs are examined through class discussion and participation in related activities in the community.

ANT 135 Pre-Columbian Art/3 cr. hrs./3 periods/3 lec.

A survey of the art of Pre-Columbian Mexico. Students will learn to recognize major art styles and important sites. Course includes a survey of the art of the same time period in Southeastern and Southwestern America, Central America, and Peru. (Same as ART 135 and HIS 135.)

ANT 136 Masks/3 cr. hrs./3 periods/3 lec.

A survey of traditional masks and sculpture of Africa, North and South America, Asia and Oceania. Major emphasis is on style, function and meaning of the masks of the Northwest Coast Indians and of the indigenous peoples of Africa and the South Pacific. (Same as ART 136 and HIS 136.)

**ANT 141 Archaeology of the Southwest
3 cr. hrs./5 periods (2 lec., 3 lab)**

The prehistory of the Southwest from its earliest inhabitants to European contact.

**ANT 146 Culture and Personality of the Mexican-American
3 cr. hrs./3 periods/3 lec.**

A review of how the culture and personality of the Mexican-American differs from others and what it means to the individual.

ANT 148 History of Indians of North America/3 cr. hrs./3 periods/3 lec.

Origin and distribution of native populations of North America; and the historical development and interrelations of cultures. (Same as History 148.)

**ANT 150 Afro-American History and Peoples
3 cr. hrs./3 periods/3 lec.**

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
3 cr. hrs./3 periods/3 lec.**

The history of Latin America from the pre-Columbian period to the present with emphasis on the evolution of nationalism through the struggles of economic, cultural, political and social freedoms. (Same as History 160.)

ANT 170 History and Peoples of Africa/3 cr. hrs./3 periods/3 lec.

A survey of the political and cultural history of Africa south of the Sahara. (Same as History 170.)

ANT 200 Biological Anthropology/3 cr. hrs./5 periods (2 lec., 3 lab)

The interaction of human biology and culture as found among various people and their environments.

ANT 210 Cultural Anthropology/3 cr. hrs./3 periods/3 lec.

□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/3 lec.

An introduction to the basic concepts of linguistics and their implications for the study of human culture.

ANT 225 Archaeology/3 cr. hrs./3 periods/3 lec.

A survey of the concepts and methods which archaeologists use to reconstruct human prehistory.

ANT 250 Archaeology Laboratory/3 cr. hrs./7 periods (1 lec., 6 lab)

Laboratory experience in processing, preparation and analysis of excavated materials.

**ANT 275 Archaeological Field Methods
4 cr. hrs./8 periods (2 lec., 6 lab)**

An introduction to the techniques of archaeological mapping, excavation, and recording. Includes archaeological field experience in this area.

ANT 276 Archaeological Surveying/3 cr. hrs./9 periods/9 lab

□Prerequisite: ANT 100 or 141, ANT 275 or consent of instructor.

Techniques and methods for recognizing, locating and recording of archaeological sites. Includes fieldwork in this area.

**ANT 277 Advanced Archaeological Excavation
3 cr. hrs./7 periods (1 lec., 6 lab)**

Scientific excavation of an archaeological site. Emphasis is on excavation procedures, specialized equipment, recording of information and management of cultural resources.

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 060 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 065 Advanced Lapidary/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 60

The further development of lapidary skills by using advanced lapidary techniques through the study and creation of works of art using semi-precious stones.

ART 100 Basic Design/3 cr. hrs./5 periods (2 lec., 3 lab)

An introductory art course to develop processes by which students can form their visual-perceptual approaches toward the elements of design.

ART 110 Drawing I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100 or concurrent enrollment.

An introductory drawing course emphasizing visualization and techniques in representational drawing.

ART 115 Color and Design/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100 or concurrent enrollment.

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)

□Prerequisite: ART 100 or concurrent enrollment.

An extension of ART 100 into sculptural concepts and media. A study of volume, mass, and space relationships through modeling, casting, carving and construction.

ART 130 Art and Culture/3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/3 lec.

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 135 Pre-Columbian Art/3 cr. hrs./3 periods/3 lec.

A survey of the art of pre-Columbian Mexico. Students will learn to recognize major art styles and important sites. Course includes a survey of the art of the same time period in Southeastern and Southwestern America, Central America, and Peru. (Same as ANT 135 and HIS 135.)

ART 136 Masks/3 cr. hrs./3 periods/3 lec.

A survey of traditional masks and sculpture of Africa, North and South America, Asia and Oceania. Major emphasis is on style, function and meaning of the masks of the Northwest Coast Indians and of the indigenous peoples of Africa and the South Pacific. (Same as ANT 136 and HIS 136.)

ART 140 Photography I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100 or concurrent enrollment.

An introduction to photography as an art form with a general inquiry into the nature of basic techniques in making silver images. Includes basic developing, printing, and enlarging. Aesthetic language of photography, perspective and what photography is as an art form. Individual and group work.

ART 141 Photography II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 140 or consent of instructor.

An extension of Beginning Photography as an art form. To use the medium with optimum creativity, technical skill, and visual finesse. Portfolio and book production, field trips and research.

ART 143 Commercial Photography/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 141

Introduction to commercial fields in photography. The study and practice of business in the field of photography. Studio management, laboratory techniques, pricing schedules, record keeping, advertising, portraiture, weddings, industrial and aerial work.

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 I: Jewelry/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100 or concurrent enrollment.

An exploration of the basic techniques and design approaches used in the fabrication of jewelry and other metal work. Includes construction, casting, forming, surface embellishment, etc.

**ART 179 Weaving I: Back-strap and Tapestry Looms
3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: ART 100 or concurrent enrollment.

The student will build her/his own loom and use it to explore weaving as an art form. Emphasis will be on a variety of tapestry weaves and strip weaving.

ART 180 Weaving I: 4-Harness Loom/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100 or concurrent enrollment.

Explore the unique capabilities of the four-harness loom as an art medium. Projects will involve color, texture, pattern; using tabby, twill, tubular, and tapestry weaves.

ART 181 Fiber Structures/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100 or concurrent enrollment.

Explore fiber as an art medium. Develop skills in techniques such as paper-making, basketry, crochet, plaiting and macrame. Projects will involve sculptural form as well as two-dimensional design.

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 110

Continued 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 110 or consent of instructor.

A study of printmaking processes such as silk screen, etching, block printing, and monotypes; students may choose to work in areas of particular interest.

ART 213 Life Drawing/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100 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 214 Printmaking II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100, 110, 212.

A continuation of Printmaking I, ART 212.

Advanced problems in intaglio, etching, monotypes and block printing processes.

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 216 Silkscreen/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100, 110 or instructor's permission.

An introductory course in screen printing: screen construction, the use of cut film, stencil making techniques and printing techniques. One-color and multi-color process work.

ART 220 Sculpture/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 120 or consent of instructor.

A course exploring a range of approaches and materials. Materials may include plaster, clay, cement, welded steel, metal forming, stone, wood, plastic, lost wax casting, or mixed media.

ART 230 History of Photography/3 cr. hrs./3 periods/3 lec.

An intensive survey into the history of photography as an art form. Its relationship to the other arts and to society. A study of the search, and development of the technical aspects of photography. A survey of the styles and movements from 1839 to contemporary schools. Research of important photographers.

**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 270 Metalwork II: Jewelry/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: ART 100, ART 170.

Intermediate course dealing primarily with jewelry design. Techniques covered include casting, construction, cold forging, and stone setting in precious and non-precious metals.

**ART 271 Metal work II: Smithing & Casting
3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisites: ART 100, ART 170.

Intermediate course dealing primarily with the design of aesthetic and functional objects. Emphasis on hot and cold forging, raising, forming, and casting using various metals including copper, silver, bronze, steel, iron & aluminum.

ART FOR PERSONAL DEVELOPMENT**APD 010-053 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 010 Drawing**APD 012 Photography****APD 013 Advanced Photography****APD 014 Oil Painting****APD 016 Water Color Painting****APD 018 Calligraphy/2 cr. hrs./4 periods (1 lec., 3 lab)**

This course teaches the student the classic art of lettering, illumination and decoration of manuscripts.

APD 019 Calligraphy II /2 cr. hrs./4 periods (1 lec., 3 lab)

This course teaches the student advanced techniques of the classic art of lettering, illumination and decoration of manuscripts.

APD 020 Ceramics**APD 022 Weaving****APD 024 Sculpture****APD 026 Silversmithing****APD 028 Stone Carving/2 cr. hrs./4 periods (1 lec., 3 lab)**

This course teaches the methods and techniques of designing and carving stone.

**APD 030 Introduction to Indian Arts and Crafts
2 cr. hrs./2 periods/2 lec.**

This course is designed to develop an appreciation of the evolution of Indian Art from prehistoric to modern times. The place of art in contemporary cultures will be discussed. Indian art objects will be examined and appraisal techniques will be taught. Classes primarily for sales persons and serious amateur collectors.

APD 034 Quilting/2 cr. hrs./4 periods (1 lec., 3 lab)

Course will include quilting, piecing, applique, and embroidery. These techniques will be used to make a sample quilt top.

APD 040 Introducción A la Escultura (Introduction to Sculpture)**APD 041 La Pintura Mural En México (Mural Painting In Mexico)****APD 042 Pastelería Creativa I (Creative Baking I)****APD 043 Pastelería Creativa II (Creative Baking II)****APD 044 Pastelería Creativa: Estilos Internacionales III****2 cr. hrs./4 periods (1 lec., 3 lab)**

□Requisitos: Pastelería Creativa I, APD 042 y Pastelería Creativa II, APD 043.

Este curso cubre mayores estilos y métodos internacionales de decoración de pasteles. Detalles de bordes, molduras y adornos se enseñan culminando por medio de una obra maestra de pastelería para exhibición.

APD 050 Música Para Gozar (Music for Everyone)**APD 051 Música de Mariachi (Mariachi Music)****APD 052 Baile Español I (Spanish Dance I)****APD 053 Baile Español II (Spanish Dance II)****APD 054 Color Photography/2 cr. Hrs./4 periods (1 lec., 3 lab)**

Students learn to process and print color negatives and color slide materials.

**APD 056 Introduction to The Mexican Charrería
2 cr. hrs./4 periods (1 lec., 3 lab)**

An introduction to the historical, social, and cultural background of the Mexican charrería. Course also encompasses aspects of the lifestyle of the charro and his family.

APD 056 Introducción a la charrería mexicana**2 cr. hrs./4 periods (1 lec., 3 lab)**

Una introducción al fondo histórico, social y cultural de la charrería mexicana. El curso también embarca los aspectos de la vida del charro y su familia.

APD 057 The Events of the Mexican Charreada**2 cr. hrs./4 periods (1 lec., 3 lab)**

The different (or various) aspects of the charreada are introduced in a manner that the student will learn to appreciate the events. Additionally, rules and regulations for the purpose of judging a charro event are covered.

APD 057 Las competencias charras/2 cr. hrs./4 periods (1 lec., 3 lab)

Dos diferentes aspectos de la charrería son presentados en una forma que los estudiantes aprenderán a apreciar los eventos. Además se cubrirán los reglamentos para calificar un evento charro.

APD 060 Flamenco and Classical Guitar**2 cr. hrs./4 periods (1 lec., 3 lab)**

The class is designed for beginning and advanced guitar students. This course includes the history, basic techniques and structure of Flamenco and its music. Also included are classical melodies and exercises for the proper coordination and development of the left and right hands.

APD 060 Flamenco Y Guitarra Clásica**2 cr. hrs./4 periods (1 lec., 3 lab)**

Esta clase está diseñada para estudiantes de guitarra, principiantes y avanzados. El curso incluye la historia, técnica básica y estructura del flamenco y su música. También se incluyen melodías clásicas y ejercicios para coordinación propia y el desarrollo de ambas manos, izquierda y derecha.

ASTRONOMY**AST 101 Introduction to Astronomy I /3 cr. hrs./3 periods/3 lec.***

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/3 lec.*

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 requirements should take both lecture and laboratory.

AST 111 Introduction to Astronomy I Laboratory**1 cr. hr./3 periods/3 lab**

Laboratory for AST 101.

AST 112 Introduction to Astronomy II Laboratory**1 cr. hr./3 periods/3 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 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 124 Automotive Diesel Engines/3 cr. hrs./5 periods (1 lec., 4 lab)

□Prerequisite: AUT 120 or equivalent.

Tune-up diagnosis, fuels, lubrication, and cooling of automotive diesel engines.

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/3 lec.

□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.

AVIATION MECHANICS

AVM 088 Preventive Maintenance for Pilots/3 cr. hrs./3 periods/3 lec.

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 Structures/6 cr. hrs./8 periods (4 lec., 4 lab)

□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 in Airframe Structures will be Federal Aviation Regulations, Aerodynamic principles, assembly and rigging, weight and balance, woodworking techniques, welding and metallurgy, fabric coverings, aircraft finishes, and structural repair.

AVM 221 Airframe Systems and Components
6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisite: 30 months' experience concurrently performing the duties of airframe and powerplant maintenance; or 18 months of experience performing the duties appropriate to this rating and AVM 220.
This course is designed to cover various aircraft systems and will include advanced electricity and troubleshooting, hydraulic and pneumatic systems, aircraft instrumentation, communication and navigation systems, air conditioning and pressurization, fire detection and extinguishing systems.

AVM 230 Powerplant Mechanics/6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisite: 30 months' experience concurrently performing the duties of airframe and powerplant maintenance; or 18 months performing the duties appropriate to this rating.
This course will include reciprocating and gas turbine engines, theory and construction, overhaul procedures, lubrication systems, fuel metering systems, ignition systems, propellers and engine testing.

BUILDING TECHNOLOGY

BLT 50 Plumbing/3 cr. hrs./6 periods (1 lec., 5 lab)

The basic study of plumbing materials and their practical use in construction and maintenance of buildings. Proper use and care of hand and power tools, and safety measures on the job. Practical systems planning and sketching. Care, repair and replacement of common valves, faucets, lavatories, toilets, vents and drains.

BLT 55 Carpentry I /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: MTH 60 or equivalent.
Introduction to safe carpentry. How to care for and use hand and power equipment and tools safely. Carpentry materials and their uses. Basic construction techniques.

BLT 57 Carpentry II /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: BLT 55.
A continuation of Carpentry I, where advance knowledges and skills are covered. The materials are studied in greater depth with emphasis on their application to structures. Safety is again stressed as is experience with basic construction techniques to develop a degree of craftsmanship.

BLT 60 Masonry/3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: MTH 60 or equivalent.
A study of the safe application of the basic tools and materials used in modern building trades practices in masonry. The student will learn basic knowledges and skills in the preparation, composition, protection and curing of concrete. The construction of brick, concrete block, and stone walls will also be covered.

BLT 62 Glazing/3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: MTH 60 or equivalent.
The course will cover care of windows, preparation of surfaces, cutting and installing glass, repairing glass and glazing materials. Use of special tools and materials, use of special textures and surfaces will be introduced.

BLT 70 Painting I /3 cr. hrs./6 periods (1 lec., 5 lab)

An introduction to the elements and contents of paint, basic principles of paint and its components, familiarization with the application of paint on various types of surfaces. Safety is stressed in all aspects of the painting trade from ladders through scaffolds.

BLT 72 Painting II /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisites: BLT 70 & MTH 60 or equivalent.
A continuation of Painting I with more emphasis on selecting, maintaining and using painting equipment and tools. Paints and color selections and color mixing and matching are covered. Wood furniture stripping and refinishing techniques are taught and used.

BLT 74 Conventional & Airless Spray Painting
3 cr. hrs./6 periods (1 lec., 5 lab)

Specialized classroom and practical experiences with the practices and techniques of conventional and airless spraying. Instruction covers: uses, advantages and design details for both units, techniques to produce work of good quality, operating principles and advantages of both units, causes and remedies for common spray painting defects.

BLT 76 Advanced Blueprint Reading
3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: GTC 99 or equivalent.
A continuation of the first Blueprint Reading course with emphasis on commercial building specifications in relation to drawings; steel and heavy timber construction, multistory drawings and material take off for drywall and painting.

BLT 80 Color & Color Harmony/3 cr. hrs./6 periods (1 lec., 5 lab)

The course is designed to introduce the psychology of color and understanding of color harmony, systems of colors, methods for selecting colors for: harmony, industries and institutions. Practical problems and assignments of tasks for lab work.

BLT 82 Wall Coverings/3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: MTH 60 or equivalent.

The course is designed to introduce the: fundamentals, estimating, preparation, and application of wall coverings; care and use of tools; practical applications of skills in a laboratory setting with emphasis on safety.

BLT 90 Drywall I /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: MTH 60 or equivalent.

The course is designed to introduce the student to the industry and to safety, trade vocabulary, materials, proper care and use of equipment and tools, and actual performance of practical tasks assigned in the laboratory portion of the course.

BLT 92 Drywall Taping/3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: MTH 60 or equivalent.

The course is designed to introduce the student to the trade; its terminology, safety, equipment, tools, material applications, texturing and final finishing. Practical tasks will be assigned in the laboratory and the student rated on his skill and performance.

BLT 94 Drywall II /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: BLT 90 or equivalent.

In-depth coverage of job planning and blueprint estimating. Familiarization with building documents and legal requirements, framing terminology and types of framing. In-depth coverage of drywall construction in residential, multiple-unit, and commercial buildings. Safe performance of practical assignments in the laboratory.

BUSINESS**BUS 50 Fundamentals of Tax Preparation/1 cr. hr./1 period/1 lec.**

Course designed by the Internal Revenue Service to develop skills for new or inexperienced preparers of federal tax returns.

BUS 51 Mathematics of Business/3 cr. hrs./3 periods/3 lec.

□Prerequisite: MTH 60 or equivalent math skills.

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/3 lec.

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 200 Business Law I /3 cr. hrs./3 periods/3 lec.

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/3 lec.

□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/3 lec.**

□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/3 lec.**

□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.

BUS 295 Seminar I /1 cr. hrs./1 period/1 lec.

The emphasis in this seminar is on acquiring and retaining a job in the business community. The student will determine job sources, develop skills in resume and job application completion, learn job interviewing and follow-up techniques and have an opportunity to practice these acquired skills in a simulated job interview that will be video taped for evaluation by the student and teacher.

BUS 296 Seminar II /1 cr. hr./1 period/1 lec.

Course objectives are to offer individual instruction in subject matter directly related to his/her career objective and training station and to prepare and assist the student in the transition from student to employee.

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.

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).**

Laboratory projects varying 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 and 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 or organic compounds are discussed.

CHILD DEVELOPMENT ASSOCIATE PROGRAM

CDA 120 Environmental Design for the Early Childhood Learning Center/3 cr. hrs./3 periods/3 lec.

This course will prepare the student to plan and arrange an efficient early childhood training center, allowing for active and quiet child activities to occur simultaneously, providing a wide variety of stimulating materials to the children, and allowing a variety of adult and child interactions.

CDA 121 Planning the Early Childhood Program 3 cr. hrs./3 periods/3 lec.

This course will prepare the student with the skills needed to adequately plan a center-based early childhood program for 15-25 children.

CDA 122 Observing Young Children/3 cr. hrs./3 periods/3 lec.

This course will provide the student with skills in observing and recording child characteristics and behaviors in an early childhood learning center, and with procedures for comparing recorded observations with recognized developmental norms.

CDA 123 The Family and Early Childhood Education 3 cr. hrs./3 periods/3 lec.

This course will provide the student with skills necessary for effective involvement of parents in the early childhood learning program. Covered topics include: communicating with parents; understanding parents' values for their children; recognizing the family as a prime educator.

CDA 124 Enhancing Intellectual Development in the Early Childhood Setting I /3 cr. hrs./3 periods/3 lec.

This course will involve the student in exploration and development of practical knowledge in the following areas: 1) Language Development; 2) Developing Number Concepts; 3) Developing Science Concepts; 4) Cooking & Nutrition Education; 5) Enhancing Questioning & Problem-Solving Abilities; 6) Field Trips.

CDA 125 Enhancing Intellectual Development in the Early Childhood Setting II /3 cr. hrs./3 periods/3 lec.

This course will involve the student in exploration and development of practical knowledge in the following areas: 1) Language Development; 2) Developing Number Concepts; 3) Developing Science Concepts; 4) Cooking & Nutrition Education; 5) Enhancing Questioning & Problem-Solving Abilities; 6) Field Trips.

CDA 126 Enhancing Personality Development in the Early Childhood Setting/3 cr. hrs./3 periods/3 lec.

This course will provide the student with skills necessary for observing and identifying problems of negative self-image, and working toward the development of a positive identity for each child. Other topics include: providing for individual differences within the early childhood center; encouraging open expression of feelings.

CDA 220 Creative Expression in the Early Childhood Setting 3 cr. hrs./3 periods/3 lec.

This course will provide the student with skills and knowledge required to encourage the development of creative expression by children in an early childhood setting. The course will cover music and dance, dramatic play, and creative media.

CDA 221 Enhancing Physical Development in the Early Childhood Setting/3 cr. hrs./3 periods/3 lec.

This course will provide the student with the required background knowledge and with a variety of techniques and ideas for enhancing the development of children's fine and gross motor abilities, and the physical development of the whole child.

CDA 222 Meeting Special Language & Cultural Needs of Children in Groups/3 cr. hrs./3 periods/3 lec.

This course will provide the student with specific knowledge and techniques for developing a bilingual program and for incorporating important elements of the culture of the children the student is working with in a classroom setting. The course content will be language and culture-specific for the ethnic group the student is working with.

CDA 223 Crafts in the Early Childhood Setting 3 cr. hrs./3 periods/3 lec.

This course will provide the student with knowledge of and experience with a variety of crafts media and projects suitable for the early childhood setting. Topics include: woodworking, sewing, clay, and using found objects.

CDA 224 Management Functions in the Operation 3 cr. hrs./3 periods/3 lec.

This course will provide the student with the skills necessary to keep an early childhood learning center functioning smoothly. This would include ordering and inventorying supplies, utilizing community resources, and participating in program evaluation. This course will include material specific to the early childhood program by which the student is employed.



COMPUTER SCIENCE

CSC 100 Introduction to Computers/3 cr. hrs./4 periods (3 lec., 1 lab)

Establishes the relationship of computer to data processing. Introduces concepts of computer configurations, stored program, flow charting, block diagramming and documentation. Problems are programmed in Basic language.

CSC 105 Survey of Data Processing/3 cr. hrs./3 periods/3 lec.

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 buttressed 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 Introduction to Computer Operations 3 cr. hrs./4 periods (3 lec., 1 lab)

Instructions and lab experience in computer operations covering tape, disk, printer, reader, console and terminals. Operating systems, time-sharing, file organization, utilities, text editors and multiprogramming concepts are stressed.

CSC 155 Advanced Computer Operations 3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: CSC 150.

A study of advanced operator service programs, job control language, privileged utilities, systems errors and recovery procedures. System start-ups, restarts, and reconfiguration are included. 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/1 lec.

Applying for employment, letter and resume writing, interviewing and related topics.

CSC 196 Work Standards and Job Attitudes/1 cr. hr./1 period/1 lec.

Includes ethics, work relationships and human relations using role playing.

CSC 197 Edit Languages for Programmers and Operators 1 cr. hr./1 period/1 lec.

Students learn the keyboard, functions of special keys, and use of various editors to alter text for computer input.

CSC 198 Data Processing Projects I /2 cr. hrs./6 periods/6 lab

□Prerequisite: Consent of instructor.

Credit is given for practical work experience on assigned data processing projects in data entry, controls and operations.

CSC 250 Microprocessor Fundamentals 3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: CSC 100 or permission of instructor.

Simple microprocessors will be used as a vehicle to teach the basic concepts of computer architecture, machine language programming, assembly programming, input/output, and console operations.

CSC 255 Microprocessor Applications**3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: CSC 250.

Comparison of the architecture and features of available microprocessors. Use of microprocessors to monitor and control physical processes, displays, lights, switches, instruments, etc.

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 IBM/370 Assembly Language**4 cr. hrs./6 periods (4 lec., 2 lab)**

□Prerequisite: CSC 250 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 250 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 275 Advanced Programming and File Handling**4 cr. hrs./6 periods (4 lec., 2 lab)**

□Prerequisite: CSC 160 and CSC 170.

Advanced programming and file handling techniques using small business computer languages are emphasized, which includes hands-on experience with an appropriate machine.

CSC 280 Systems Analysis/3 cr. hrs./3 periods/3 lec.

□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 system applications are used to apply the above tools.

CSC 281 Systems Design/3 cr. hrs./3 periods/3 lec.

□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.

COOPERATIVE EDUCATION

CED 198 Cooperative Education/3 cr. hrs./16 periods (1 lec., 15 lab)

A supervised cooperative work program for students in an occupational program for a minimum of 15 hours per week. Course may be repeated once. (See individual program areas for program requirements.)

CED 199 Cooperative Education/3 cr. hrs./16 periods (1 lec., 15 lab)

A supervised cooperative work program for students in an occupational program for a minimum of 15 hours per week. Course may be repeated once. (See individual program areas for program requirements.)

CED 296 Cooperative Education/6 cr. hrs./31 periods (1 lec., 30 lab)

A supervised cooperative work program for students in an occupational program for a minimum of 30 hours per week. Course may be repeated once. Students enrolled in this course normally do not take any other course work, since they will be employed in a job in their career field for 30-40 hours per week. (See individual program areas for program requirements.)

DENTAL ASSISTING

DAT 61 Introduction to Dental Assisting/3 cr. hrs./3 periods/3 lec.

□Prerequisite: Consent of program coordinator.

Knowledge of basic science as it relates to dentistry, oral pathology, and microbiology.

DAT 62 Dental Assisting I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: Consent of program coordinator.

Provides the student with knowledge of morphology of the human dentition; dental instruments and their use in various operative procedures.

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 radiographs; 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 Pre-Clinical/2 cr. hrs./6 periods/6 lab

□Prerequisite: Consent of program coordinator.

The basic procedures of chairside assisting in general and speciality dental practices are studied and performed.

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; knowledge of drugs used in dentistry; nutrition and how it effects total dental health.

DAT 67 Dental Assisting III /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: Satisfactory completion of DAT 61 through 65.

Provides the student with a knowledge of the business duties in a dental office and the various skills as collections, budget and financing, insurance and patient routines.

DAT 68 Clinical Procedures/8 cr. hrs./24 periods/24 lab

□Prerequisite: Satisfactory completion of DAT 61 through 65.

Students apply acquired skills in clinical affiliation under 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/3 lec.

□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 Construction/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—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/3 lec.

□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/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/3 lec.

The study of furnishings both in the functional sense and with respect to social, aesthetic, economic and psychological effects on individuals.

DES 156 Design for Living/3 cr. hrs./3 periods/3 lec.

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 Industrial Functional Design/3 cr. hrs./4 periods (3 lec., 1 lab)

The study of design with emphasis on solutions to problems in fabrication and reproducibility of various products.

DES 255 Spatial Design/3 cr. hrs./3 periods/3 lec.

Creative and technical use of design principles applied to specific problems. For the serious design student.

DES 256 Interior Environmental Design/3 cr. hrs./3 periods/3 lec.

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.

DES 080 Applied Design/3 cr. hrs./11 periods (1 lec., 10 lab)

□Prerequisite: Consent of Instructor.

Students will gain firsthand experience in interior or functional design.

DRAFTING

DFT 110 Construction Drafting I /4 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/3 lec.

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/3 lec.

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 /4 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 /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: DFT 120.

A continuation of DFT 120, developing construction drawing for a masonry and wood frame residence from house sketches selected by students.

DFT 140 Construction Drafting IV /4 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 /4 cr. hr./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 /4 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**1.3 cr. hrs./2 periods (1 lec., 1 lab)**

Students are introduced to drafting tools, freehand sketching, lettering, simple dimensioning and geometric construction.

DFT 150B Technical Drafting I—Dimensioning and Multi-Views**1.3 cr. hrs./2 periods (1 lec., 1 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/1.3 cr. hrs./2 periods (1 lec., 1 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 /4 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 /4 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 /4 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. Drawing 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/4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: DFT 150, ETR 001.

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
4 cr. hrs./6 periods (3 lec., 3 lab)**

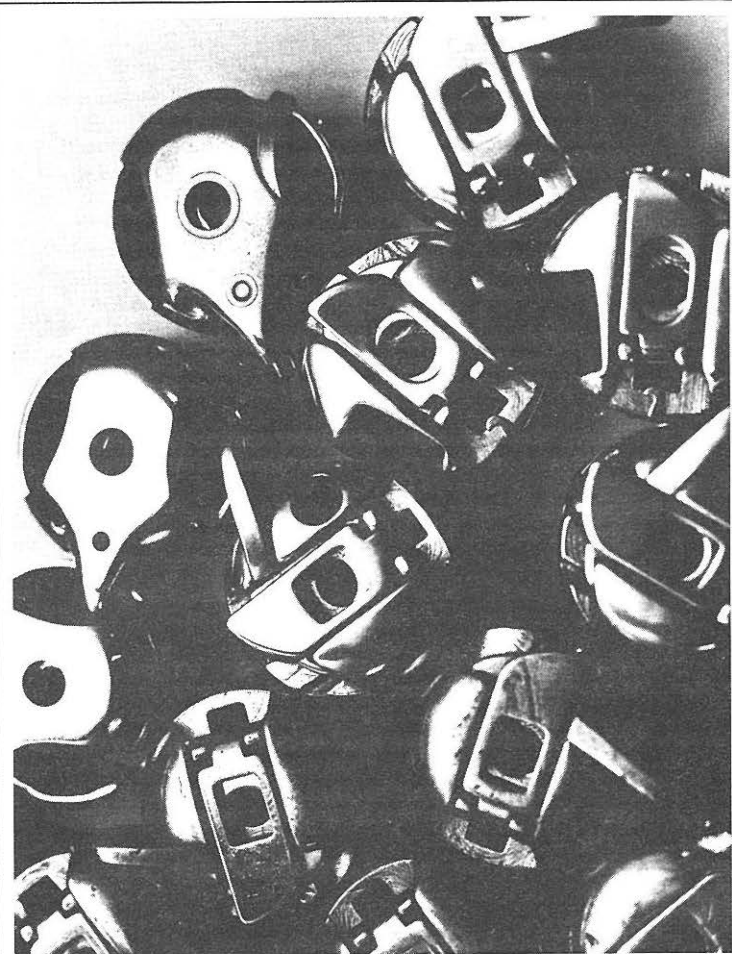
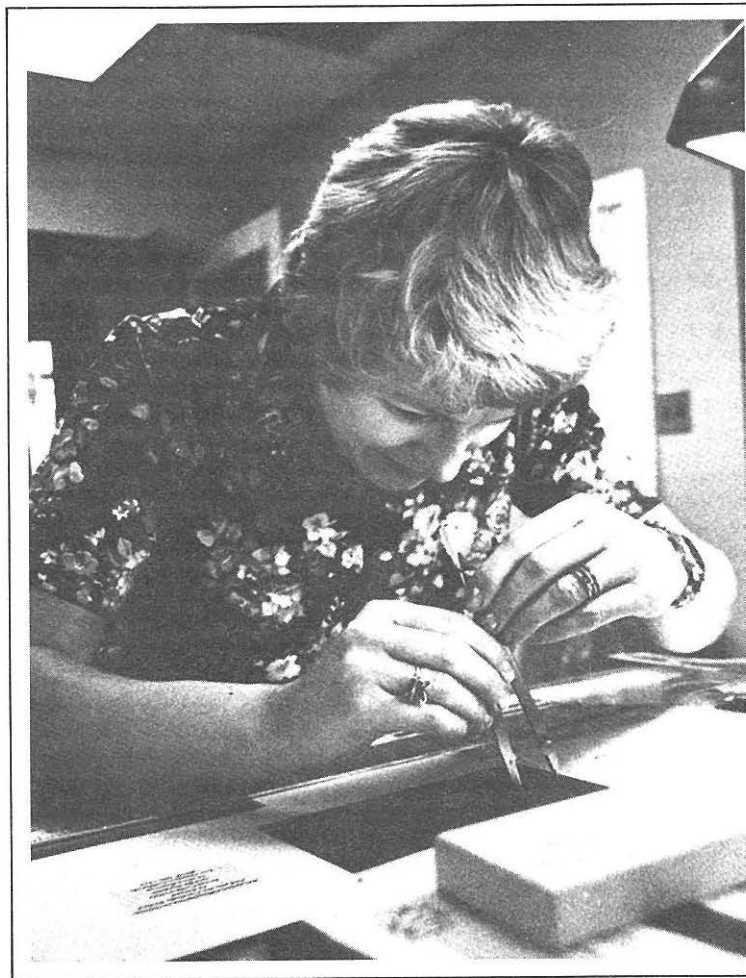
□Prerequisite: DFT 154.

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 160 Geometric Dimensioning and Tolerancing
3 cr. hrs./3 periods/3 lec.**

□Prerequisite: DFT 152.

Designed to increase the student's awareness of dimensioning and tolerancing techniques by introducing the student to geometric dimensioning and tolerancing (which is the current system of tolerancing used by the United States government—ANSI 6 14.5—and many commercial firms).



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 60 Theater Appreciation/3 cr. hrs./3 periods (1.5 lec., 1.5 lab)

Reading, attending, and criticizing ten to twelve theatrical productions of various types, periods, and styles as performed by producing groups with varying goals and training and purposes.

DRA 105-106 Introduction to Acting I, II **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. hrs./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, 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/3 lec.

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/3 lec.

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.

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/3 lec.**

An interdisciplinary and intercultural approach to human development and interpersonal relationships.

ECE 108 Literature/Social Studies for Children **3 cr. hrs./3 periods/3 lec.**

Survey of materials, principles and techniques in the selection and presentation of children's literature and social studies concepts.

ECE 108 Literatura Infantil/3 cr. hrs./3 periods/3 lec.

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 Communication Skills for Children/3 cr. hrs./3 periods/3 lec.

The study of the role of language and literature in early childhood education with supervised student experience with material development and existing programs.

ECE 111 Techniques for the Special Child/3 cr. hrs./3 periods/3 lec.

Techniques, procedures and trends in special education as they relate to the following areas of exceptionality: visually impaired, auditorially impaired, mentally impaired, physically impaired, emotionally disturbed, speech impaired and learning disabled.

ECE 112 Music/Art for Children/3 cr. hrs./3 periods/3 lec.

The presentation of materials, activities and procedures for facilitating the development of music and art activities for children.

ECE 112 Música Para el Niño/3 cr. hrs./3 periods/3 lec.

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/3 lec.

Discussion of factors contributing to healthy parent-child relationships with emphasis upon problem-solving techniques.

ECE 115 Development of Classroom Tools

3 cr. hrs./3 periods (2 lec., 1 lab)

Guided acquisition and development of classroom competencies such as health and safety practices, assessment instruments, clerical and audio-visual materials.

ECE 116 Understanding Children/3 cr. hrs./3 periods/3 lec.

The study of children, infancy through early adolescence, by student execution of projects with children.

ECE 117 Child Growth and Development/3 cr. hrs./3 periods/3 lec.

A study of the growth, development and acculturation of the child from conception to adolescence.

ECE 118 Introduction to Education/3 cr. hrs./3 periods/3 lec.

Classroom presentation of educational theories and philosophies with supervised field work to provide student exposure to varied educational settings.

ECE 120 Supervision and Administration/3 cr. hrs./3 periods/3 lec.

A study of all administrative responsibilities and duties of management and supervision within all areas of Early Childhood Education.

ECE 124 Math/Sciences for Children/3 cr. hrs./3 periods/3 lec.

The study of concepts, methods and materials used in teaching mathematics and science to children, including supervised student experience with materials development and existing programs.

ECE 126 Teaching Techniques/3 cr. hrs./3 periods/3 lec.

Techniques have been identified which facilitate optimal environments for children. Practice is provided for student application of these techniques.

ECE 128 Child Care Programs I /3 cr. hrs./3 periods/3 lec.

Competencies required by child care personnel have been identified and alternative routes to their acquisition and development are offered.

ECE 130 Child Care Programs II /3 cr. hrs./3 periods/3 lec.

Required competencies in day care such as in infant care, toddler care, and school-age care have been identified and student acquisition and development is encouraged through classroom presentation and supervised experiences.

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.

EARTH SCIENCES**ESC 060 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 060.)

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. A physical, laboratory science.

ESC 102 Physical Geography: Oceanography and Land Forms

4 cr. hrs./6 periods (3 lec., 3 lab)

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. A physical, laboratory science.

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. A social science.

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./5 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; rocks 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 209 Mineralogy and Introduction to Petrology**4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: ESC 120.

This course deals with the relationships between crystal chemistry, atomic structure and the properties of minerals, and teaches students how to use these relationships to make identifications. The students will also learn fundamental principles for the study of igneous, sedimentary and metamorphic rocks.

ECONOMICS**ECO 100 Introduction to Microeconomics/3 cr. hrs./3 periods/3 lec.**

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/3 lec.

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/3 lec.**

□Prerequisite: ECO 100 or 101.

Supervised independent study of economic topics determined by student interest.

EDUCATION**EDU 100 Principles of Bilingual Education/3 cr. hrs./3 periods/3 lec.**

The philosophy, history, rationale, legislation and models of bilingual education.

EDU 100 Principios de la Educación Bilingüe**3 cr. hrs./3 periods/3 lec.**

Same as above, offered in Spanish.

EDU 107 Arte para el Niño/3 cr. hrs./3 periods/3 lec.

Este curso imparte técnicas de cómo enseñar a los niños proyectos de artes y artesanía usando materias que se encuentran comúnmente en casa. Se incluyen artes culturales mexicanas que están dentro de las capacidades de niños de escuela primaria.

EDU 110 Social Sciences through Literature**3 cr. hrs./3 periods/3 lec.**

This course is designed to teach the social sciences through literature. The different social studies areas will be covered and how these can be utilized in the elementary school as part of the curriculum.

EDU 110 Ciencias Sociales por Medio de la Literatura**3 cr. hrs./3 periods/3 lec.**

Un curso diseñado para enseñar las ciencias sociales usando como base la literatura. También se exploran las diferentes ramas de las ciencias sociales y cómo se pueden utilizar en la escuela primaria como parte del currículum.

ELECTRONICS

ETR 001 Introduction to Electronics/4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: MTH 070 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 050 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 051 CB Radio for Operators/2 cr. hrs./3 periods (1 lec., 2 lab)

Course will cover the development of CB radio, regulations, parts of the system, installation, maximizing performance, courtesy and operation hints.

ETR 052 Shop and Bench Wiring/2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: MTH 070 or equivalent.

A course in basic wiring theory and techniques which stresses safety and the skills of quality workmanship.

ETR 053 Small Appliance Repair/4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: MTH 070 or equivalent.

Basic electrical theory and skills necessary for the repair of small appliances commonly found within the household.

ETR 100 Fundamentals of Electronics

6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisite: ETR 001 or equivalent and MTH 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 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 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 120 Electronics Measures & Construction

2 cr. hrs./3 periods (1 lec., 2 lab)

Basic skills required to work on electronics equipment. Course includes techniques of soldering and desoldering, wire stripping, wire wrapping, construction of chassis, and use of tools. The oscilloscope is studied with extensive laboratory experience.

ETR 140 Television Repair I (Black and White)

6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisite: ETR 100 and MTH 115 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 and ETR 105.

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 160 CB Radio Repair I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ETR 100 or active electronic technician.

Recommend co-requisite ETR-290. A course designed to teach the theory of the basic and special circuits used in CB radio transceivers. Circuit theory and use of appropriate test equipment in a laboratory situation will be included.

ETR 230 Advanced Circuits and Systems

6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisite: ETR 105 and 110.

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.

Digital integration circuit applications, construction and maintenance; specific applications of TTL logic family in a multiplexed digital communications system.

ETR 251 Digital Devices II /6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisite: ETR 250 and ETR 253.

Operational amplifiers, A/D—D/A converters, modems, synchronous and asynchronous data communications, digital transmission lines, interface to AC circuits and control loops of process control applications.

ETR 253 Electronic Analysis/3 cr. hrs./3 periods/3 lec.

□Prerequisite: MTH 125 or equivalent.

Advanced mathematical concepts of linear algebra, trigonometry, and introduction to the techniques of calculus.

ETR 255 Digital Systems/6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisite: ETR 250 or concurrent enrollment.

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 256 Microprocessors/6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisite: ETR 255, ETR 250.

A study of an 8080 based microprocessor system with CMOS bussed logic, assembly language programming, use of cross assemblers, programming and erasure of EPROMS, interface circuits of microprocessor systems, DMA operations, and laboratory interface projects.

ETR 257 Computer Peripherals/4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: ETR 250 and ETR 255.

Operation and maintenance of computer peripherals including CRT terminals, floppy disks, hard disks, tape drives, and printers.

ETR 260 CB Radio Repair II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ETR 160 (or equivalent) and 2nd Class F.C.C. License or concurrent enrollment in ETR 290.

A course designed to teach electronic technicians/students to install, troubleshoot, and align CB radio transceivers. Circuit theory and use of appropriate general purpose and special purpose CB test equipment will be included.

ETR 274 Industrial Instrumentation (Hydraulics and Pneumatics) Systems/6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisite: MTH 125.

Principles of industrial fluid (Hydraulic and Pneumatic) control and instrumentation systems, pressure transducers, pressure control devices and pressure loop systems are studied.

**ETR 276 Industrial Electronics Systems
6 cr. hrs./8 periods (4 lec., 4 lab)**

□Prerequisite: ETR 274.

Elementary principles of industrial electronic control and instrumentation systems, electronic transducers, electronic control devices and electronic loop systems are studied.

ETR 290 Second Class F.C.C. License/4 cr. hrs./4 periods/4 lec.

□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 295 First Class F.C.C. License Preparation
3 cr. hrs./3 periods/3 lec.**

□Prerequisite: ETR 290 or equivalent.

Preparation for Federal Communications Commission first class radiotelephone license examination and review of circuit analysis.

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/3 lec.

□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/3 lec.

□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/3 lec.

□Prerequisite: ENG 210.

Material behavior, external forces on rigid and elastic bodies, stress, strain, load analysis and design factors.

ENG 240 Introduction to Digital Systems

3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ETR 100, CSC 140, MTH 180.

Digital coding of information, basic logic design, computer organization and programming.

ENG 245 Elementary Circuit Theory/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: PHY 216 or PHY 132 and concurrent enrollment in MTH 220. Steady State AC & DC circuit analysis, natural and forced response of first and second order systems, introduction to magnetic circuits and transformers.

ENG 250 Numerical Analysis for Engineers/3 cr. hrs./3 periods/3 lec.

□Prerequisite: CSC 140, ENG 210, MTH 215.

Applications of numerical methods and computer programming techniques to the solution of mathematical models of engineering systems.

ENGLISH AS A SECOND LANGUAGE

ESL 050 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 050 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 051 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 052 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 053 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 054 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 055 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 057 Composition I /3 cr. hrs./3 periods/3 lec.

This is a first semester English composition course at the freshman level designed to help the foreign and bilingual student with special needs.

ESL 058 Composition II /3 cr. hrs./3 periods/3 lec.

This is a second semester freshman composition course designed to help foreign and bilingual students with special needs.

ESL 060 American English Pronunciation
3 cr. hrs./3 periods/3 lec.

□Prerequisite: ESL 051.

An intermediate-advanced level course designed to develop fluency in American English pronunciation through the use of oral readings, conversational practice and laboratory exercises.

EXPLORATORY

EXP 051 Social Science Survey/4 cr. hrs./4 periods/4 lec.

Includes units from the social or behavioral sciences selected by the student.

EXP 060 People/1 cr. hr./1 period/1 lec.

Learning teams give members a chance to explore ideas and experiences in many different areas of study, work, cultural awareness and community development.

EXP 060 La Gente/1 cr. hr./1 periods/1 lec.

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 070 The World Energy Crisis/3 cr. hrs./3 periods/3 lec.

Exploration of the different facets of the energy "crisis", domestic & international, and develop an awareness of energy as a foundation of the United States and world economics.

EXP 087 Music Appreciation/3 cr. hrs./3 periods/3 lec.

This course is for non-music majors and surveys the formal development of musical ideas and their relationship to culture.

EXP 088 Political Involvement/3 cr. hrs./3 periods/3 lec.

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 089 Funding Projects/3 cr. hrs./3 periods/3 lec.

A practical course designed to assist agency and business employees in the preparation of proposals for federal funds and an analysis of the United States government interests and federal agencies. The student will be able to write elementary proposals for federal grants.

EXP 090 Picture Framing/2 cr. hrs./3 periods (1 lec., 2 lab)

A basic course in selecting molding, matting 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 099 How to Study/3 cr. hrs./3 periods/3 lec.

Course emphasizes skills necessary for effective reading, notetaking, remembering, report writing, listening, preparing for 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. hr./3 periods/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

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./5 periods (2 lec., 3 lab)

□Prerequisites: FDC 111, 121, 141.

Students design a pattern, select materials and construct an original garment.

FAST FOOD INDUSTRY**FFI 101 Restaurant Operations and Sanitation
3 cr. hrs./3 periods/3 lec.**

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 Restaurant Cash Register Operations and Inventory Control
3 cr. hrs./3 periods/3 lec.**

□Prerequisite: MTH 060 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 placed on the contribution by the employee to profitability.

FINANCE

FIN 101 Savings and Loan Business Operations 3 cr. hrs./3 periods/3 lec.

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/3 lec.

The fundamentals of bank functions are given in a descriptive fashion to help the beginning banker view his profession in a broad perspective.

FIN 104 Insurance of Savings Accounts/3 cr. hrs./3 periods/3 lec.

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 106 Teller Operations—Public Relations/3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/3 lec.

□Prerequisite: FIN 131.

Designed for the potential credit union 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/3 lec.

□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/3 lec.

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 regulations and taxation of companies.

FIN 135 Business Insurance/3 cr. hrs./3 periods/3 lec.

□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/3 lec.

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/3 lec.

□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. hr./3 periods/3 lec.

□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/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

The basis of public relations, both internal and external, is discussed.

FIN 207 Bank Letters and Reports/3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

□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/3 lec.

□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/3 lec.

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/3 lec.**

□Prerequisite: Lending officer experience.

This course is for the professional lending officer who wishes to improve his ability to critically analyze commercial loan application. The development of a formal written recommendation is stressed.

**FIN 219 Management of Commercial Bank Funds
3 cr. hrs./3 periods/3 lec.**

□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/3 lec.

□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/3 lec.

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/3 lec.

□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/3 lec.

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/3 lec.

□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/3 lec.

□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 Advanced Banking Operations/3 cr. hrs./3 periods/3 lec.

□Prerequisite: Two years' banking experience.

A study of bank operations at a level appropriate for students who possess an overview knowledge. Relationships among departments of 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/3 lec.

Students are prepared to perform the various critical functions of a commercial loan officer. Topical contents include 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 050 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 051 Introduction to Fire Science/3 cr. hrs./3 periods/3 lec.

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 052 Fundamentals of Fire Prevention/3 cr. hrs./3 periods/3 lec.

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 053 Hazardous Materials I /3 cr. hrs./3 periods/3 lec.

□Prerequisite: FSC 052, MTH 070 or consent of instructor.

A study of basic chemical concepts and their applications to the field of fire science.

FSC 054 Advanced Fire Prevention/3 cr. hrs./3 periods/3 lec.

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 055 Fire Investigation: Origin & Recognition of Arson
3 cr. hrs./3 periods/3 lec.

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 061 Hazardous Materials II /3 cr. hrs./3 periods/3 lec.

□Prerequisite: FSC 053 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 062 Hydraulics and Fire Suppression /3 cr. hrs./3 periods/3 lec.

□Prerequisite: MTH 070, PHY 101 recommended.

Physical laws affecting the movement of water through pipes, hydrants, pumps, hoses, etc.; functions and limitations of mechanical equipment to overcome these restrictions; effect of friction loss, head and pressure, water system; fire flow requirements and organization for fire suppression.

FSC 063 Fire Apparatus and Equipment/3 cr. hrs./3 periods/3 lec.

□Prerequisite: PHY 101 recommended.

Automotive apparatus; pumps, 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 064 Fire Protection Systems/3 cr. hrs./3 periods/3 lec.

Portable and fixed fire extinguishing equipment, automatic sprinkler and deluge systems; rate of temperature rise and smoke detecting devices and alarm systems.

FSC 065 Building Construction for Fire Protection
3 cr. hrs./3 periods/3 lec.

How building design affects fire travel; relation of fire load to propagation of flame; non-conforming structures, application of building codes.

FSC 066 Fire Suppression, Strategy and Tactics
3 cr. hrs./3 periods/3 lec.

Planning an attack to fit the problem; revising the plan of attack to meet changing situations.

FSC 067 Rescue Practices and First Aid/3 cr. hrs./3 periods/3 lec.
Basic Training in handling emergency situations.

FSC 068 Special Hazard Tactical Problems/3 cr. hrs./3 periods/3 lec.
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 071 Public Safety Laws/3 cr. hrs./3 periods/3 lec.

Laws relating to the public safety profession; legal duties and responsibilities of public safety employees.

FOOD SCIENCE AND NUTRITION

FSN 055 International Cuisine/2 cr. hrs./3 periods (1 lec., 2 lab)

A study of international foods through lectures to include a history of the foods studied; instructor's demonstrations and field trips.

FSN 56 Authentic Mexican Cookery/3 cr. hrs./4 periods (2 lec., 2 lab)

Students are taught methods of utilizing home and commercial cooking facilities, and resources. Food preparation, timing, selection of ingredients, substitution of ingredients in Mexican cooking is taught. Students also learn an appreciation for the cultural aspects of Mexican people through the art of cooking.

FSN 113 Food Study/3 cr. hrs./5 periods (2 lec., 3 lab)

The study of the structural composition and the preparation of foods with the use of scientific methods.

FSN 114 Nutrition/3 cr. hrs./3 periods/3 lec.

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/3 lec.

□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 050 Conversational French I /3 cr. hrs./3 periods/3 lec.

Practice in speaking French emphasizing current usage and ease of expressing everyday basic situations. For beginners and non-native speakers only.

FRE 051 Conversational French II /3 cr. hrs./3 periods/3 lec.

□Prerequisite: FRE 50 or consent of instructor.

A continuation of conversational French I. Emphasis will be on current usage and ease of expressing everyday basic situations and broadening the audio-aural skills. For beginners and non-native speakers only.

FRE 110-111 Elementary French I, II /4-4 cr. hrs./4 periods/4 lec.

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/4 lec.

□Prerequisite: FRE 110-111.

A review of basic French skills supplemented by regular assignment of compositions in French and a variety of reading. As in the introductory course, only French is used.

GENERAL BUSINESS

GEB 040 Supervisor Techniques I /1 cr. hr./1 period/1 lec.

Managerial functions, the supervisory role, leadership styles, as they are related to Civil Service Regulations. This course prepared for in-service training program for City of Tucson.

GEB 041 Supervisor Techniques II /1 cr. hr./1 period/1 lec.

Students study; self perceptions, career goals, interpersonal relationships, problem solving and time management as they relate to Civil Servants. This course was prepared for in-service training program for City of Tucson.

GEB 042 Supervisory Techniques III /1 cr. hr./1 period/1 lec.

Students study; verbal and non-verbal communication, attitudes, motivation, group dynamics, and human relationships as they relate to Civil Servants. Course prepared for in-service training program for City of Tucson.

GEB 043 Supervisor Techniques IV /1 cr. hr./1 period/1 lec.

Students study; employees behavior, causes of misbehavior, grievances, ARS Right to Work Code, and unionism as they relate to Civil Servants. This course prepared for in-service training program at request of City of Tucson.

GEB 055 Hospitality Information Processing/3 cr. hrs./3 periods/3 lec.

The principles of communication, oral and written, as applied to hotel-motel management.

GEB 060 Planning Your Retirement/3 cr. hrs./3 periods/3 lec.

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 065 Practical Law/3 cr. hrs./3 periods/3 lec.

Students are taught an overview of basic legal concepts and laws as they relate to rights, responsibilities, and liabilities of every citizen.

GEB 080 Supervision for Air Force Personnel I /1 cr. hr./1 period/1 lec.

Basic techniques for Air Force supervision. Includes supervisor as a listener, techniques of non-verbal communication, understanding behavior of supervisors, value systems, interpersonal relationships, and group behavior. This course prepared for in-service training of Air Force personnel.

GEB 081 Supervision for Air Force Personnel II 1 cr. hr./1 period/1 lec.

Basic techniques for Air Force supervision. Includes intercultural relationships, advising and counseling, techniques of leadership, communicating with others, creative problem solving and organizational development. This course prepared for in-service training of Air Force personnel.

GEB 082 Supervision for Air Force Personnel III 1 cr. hr./1 period/1 lec.

Basic techniques of Air Force supervision. Includes the management process, supervisor's job, finding and meeting training needs, job enrichment, labor relations, the supervisor's rights and obligations, discipline and the supervisor, performance standards, and career development.

GEB 084 Public Relations/3 cr. hrs./3 periods/3 lec.

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 086 Tax Problems of the Independent Businessman 3 cr. hrs./3 periods/3 lec.

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 096 Applied Accounting/3 cr. hrs./3 periods/3 lec.

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 097 Television Advertising/3 cr. hrs./3 periods/3 lec.

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 099 The Stock Market/3 cr. hrs./3 periods/3 lec.

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/3 cr. hrs./3 periods/3 lec.

Specialized classroom and practical experiences concerned with the practices and techniques of fire fighting. 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./3 periods/3 lec.

□Prerequisite: GTC 1.

Specialized classroom and practical experiences concerned with the practices and techniques of fire fighting. 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 accident injuries.

GTC 10 Basic Electricity/3 cr. hrs./4 periods (2 lec., 2 lab)

Introduction to electrical safety, electrical principles, DC currents, AC wiring systems and electrical troubleshooting.

GTC 16 Electronics Assembly: Wire Bond

3 cr. hrs./4 periods (2 lec., 2 lab)

This course is designed to develop student's skills in the Wire Bond task of the electronic component assembly process.

GTC 17 Electronics Assembly: Die Attach

3 cr. hrs./4 periods (2 lec., 2 lab)

This course is designed to develop student's skills in the die attach task of the electronic component process.

GTC 18 Micro-Electronic Assembly: Wire Bond and Die Attach

4 cr. hrs./5 periods (3 lec., 2 lab)

This course is designed to develop the student's skills in the wire bond and die attach tasks of the electronic components process.

GTC 20 Small Engine Repair/3 cr. hrs./4 periods (2 lec., 2 lab)

Classroom and shop experience concerned with maintaining and repairing a variety of small engines used on portable power equipment, e.g., lawnmowers, outboard motors, chain saws, and rotary tillers. Instruction includes principles of internal combustion engine operations, reading technical manuals, and customer relations.

GTC 60 Building Materials/3 cr. hrs./3 periods/3 lec.

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 Building and Materials Cost Estimating

3 cr. hrs./3 periods/3 lec.

□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/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

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 84 Livestock Law and Investigative Procedures
3 cr. hrs./3 periods/3 lec.

A special interest course in Arizona Livestock Law and regulation as applied in the field to living and processed farm or ranch animals including prevention of and inspection of disease, livestock sanitary board activities, applicable law enforcement methods and investigation of livestock legal problems.

GTC 85 Aviation Ground School—Private/3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

Problems in design, elementary principles of botany, environmental considerations and commonly used materials with special emphasis on landscaping the 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 marking and selecting fabrics.

GTC 97 Woodshop II /3 cr. hrs./5 periods (2 lec., 3 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/3 lec.

Primarily for persons interested in breeding small animals. Emphasized are the practical applications of genetics principles. This is a general interest course.

GTC 99 Blueprint Reading/3 cr. hrs./3 periods/3 lec.

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/4 lec.

□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/4 lec.

□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.

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.

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/3 lec.**

□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.

HEALTH CARE

HCA 099 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/3 lec.

□Prerequisite: Consent of Instructor or Allied Health Advisor.

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 100A Assessment and Identification of Practical Nurse Educational Needs/1 cr. hr./1 period/1 lec./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./2 periods (.5 lec., 1.5 lab)/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 musculoskeletal 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./2 periods (.5 lec., 1.5 lab) 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./2 periods (.5 lec., 1.5 lab) 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/3 lec.

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 112 Drugs and Nursing Implications/3 cr. hrs./3 periods/3 lec.

□Prerequisite: Consent of instructor.

Provides practical knowledge of drug classifications, a review of physiology and pathophysiology as a basis for therapeutic use of drugs and implications for nursing.

HCE 114 Beginning Physical Assessment/1 cr. hr./1 period/1 lec.

□Prerequisite: LPN's and RN's and students currently enrolled in a nursing program.

Covers basic interviewing skills and assessment of the head, chest, abdomen, integumentary, musculo-skeletal and nervous systems. This course is not intended to cover critical care nursing.

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 review of team leadership, pediatric, maternity and psychiatric nursing.

HCE 131 Operating Room Specialty

7 cr. hrs./15 periods (3 lec., 12 lab)

□Prerequisite: Registered Nurse

Designed to provide the necessary knowledge and skills for the registered nurse who is interested in becoming an operating room specialist. Curriculum is based on the ADRN educational guidelines providing lectures, skills practice and clinical application.

HCE 140 Medical Law and Ethics/3 cr. hrs./3 periods/3 lec.

This course includes requirements for licensure, medical ethics and etiquette, medical professional liability, legal relationships including legal forms, letters, and contracts.

HEALTH EDUCATION

HED 136 Introduction to Health Science/3 cr. hrs./3 periods/3 lec.

Students may select topics such as traumatic injuries, communicable diseases, nutrition, mental health, environmental health problems, or socio-medical problems including venereal diseases, drug use and abuse, alcoholism and abortion. The focus is on preventive health measures and public health services.

HED 137 Elementary School Health Education

3 cr. hrs./3 periods/3 lec.

□Prerequisite: HED 136 or consent of instructor.

Course assists the prospective teacher and health worker in developing learning activities which focus on health information as it pertains to the elementary age student.

HISTORY

HIS 076 Ghost Towns of the Southwest/3 cr. hrs./3 periods/3 lec.

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/3 lec.

Surveys the historic development of Western man, going through the prehistoric age, ancient Greece, Rome, early Middle Ages and Renaissance to the Twentieth Century.

HIS 105 Introduction to Chicano Studies I /3 cr. hrs./3 periods/3 lec.

The totality of Chicano life since 1848 and the struggle for self-determination.

HIS 113 Asian Civilizations I /3 cr. hrs./3 periods/3 lec.

An introductory survey of the origins and development of social, political, and cultural systems in China, Japan, and India. HIS 113 will cover the Traditional Period.

HIS 114 Asian Civilizations II /3 cr. hrs./3 periods/3 lec.

An introductory survey of the origins and development of social, political, and cultural systems in China, Japan, and India. HIS 114 will cover the Modern Period.

HIS 120 Introduction to the History and Peoples of the Southwest
3 cr. hrs./3 periods/3 lec.

What is the Southwest? This course is an interdisciplinary survey of the ecological, cultural, linguistic, ethnic, political, economic, aesthetic, and geographic realities of the peoples of this region.

HIS 122 Papago History and Culture/3 cr. hrs./3 periods/3 lec.

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 ANT 122)

HIS 124 History and Culture of the Yaqui People
3 cr. hrs./3 periods/3 lec.

A survey of the cultural heritage of the Yaqui people and the history of their struggles to protect Yaqui land and culture.

HIS 127 History and Culture of the Mexican-American in the Southwest/3 cr. hrs./3 periods/3 lec.

Who is the Mexican-American? What is his cultural heritage, and what has happened to it in the United States? (Same as ANT 127)

HIS 135 Pre-Columbian Art/3 cr. hrs./3 periods/3 lec.

A survey of the art of pre-Columbian Mexico. Students will learn to recognize major art styles and important sites. Course includes a survey of the art of the same time period in Southeastern and Southwestern America, Central America, and Peru. (Same as ANT 135 and ART 135)

HIS 136 Masks/3 cr. hrs./3 periods/3 lec.

A survey of traditional masks and sculpture of Africa, North and South America, Asia and Oceania. Major emphasis is on style, function and meaning of the masks of the Northwest Coast Indians and the indigenous peoples of Africa and the South Pacific. (Same as ANT 136 and ART 136)

HIS 141-142 History of the United States I, II
3-3 cr. hrs./3 periods/3 lec.

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/3 lec.

A broad look, through many units, at the American experience with an emphasis on the cultural aspects.

HIS 147 History of Arizona/3 cr. hrs./3 periods/3 lec.

A look at Arizona history as a part of the Arizona-Sonora 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/3 lec.

Origin and distribution of native populations of North America; and the historical development and interrelations of cultures. (Same as ANT 148)

HIS 150 Afro-American History and Peoples/3 cr. hrs./3 periods/3 lec.

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 ANT 150)

HIS 151 Roots—History of American Blacks/3 cr. hrs./3 periods/3 lec.

A history of American Blacks based on the book "Roots" by Alex Haley which traces an American family through 200 years of history.

HIS 152 Roots—The Next Generation/3 cr. hrs./3 periods/3 lec.

This course covers the history of American Blacks from the emancipation and life in Henning, Tennessee to the present.

HIS 160 History and Peoples of Latin America I
3 cr. hrs./3 periods/3 lec.

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 ANT 160)

HIS 161 History and Peoples of Latin America II
3 cr. hrs./3 periods/3 lec.

The emergence of nationalism and the struggles to achieve economic, social, cultural and political freedoms.

HIS 165-166 History of Mexico I, II /3-3 cr. hrs./3 periods/3 lec.

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 México I, II /3-3 cr. hrs./3 periods/3 lec.

Historia de México. Se estudia una panorámica de la época precolonial, colonial y contemporánea.

HIS 170 History and Peoples of Africa/3 cr. hrs./3 periods/3 lec.

A survey of the political and cultural history of Africa south of the Sahara. (Same as ANT 170)

HIS 180 Women in Western History/3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/1 lec.

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/1 lec.

Fact and folklore covers lost mines in the west, the myths and realities of western heroes, and transportation: the pony express.

HIS 190C Lifestyle of the American West/1 cr. hr./1 period/1 lec.

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/3 lec.

Made up of the following three modules.

HIS 195A Early Development of Technology/1 cr. hr./1 period/1 lec.

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/1 lec.

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/1 lec.**

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)

☐ Requisito: 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/3 lec.

☐ 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 227 Mexican-American Culture and Thought

3 cr. hrs./3 periods/3 lec.

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 227 Pensamiento y Cultura del México Americano

3 cr. hrs./3 periods/3 lec.

Historia del pensamiento del México Americano desde su pasado Nahuatl 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/3 lec.

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/3 lec.

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 SOC 127.)

HEC 128 Home Economics Profession/3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/3 lec.

Stress is on personal and family financial affairs including budget, saving, credit, installment buying, insurance, home ownership, investment and estate planning.

HOTEL-MOTEL MANAGEMENT

HMM 100 Introduction to Hotel-Motel Management 3 cr. hrs./3 periods/3 lec.

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 background 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/3 lec.

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/3 lec.

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/3 lec.

An introduction to the fundamentals of housekeeping management. Topics include employee 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/3 lec.

A complete survey of food and beverage operations from purchasing through service. Topics include menu planning; receiving, storing 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/3 lec.

Offered Spring Semesters

□Prerequisite: HMM 100 or consent of Hospitality Education Program Advisors.

Course provides an understanding of problem areas, basic management responsibilities and administration techniques. Topics cover sales promotion, guest relations, space utilization, accounting record keeping, operational controls, legal aspects, insurance, labor-management relations, and ethics.

HMM 111 Hospitality Management-Law 3 cr. hrs./3 periods/3 lec.

□Prerequisite: HMM 100 or consent of Hospitality Education Program Advisors.

Course includes study of contracts, torts, liability, and employee law. Hospitality industry related legislation and landmark cases are covered.

HMM 202 Advanced Hotel-Motel Accounting**3 cr. hrs./3 periods/3 lec.**

Offered Spring Semesters

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/3 lec.

Offered Fall Semesters

□Prerequisite: HMM 100 or consent of Hospitality Education Program Advisors.

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/3 lec.**

Offered Spring Semesters

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.

HOUSEKEEPING—EXECUTIVE**HSK 150 Executive Housekeeping I /3 cr. hrs./3 periods/3 lec.**

Offered Fall Semesters

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/3 lec.

Offered Spring Semesters

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.

HUMAN DEVELOPMENT EDUCATION**HDE 100 College Success Skills/1 cr. hr./1 period/1 lec.**

This course will give students an opportunity to learn problem solving skills and to develop educational goals. Students will be introduced to college life and college/community services available. Sections may be taught for special groups.

HDE 120 Personal Development/1 cr. hr./1 period/1 lec.

This course will help students discover and develop skills in identifying their personal strengths, values, and interests. Students will learn the skills needed to set personal goals. Skills useful in relating to others in groups on a one-to-one basis will be taught. Ways of improving self-confidence, problem solving, and decision making skills will also be explored. Sections may be taught for special groups.

HDE 130 Stress Management/2 cr. hrs./2 periods/2 lec.

This course gives students an opportunity to learn about and experience different methods of dealing with stress. Students will learn how these different methods can be used in daily life. Special attention will be given to the kinds of stress encountered in college life and how these can affect physical and emotional health and the ability to learn.

HDE 140 Assertiveness Training/2 cr. hrs./2 periods/2 lec.

This course gives students an opportunity to develop and strengthen their assertive skills. It will help students to gain confidence in themselves and to improve their ability to relate to others. Sections may be taught for special groups.

HDE 170 Dynamics of Leadership/2 cr. hrs./2 periods/2 lec.

This course is designed to provide supervised practical training for advanced students involved in leadership positions. This course gives these students a chance to demonstrate and strengthen the leadership skills developed in previous courses. May be repeated once for credit.

HDE 190 Career Exploration/2 cr. hrs./2 periods/2 lec.

This course will help the student in learning the skills necessary to make a career choice. Students will be helped to identify personal strengths, values, and motivations for making career decisions. Students will be shown work opportunities and how these fit with the job market of tomorrow.

HDE 190A Career Exploration: Self/1 cr. hr./1 period/1 lec.

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.

HDE 190B Career Exploration: Development/1 cr. hr./1 period/1 lec.

□Prerequisite: HDE 190A or instructor consent.

To aid the student in understanding the world of work in determining if the personal career decision is appropriate to the manpower needs of tomorrow.

HDE 195 Securing a Job/1 cr. hr./1 period/1 lec.

This course will help the student develop the skills and confidence necessary to get a job. Topics will include locating job openings, resume writing, and interview techniques. How to keep a job and to improve employment opportunities will also be studied.

HUMANITIES**HUM 060 Early Chinese Views of Social Change**

3 cr. hrs./3 periods/3 lec.

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/4 lec.

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/3 lec.

Study areas to be arranged with instructor.

HUM 131 Great Ideas, Mysticism, Mythology, Zen Meditation

3 cr. hrs./3 periods/3 lec.

Course is designed to respond to student interest in particular topics in humanities. Past studies have included Zen meditation, mythology and mysticism.

INSTITUTIONAL FOOD SERVICE**IFS 105 Institutional Record Keeping/2 cr. hrs./2 periods/2 lec.**

The basic principles of cash handling and cash control. Specific record keeping procedures of the various types of individual institutions involved in institutional food preparation will also be covered. The course is designed as a preparation for employment and upgrading of employees in institutional and commercial food services.

IFS 110 Basic Nutrition for Food Service Personnel

2 cr. hrs./2 periods/2 lec.

Develops an understanding of the various nutritional principles and how to apply these principles to meet nutrient needs of individuals throughout the entire life cycle. The course is designed as a preparation for employment and upgrading of employees in institutional and commercial food services.

IFS 115 Quantity Food Production/2 cr. hrs./2 periods/2 lec.

The basic principles of food preparation in a quantity food production environment. Included also are the uses of equipment, recipe standardization and methods for quality control. The course is designed as a preparation for employment and upgrading of employees in institutional and commercial food services.

IFS 120 Menu Planning I /2 cr. hrs./2 periods/2 lec.

The basic principles of institutional menu planning to include health care and a thorough analysis of both school and college feeding programs. The course is designed as a preparation for employment and upgrading of employees in institutional and commercial food services.

IFS 121 Menu Planning II /2 cr. hrs./2 periods/2 lec.

□Prerequisite: IFS 120.

Advanced techniques of menu planning to include operational considerations and merchandising methods unique to the institutional food preparation process. The course is designed as a preparation for employment and upgrading of employees in institutional and commercial food services.

IFS 125 Special Nutritional Needs/3 cr. hrs./3 periods/3 lec.

□Prerequisite: IFS 110.

A thorough study of how to modify the normal diet in order to meet special nutritional needs. The course is designed as a preparation for employment and upgrading of employees in institutional and commercial food services.

IFS 130 Nutritional Educational Techniques/2 cr. hrs./2 periods/2 lec.

□Prerequisite: IFS 110.

Develops skills in interviewing, counseling, and teaching techniques which are designed to relate specific nutrition information to varied audiences.

The course is designed as a preparation for employment and upgrading of employees in institutional and commercial food services.

**IFS 140 Techniques for Food Service Employees Training
2 cr. hrs./2 periods/2 lec.**

□Prerequisite: MAN 110.

Provides practical guidelines for establishing, conducting, and evaluating institutional food service employee training; and evaluating performance. The course is designed as preparation for employment and upgrading of employees in institutional and commercial food services.

IFS 150 Food Analysis/2 cr. hrs./2 periods/2 lec.

Promotes quality food production in an institutional setting through an understanding of the components and changes that occur during food processing. The course is designed as preparation for employment and upgrading of employees in institutional and commercial food services.

IFS 160 Food Purchasing/2 cr. hrs./2 periods/2 lec.

Develops an understanding of the role of food specifications and the methods of product evaluation in institutional food purchasing. The course is designed as preparation for employment and upgrading of employees in institutional and commercial food services.

IFS 170 Food Production Management/2 cr. hrs./2 periods/2 lec.

Develops management techniques appropriate to an institutional food service environment. The course is designed as a preparation for employment and upgrading of employees in institutional and commercial food services.

JOURNALISM

JRN 057 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/3 lec.

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 for 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 advanced 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/1 lec.

Basic news and feature story structure, leads, copy editing, interviewing, headline writing and proofreading.

JRN 161 Advanced News Writing/1 cr. hr./1 period/1 lec.

□Prerequisite: JRN 160.

Special types of stories, layout, photo-editing.

JRN 162 Newspaper Editing/1 cr. hr./1 period/1 lec.

□Prerequisite: JRN 161.

News sources, assignments, scheduling, editorial writing and management.

JRN 163 Basic Photojournalism/1 cr. hr./1 period/1 lec.

News value, pictorial quality, handling assignments and the picture story.

JRN 164 Newspaper Graphics/1 cr. hr./1 period/1 lec.

Basic art work, typography and photo techniques.

JRN 165 Newspaper Business Procedures/1 cr. hr./1 period/1 lec.

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 newsroom settings, editing and proofreading copy for publication and page layout, typography and design.

JRN 220 Broadcast Journalism/3 cr. hrs./3 periods/3 lec.

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 understand better 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.

LIBRARY TECHNOLOGY

LMT 050 Basic Reference/3 cr. hrs./3 periods/3 lec.

An introduction to the basic library resources: catalogs, bibliographies, indexes and reference materials. Also an introduction to periodicals and microforms.

LMT 052 Library Public Services/3 cr. hrs./3 periods/3 lec.

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 053 Library Technical Services I /3 cr. hrs./3 periods/3 lec.

Covers verification and ordering procedures for monographic, serial, and audio-visual materials; acquisitions records maintenance; and bindery preparation procedures and records.

LMT 054 Library Technical Services II /3 cr. hrs./3 periods/3 lec.

□Prerequisite: LMT 053.

Covers monographic, serial and non-book cataloging and classification for technicians; end processing; records maintenance; simple book repair; binding records and procedures.

LMT 055 Indexing and Abstracts/3 cr. hrs./3 periods/3 lec.

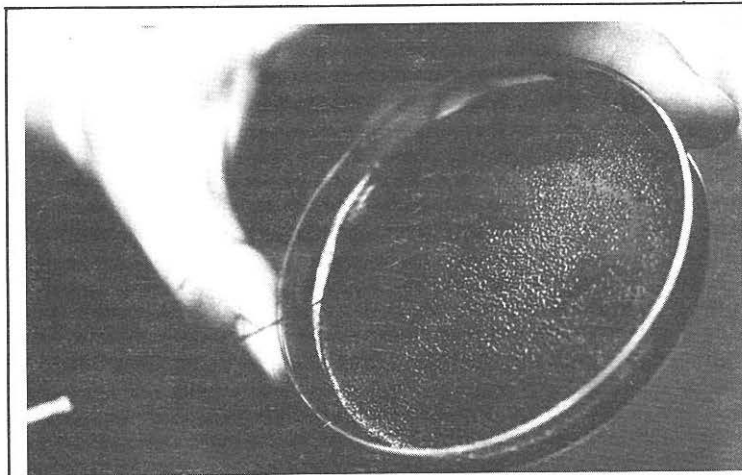
□Prerequisite: LMT 050 or LMT 052.

Introduces student to organization, construction, and maintenance of various commercial and locally produced library files. Includes overview of indexing and abstracting concepts, filing methods, and library-related automation. Students will learn to construct public service library files and to perform rudimentary computer-aided literature searches.

LMT 056 Library Internship/3 cr. hrs./16 periods (1 lec., 15 lab)

□Prerequisite: LMT 050, 052, 053, 054.

Provides an unpaid, supervised internship for students in a library situation for a minimum of 16 hours per week. Semester course objectives covering major library functions are set cooperatively by program advisor, student, and site supervisor. Practical application of library skills.



LIFE SCIENCES

LSC 022 Meet Your Arizona Desert/1 cr. hr./1 period/1 lec.

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 090 Range and Livestock Management/3 cr. hrs./3 periods/3 lec.

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 099 Anatomy and Physiology Review/1-3 cr. hr./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. Emphasis is on cell structure and function, genetics, the diversity of living organisms and plant structure and function. Either the LSC 102 and 103 sequence or the LSC 103 and 104 sequence can be taken to satisfy the liberal arts requirements of 8 hours of lab science.

LSC 104 General Biology II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Not for biology or pre-med majors.

This course continues a survey of the living world. Emphasis is on human structure and function, evolution and ecology. LSC 103 is not required as a prerequisite for LSC 104. Students who need only one semester of laboratory science should enroll in this course.

LSC 106 Survey of Human Diseases/4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: LSC 102 or equivalent.

A study of disease processes and their effects on the systems of the human body. Designed for students in the health occupation programs, but is also open to students who wish to take a lab-science course.

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 ESC 115.)

LSC 117 Communicable Diseases/3 cr. hrs./3 periods/3 lec.

Designed for students in health occupations and open to others interested in the causes and control of infectious and communicable diseases.

LSC 120 Human Anatomy and Physiology I 4 cr. hrs./6 periods (3 lec., 3 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)

□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/3 lec.

□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/3 lec.

□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/3 lec.**

□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."

LITERATURE

LIT 080 Papago Literature Workshop/3 cr. hrs./3 periods/3 lec.

□Prerequisite: Some knowledge of Papago or concurrent enrollment in PGO 050.

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 090A Shakespeare in Performance/3 cr. hrs./3 periods/3 lec.

This course introduces Shakespeare as a dramatist by presenting six of his plays in performance.

LIT 130 Afro-American Literature/3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/3 lec.

□Prerequisite: WRT 101 and 102 for transfer credit.

LIT 162 options: Science Fiction, Women, Mystery Fiction, Modern Drama. 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, and mystery fiction. Emphasis is on works of high literary merit.

LIT 166 Themes in American Literature/3 cr. hrs./3 periods/3 lec.

□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/3 lec.

□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.

LIT 261 Introduction to Literature I /3 cr. hrs./3 periods/3 lec.

□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.

LIT 265 Major American Authors/3 cr. hrs./3 periods/3 lec.

□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.

LIT 270 Survey of English Literature I /3 cr. hrs./3 periods/3 lec.

□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.

LIT 271 Survey of English Literature II /3 cr. hrs./3 periods/3 lec.

□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.

LIT 272 Major British Writers/3 cr. hrs./3 periods/3 lec.

□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.

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/3 lec.

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 drawing for numerically controlled machines.

MAC 230 Quality Control/3 cr. hrs./3 periods/3 lec.

□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/3 lec.

□Prerequisite: Background and experience in Quality Control Engineering. A refresher course in preparing for the Quality Control Engineer certification offered through the American Society for Quality Control.

MAC 240 Manufacturing Processes I /3 cr. hrs./3 periods/3 lec.

□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/3 lec.

□Prerequisite: MAC 240.

A background in casting and foundry practices. The student becomes familiar with the production of simple molds, care 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/3 lec.

□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.

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.

MANAGEMENT

MAN 110 Human Relations in Business and Industry 3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

□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/3 lec.

□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/3 lec.

□Prerequisite: BUS 100 and any MAN course.

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.

MARKETING

MKT 111 Marketing/3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

□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/3 lec.

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.

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 finance problems.

MKT 141 Consumer Behavior/3 cr. hrs./3 periods/3 lec.

A discussion and explanation of individuals deciding whether, what, when, where, how and from whom to purchase goods and services.

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 060 will not receive credit for MTH 060 or any of its components—without permission of the mathematics area.)

MTH 060 Introductory Mathematics/3 cr. hrs./3 periods/3 lec.

Mathematics 060A through 060C collectively comprise MTH 060.

MTH 060A Introductory Mathematics—Whole Numbers (Module I) 1 cr. hr./1 period/1 lec.

Topics include operations with whole numbers, place value and order of operations.

MTH 060B Introductory Mathematics—Fractions and Decimals (Module II)/1 cr. hr./1 period/1 lec.

□Prerequisite: MTH 060A or concurrent enrollment.

Course covers operations with common and decimal fractions, powers of ten and scientific notation.

MTH 060C Introductory Mathematics—Percent, Ratio and Measurement (Module III)/1 cr. hr./1 period/1 lec.

□Prerequisite: MTH 060B or concurrent enrollment.

Topics include percent, ratio and proportion, measures, metric system and applications.

MTH 065 Health Careers Mathematics/3 cr. hrs./3 periods/3 lec.

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 070 Algebra I /3 cr. hrs./3 periods/3 lec.

□Prerequisite: MTH 060 or equivalent.

Mathematics 070A through 070C collectively comprise MTH 070.

MTH 070A Algebra I—Linear Equations and Graphs (Module I) 1 cr. hr./1 period/1 lec.

□Prerequisite: MTH 060 or equivalent or concurrent enrollment in MTH 060C.

Topics include signed numbers, order of operations, inverse operations, linear equations and straight line graphs.

MTH 070B Algebra I—Binomials and Quadratics (Module II) 1 cr. hr./1 period/1 lec.

□Prerequisite: MTH 070A or concurrent enrollment.

Included in the course are operations with first and second degree polynomials, factoring, quadratic equations and their graphs.

MTH 070C Algebra I—Algebraic Expressions and Fractions (Module III)/1 cr. hr./1 period/1 lec.

□Prerequisite: MTH 070B or concurrent enrollment.

Included in the course are algebraic fractions, fractional equations and integral exponents.

MTH 090 Elementary Geometry/3 cr. hrs./3 periods/3 lec.

□Prerequisite: MTH 070 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/3 lec.

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/1 lec.

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/1 lec.

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/3 cr. hrs./3 periods/3 lec.

□Prerequisite: MTH 060 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/1 lec.

□Prerequisite: MTH 060 or equivalent or concurrent enrollment in MTH 060C.

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/1 lec.

□Prerequisite: MTH 110A or concurrent enrollment.

Topics include basic algebra operations, linear equations, and factoring.

MTH 110C Technical Mathematics I: Algebra, Part II
1 cr. hr./1 period/1 lec.

□Prerequisite: MTH 110B or concurrent enrollment.

Topics include algebraic fractions, graphs of equations and systems of linear equations.

MTH 115 Electronics Mathematics I /3 cr. hrs./3 periods/3 lec.

Basic algebra, electronic calculator, slide rule, simultaneous equations, Kirchhoff's law, trigonometry and AC circuit analysis.

MTH 120 Technical Mathematics II /3 cr. hrs./3 periods/3 lec.

□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/1 lec.

□Prerequisite: MTH 110 or equivalent or concurrent enrollment in MTH 060C.

Topics include exponents, scientific notation, roots and radicals.

MTH 120B Technical Mathematics II: Quadratic Equations and Logarithms/1 cr. hr./1 period/1 lec.

□Prerequisite: MTH 120A or concurrent enrollment.

Topics include quadratic equations and logarithms.

MTH 120C Technical Mathematics II: Basic Trigonometric Functions
1 cr. hr./1 period/1 lec.

□Prerequisite: MTH 120B or concurrent enrollment.

Topics include trigonometric functions, graphs, vectors, and solutions of right and oblique triangle problems.

MTH 125 Electronics Mathematics II /3 cr. hrs./3 periods/3 lec.

□Prerequisite: MTH 115.

Computer number systems, Boolean algebra, advanced AC circuit analysis, logarithms and decibels.

MTH 130 Algebra II /3 cr. hrs./3 periods/3 lec.

□Prerequisite: MTH 070 or equivalent.

Mathematics 130A, 130B, and 130C collectively comprise MTH 130.

MTH 130A Algebra II—Polynomials (Module I)/1 cr. hr./1 period/1 lec.

□Prerequisite: MTH 070 or equivalent or concurrent enrollment in MTH 070C.

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./1 period/1 lec.

□Prerequisite: MTH 130A or concurrent enrollment.

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./1 period/1 lec.

□Prerequisite: MTH 130B or concurrent enrollment.

This module includes quadratic equations, complex numbers, variation and logarithms.

MTH 135 Survey of Math Thought/4 cr. hrs./4 periods/4 lec.

□Prerequisite: MTH 060C 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/3 lec.

□Prerequisite: MTH 070 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/3 lec.

□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/3 lec.

□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/1 lec.**

□Prerequisite: MTH 130 or equivalent or concurrent enrollment in MTH 130C.

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/1 lec.

□Prerequisite: MTH 150A or concurrent enrollment.

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/1 lec.

□Prerequisite: MTH 150B or concurrent enrollment.

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/3 lec.

□Prerequisite: MTH 150 or concurrent enrollment.

Angular measure, trigonometric functions, graphs, identities, equations, inverse trigonometric functions, and solutions of right and oblique triangles.

MTH 155A Trigonometry/1 cr. hr./1 period/1 lec.

□Prerequisite: MTH 150 or concurrent enrollment.

Topics include functions, tests for symmetry, graphical methods involving the use of transformations, definitions of the six circular functions and their graphs.

MTH 155B Trigonometry: Angles, Identities, Inverse Functions & Equations/1 cr. hr./1 period/1 lec.

□Prerequisite: MTH 155A or concurrent enrollment.

Topics include trig functions of angles, proving identities, inverse trig functions and trig equations.

MTH 155C Trigonometry: Applications, Vectors, Polar Coordinates & Complex Numbers/1 cr. hr./1 period/1 lec.

□Prerequisite: MTH 155B or concurrent enrollment.

Topics include solving triangles, vectors, polar coordinates and complex numbers.

MTH 160 College Algebra and Trigonometry/5 cr. hrs./5 periods/5 lec.

□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/3 lec.

□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/3 lec.

□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/3 lec.

□Prerequisite: MTH 150 and 155 or MTH 160.

Straight lines, conic sections, limits, continuity, differentiation and integration of algebraic functions, and applications of derivatives.

MTH 185 Analytic Geometry and Calculus II /3 cr. hrs./3 periods/3 lec.

□Prerequisite: MTH 180.

A continuation of MTH 180. Includes areas and volumes, differentiation and integration of trigonometric logarithmic and exponential functions, conic sections, translation and rotation of axes and methods of integration.

MTH 210 Introductory Statistics /3 cr. hrs./3 periods/3 lec.

□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/4 lec.**

□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 219 Differential Equations/3 cr. hrs./3 periods/3 lec.

□Prerequisite: MTH 215.

Differential equations of order one and degree one, linear equations, non-homogeneous equations, and series solutions.

MTH 220 Linear Algebra and Differential Equations

4 cr. hrs./4 periods/4 lec.

□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 050 Communigraphics I /3 cr. hrs./3 periods/3 lec.**

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 053 Cinematography I /3 cr. hrs./3 periods/3 lec.

Covered are the techniques of basic 8mm motion picture production; camera operation; techniques of animation application; film editing; and motion picture lab processes. The class is involved in the production and concept of two films.

MET 070 Equipment Repair and Maintenance 3 cr. hrs./3 periods/3 lec.

Electrical and mechanical repair and also maintenance of instructional media technology equipment including tape recorders, projectors, and mechanical graphic arts devices.

MET 081 Instructional Media Technology I /3 cr. hrs./3 periods/3 lec.

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 082 Instructional Media Technology II /3 cr. hrs./3 periods/3 lec.

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 084 Implications of Media Technology/3 cr. hrs./3 periods/3 lec.

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 090 Telecommunications—Television Production 3 cr. hrs./3 periods/3 lec.

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 091 Telecommunications—Television Workshop 4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: MTH 090.

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 092 Video Career Exploration

□Prerequisites: MET 090, MET 091, concurrent enrollment in MET 095 and consent of instructor.

Students survey their community for employment possibilities in telecommunications. Entry-level positions are examined and personal career-step projections are developed. Students are to analyze the organizational structures of media-related business and institutions with emphasis on how media information tools are utilized now, how they are likely to be used in the future, and what the implications are for employment.

MET 095 Video Production Internship

□Prerequisite: Concurrent enrollment in MET 092 is mandatory.

The course is focused around the minimum of a 5 hour weekly intern work experience in a video production site—both businesses and service agencies including schools, libraries, social service agencies and hospitals.

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 the 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./4 periods (1 lec., 3 lab)

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/2 lec.

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 041 Piano Class I—Non-Music Major

1 cr. hr./2 periods (1 lec., 1 lab)

Basic skills of piano in lab situation. Designed for the non-music major.

MUS 042 Piano Class II—Non-Music Major

1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 041.

Instruction in basic skills of piano playing. Designed for the non-music major.

MUS 043 Piano Class III—Non-Music Major

1 cr. hr./2 periods (1 lec., 1 lab)

Group piano for the non-music major.

MUS 044 Piano Class IV—Non-Music Major

1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 043.

Fourth semester group piano for the non-music major.

MUS 045 Applied Music—Private Instruction/2 cr. hrs./½ period/½ lec.

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-transferable.

Section 1—Brass

Section 2—Guitar

Section 3—Organ

Section 4—Percussion

Section 5—Piano

Section 6—Strings

Section 7—Voice

Section 8—Woodwinds

MUS 046 Applied Music—Private Instruction/2 cr. hrs./½ period/½ lec.

□Prerequisite: MUS 045.

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-transferable. (See MUS 045 for sections offered.)

MUS 047 Applied Music—Private Instruction/2 cr. hrs./½ period/½ lec.

□Prerequisite: MUS 046.

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-transferable. (See MUS 045 for sections offered.)

MUS 048 Applied Music—Private Instruction/2 cr. hrs./½ period/½ lec.

□Prerequisite: MUS 047.

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-transferable. (See MUS 045 for sections offered.)

MUS 052 Beginning Band/2 cr. hrs./3 periods (1 lec., 1 lab)

Beginning instruction and development of basic skills on most band instruments. Emphasis is on basic music literacy, tone production, rhythm, and technical manipulation of instruments. Practical training in band without specialization. Open to all students.

MUS 054 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 091 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 092 Guitar Class II /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 091 or consent of instructor.

Continuation of MUS 091 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/3 lec.

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. Non-transferable as music major credit.

MUS 120 Band/2 cr. hrs./5 periods (1 lec., 4 lab)

Participation in regular band rehearsals and performance 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. hrs./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 125 The Structure of Music I /3 cr. hrs./3 periods/3 lec.

A study of fundamental musical terminology, the basic building blocks of music, e.g., scales, intervals, keys, chords, notation, tonality, form, and part writing. First semester music major transfer course in music theory.

MUS 126 The Structure of Music II /3 cr. hrs./3 periods/3 lec.

□Prerequisite: MUS 125.

Advanced music theory, a study of the terminology of modal and contrapuntal music. Modal harmony, non-western music, analysis, and 18th century counterpoint. Required for music majors.

MUS 127 Aural Perception I /1 cr. hr./2 periods (1 lec., 1 lab)

Instruction with the use of tone syllables to develop the student's skill in sight singing and aural perception of simple, traditional musical structures. Required of music majors.

MUS 128 Aural Perception II /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 127.

Instruction with the use of tone syllables to develop the student's skill in sight singing and aural perception of modal and tonal musical structures, modulations, rhythms. Required of music majors.

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 (SATB)/1 cr. hrs./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—Music Majors/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 keyboard skills. For music majors.

**MUS 142 Piano Class II—Music Majors
1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: MUS 141.
A continuation of MUS 141.

**MUS 143 Piano Class III—Music Majors
1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: MUS 142.
Advanced piano instruction utilizing group and individual techniques in an electronic lab situation. Continued development of keyboard skills.

**MUS 144 Piano Class IV—Music Majors
1 cr. hr./2 periods (1 lec., 1 lab)**

□Prerequisite: MUS 143.
A continuation of MUS 143.

**MUS 145 Applied Music—Private Instruction
2 cr. hrs./½ period/½ lec.**

Course offers a private weekly lesson with an instructor and participation in student recitals and jury exams. (Required for music majors.)

Section 1—Brass
Section 2—Guitar
Section 3—Organ
Section 4—Percussion
Section 5—Piano
Section 6—Strings
Section 7—Voice
Section 8—Woodwinds

MUS 146 Applied Music—Private Instruction/2 cr. hrs./½ period/½ lec.

□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/3 lec.

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/3 lec.

□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/3 lec.

□Prerequisite: MUS 201.

A study of music literature with emphasis on structure, period and style. Literature includes the Rococo through the present day. This is required of all music majors. May be taken as a humanities option.

MUS 207 Music Composition/3 cr. hrs./3 periods/3 lec.

□Prerequisite: MUS 103.

Composition of music using new resources, techniques, and notational systems. Includes exposure to and analysis of new music.

MUS 211 Basic Conducting Techniques I /3 cr. hrs./3 periods/3 lec.

□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 225 The Structure of Music III /3 cr. hrs./3 periods/3 lec.

□Prerequisite: MUS 125.

A study of chromatic melody, harmony and associated rhythmic structures. Modulation, analysis, and composition based on 18th and 19th century models. Required for music majors.

**MUS 226 The Structure of Music IV
3 cr. hrs./3 periods/3 lec.**

□Prerequisite: MUS 125.

Advanced music theory, a study of 20th century musical structure, including atonality, serialism, polytonality, chord structure, polyrhythm, and microtones.

MUS 227 Aural Perception III /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 128.

Instruction with the use of tone syllables to develop the student's skill in sight singing and aural perception of chromatic tonal structures in a variety of contexts. Required of music majors.

MUS 228 Aural Perception IV /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 227.

Instruction with the use of tone syllables to develop the student's skill in sight singing and aural perception of 20th century musical structures in various contexts. Required of music majors.

MUS 247 Applied Music—Private Instruction/2 cr. hrs./½ period/½ lec.

□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/½ lec.

□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.)

**MUS 290A Independent Studies in Music
1 cr. hr./3 periods (1 lec., 2 lab)**

□Prerequisite: Instructor's approval.

The student must submit a program plan of research and/or in-depth study for approval by the supervising instructor. The assigned credit must be designated at the time of approval.

**MUS 290B Independent Studies in Music
1 cr. hr./3 periods (1 lec., 2 lab)**

□Prerequisite: Instructor's approval.

The student must submit a program plan of research and/or in-depth study for approval by the supervising instructor. The assigned credit must be designated at the time of approval.

MUS 290C Independent Studies in Music/1 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: Instructor's approval.

The student must submit a program plan of research and/or in-depth study for approval by the supervising instructor. The assigned credit must be designated at the time of approval.

NURSING

NRS 070 Practical Nursing I /8 cr. hrs./16 periods (4 lec., 12 lab)

□Prerequisite: Admission granted by the Allied Health Services Selection Committee.

A systematic approach to decision making provides a framework for learning the roles and responsibilities of the practical nurse. It is an introduction to comprehensive patient centered nursing utilizing an understanding of health, total needs, major health problems, and nursing processes. Basic knowledge and skills required to render quality nursing and to implement therapeutic techniques are integrated into the three components of the course: theory, skills, and supervised clinical practice.

NRS 072 Practical Nursing II /9 cr. hrs./19 periods (4 lec., 15 lab)

□Prerequisite: NRS 070.

Emphasis is on using the nursing process to assess problems and needs that frequently occur in pregnancy, infancy, childhood, adolescence and adulthood. Planning individualized patient care, growth and development nutrition, drug therapy, and cultural influence are integrated into the three components of the course: theory, skills and supervised clinical practice.

***NRS 170 A.D. Nursing I /8 cr. hrs./16 periods (4 lec., 12 lab)**

□Prerequisite: Chemistry 110 or equivalent. Completion of reading requirement.

Introduces students to the nursing process, wellness-illness continuum, man and his basic needs. Included is an introduction to roles and responsibilities of the registered nurse in relationship to the health team.

***NRS 172 A.D. Nursing II /9 cr. hrs./19 periods (4 lec., 15 lab)**

□Prerequisite: NRS 170.

Builds upon concepts introduced in Nursing 170 with continued emphasis on the care of the hospitalized adult and special emphasis on maternal-child health.

NRS 280 A.D. Nursing III /9 cr. hrs./19 periods (4 lec., 15 lab)

□Prerequisite: NRS 172.

Builds upon concepts in nursing skills presented in 170 and 172. Focuses on utilization of the nursing process in increasingly complex care of clients of all ages who have common and recurring medical-surgical problems.

NRS 282 A.D. Nursing IV /9 cr. hrs./19 periods (4 lec., 15 lab)

□Prerequisite: NRS 280.

Major emphasis on complex client care in a variety of hospital and community settings. Included in this course is an emphasis on medical-surgical nursing, mental-health nursing, principles of management, current nursing trends, and legal and ethical responsibilities of the nurse.

*Self-Paced Nursing courses are offered for NRS 170 and 172. Admission is determined by nursing program policy.

OFFICE EDUCATION

OED 051 Notehand/2 cr. hrs./2 periods/2 lec.

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 061 Stenoscrypt I /3 cr. hrs./4 periods (2 lec., 2 lab)

This course teaches the basic system of alphabetic shorthand. Basic theory, brief forms, phrasing, vocabulary, grammar, punctuation, letter styles, and transcription techniques are taught.

OED 062 Stenoscrypt II /3 cr. hrs./4 periods (2 lec., 2 lab)

This course teaches students the advance system of alphabetic shorthand. Theory, brief forms, phrasing, vocabulary, grammar, punctuation, letter styles, and transcription.

OED 071 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 081 Shorthand Refresher/3 cr. hrs./3 periods/3 lec.

A review of the principles of 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 091 Upgrading Office Skills/3 cr. hrs./3 periods/3 lec.

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 095 Taquigrafía I /3 cr. hrs./5 periods (3 lec., 2 lab)

Un curso de primer semestre de taquigrafía en español usando el método Gregg. El curso está diseñado para desarrollar las destrezas en tomar dictado sencillo y transcribirlo con énfasis en el español escrito.

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 151 recommended.

A first-semester course in shorthand using Gregg and Century 21 systems. 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 151 or concurrent enrollment.

A review of shorthand through dictation practice and emphasis on shorthand speed development and accuracy in typed transcription.

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 and Procedures/1 cr. hr./1.7 periods (1 lec., .7 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./1.7 periods (1 lec., .7 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./1.6 periods (1 lec., .6 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, commission, percentage, proration, interest and mark-up.

OED 131 Records Management/3 cr. hrs./3 periods/3 lec.

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 131A Records Management A/1 cr. hr./1 period/1 lec.

This module includes the indexing, coding, cross-referencing and alphabetizing of personal and business names.

OED 131B Records Management B/1 cr. hr./1 period/1 lec.

□Prerequisite: OED 131A 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 131C Records Management C/1 cr. hr./1 period/1 lec.

□Prerequisite: OED 131B or equivalent.

A study of filing procedures used in subject, numeric and geographic filing.

OED 141 Legal Terms/3 cr. hrs./3 periods/3 lec.

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 142 Legal Secretarial Procedures I /3 cr. hrs./3 periods/3 lec.

□Prerequisite: OED 211 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 151 Business English/3 cr. hrs./3 periods/3 lec.

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 161 Medical Office Procedures/3 cr. hrs./3 periods/3 lec.

□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 162 Medical Terms I /3 cr. hrs./3 periods/3 lec.

Course provides an understanding of terminology essential to the medical business office. Emphasis is on understanding and ease in using medical terms.

OED 181 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 201 Shorthand III /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: Two years of shorthand or 70 wpm; OED 151 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 202 Shorthand IV /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: OED 201 or equivalent; OED 151 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, proofreading, editing and other related topics. A standard of mailability is stressed.

OED 211 Typing III /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: Two years of typing or 40 wpm; OED 151 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 221 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 151 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 221 by taking OED 221A, B, and C, or OED 221 A, B, and D.

**OED 221A 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 151 recommended.

Introduction to word processing and survey of duplicating methods and equipment used in offices. Photocopy, spirit, stencil and offset processes are covered.

**OED 221B Word-Processing-Special Typewriters
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 151 recommended.

Includes work on dual-pitch, self-correcting, proportional-spacing and word processing typewriters.

**OED 221C 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 151 recommended.

Techniques and equipment for basic transcription. Includes development of punctuation, grammar, and spelling skills using general business correspondence.

**OED 221D 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 151 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 242 Legal Secretarial Procedures II /3 cr. hrs./3 periods/3 lec.

□Prerequisite: OED 142 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 251 Business Communications/3 cr. hrs./3 periods/3 lec.

□Prerequisite: OED 151.

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 sheets are covered.

**OED 252 Commercial and Technical Spanish
2 cr. hrs./2 periods/2 lec.**

□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 252 Español Comercial/2 cr. hrs./2 periods/2 lec.

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 262 Medical Terms II /3 cr. hrs./3 periods/3 lec.

□Prerequisite: OED 162, LSC 102, or consent of instructor.

Course provides a more concentrated study of terminology essential to the medical field. Emphasis is on the body systems, radiology and nuclear medicine, and pharmacology.

OED 263 Medical Transcription/3 cr. hrs./3 periods/3 lec.

□Prerequisite: OED 162 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 271 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.

OPHTHALMIC DISPENSING

ODT 051 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 of lenses refractive errors, frame construction, repair and laboratory organization.

ODT 052 Optical Orientation II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: ODT 051.

Introduction to frame measurements, reading prescriptions and frame adjusting, types of single vision and multi-focal lenses, frames and manufacturers.

ODT 053 Optical Laboratory/3 cr. hrs./7 periods (1 lec., 6 lab)

□Prerequisite: ODT 051.

Lens surfacing, layouts, base curves, thickness, lens blanks, hardening, lens edging and insertion.

ODT 054 Optical Dispensing I /6 cr. hrs./10 periods (4 lec., 6 lab)

□Prerequisite: ODT 051, 052, 053.

Facial measurements, adjusting, frame selection, vocational glasses, lens and frame design.

ODT 055 Contact Lenses I /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisite: ODT 051, 052, 053.

Basic information on the anatomy and physiology of the eye for contact lens fitting. Introduction to fitting procedures.

ODT 056 Ophthalmic Assistant/3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ODT 051, 052, 053.

Optical instrumentation, field charting, visual skills, tangent screen, taking case histories, office procedures, etc.

ODT 057 Contact Lenses II /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisite: ODT 055.

The theory and practice of contact lens fitting optics, corneal measurements, lens check-outs, adjusting, bifocal and toric contact lenses and patient control.

ODT 058 Optical Dispensing II /4 cr. hrs./4 periods/4 lec.

□Prerequisite: ODT 051, 052, 053, 054.

Cataract lenses, adjusting, styles, record keeping, problem prescriptions and optical dispensary organization.

ODT 059 Senior Seminar/2 cr. hrs./2 periods/2 lec.

□Prerequisite: ODT 051 through 056.

Ethics of the profession, complete review of all material for state board examination, state laws and program evaluation.

PAPAGO**PGO 050 Elementary Papago/4 cr. hrs./4 periods/4 lec.**

This is a conversation course with emphasis on listening and repetition. Designed for the non-Papago speaking students.

PGO 051 Papago for Native Speakers/4 cr. hrs./4 periods/4 lec.

□Prerequisite: Knowledge of Papago.

Class needs will be determined due to different speaking dialects.

PHILOSOPHY**PHI 101-102 Introduction to Philosophy I, II
3-3 cr. hrs./3 periods/3 lec.**

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/3 lec.

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/3 lec.**

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/3 lec.

An introduction to the philosophical study of religion. (Same as REL 140.)

PHI 145 Historical Philosophy/3 cr. hrs./3 periods/3 lec.

Course is designed to respond to student interest in the study of particular topics of philosophy. Past studies have included Plato, Hume, Aesthetics, and Philosophy of Feminism.

PHYSICAL EDUCATION**PED 001 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 002 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 005 Field Work I /1 cr. hr./1 period/1 lec.

Provides a cooperative educational experience involving students working with federal, state, county, municipal and private agencies under supervision.

PED 100 Bailes Folkloricos/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 complement to the folklore.

PED 110 Bailes Folkloricos Mexicanos I—Oaxaca
2 cr. hrs./3 periods (1 lec., 2 lab)

Introduction to the folkloric Mexican dance. This course covers the study of the regional dance of the state of Oaxaca in its different forms, the practice of danzas and dances of the region. The technical form of the zapateado is explored, its style, form and accentuation. The laboratory is on the body positions of the dance and its folkloric costuming, traditional choreographic design and inventive choreographic design.

PED 120 Facilities for Physical Education and Recreation
2 cr. hrs./2 periods/2 lec.

A survey of available facilities in Pima County. Students learn about size, space, site planning, design, construction materials and techniques, cost, competitive bids and other facility problems. Field trips are a large part of this course.

PED 122 Adaptive and Corrective Programs/3 cr. hrs./3 periods/3 lec.

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.

PED 125 Foundations of Athletic Training/2 cr. hrs./2 periods/2 lec.

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/3 lec.

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 general orientation of these fields.

PED 140 Track & Field/1 cr. hr./2 periods (1 lec., 1 lab)

PED 144 Folk & Square Dance/2 cr. hrs./2 periods/2 lec.

Introduction to folk & square dance for physical education majors & minors.

PED 145 Sports Officiating/2 cr. hrs./2 periods/2 lec.

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 REC 145)

PED 146 Designed Exercise/2 cr. hrs./3 periods (2 lec., 1 lab)

The student learns to design various exercise programs. The emphasis will be on learning how these exercise programs relate to various phases of the total Physical Education curriculum. Lab experience in personal fitness performance and testing will be included.

PED 147 Intramural Sports and Equipment/2 cr. hrs./2 periods/2 lec.

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/2 lec.

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./1 periods (1 lec., 1 lab)

PED 100 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. (Se permite repetir tres veces.)

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 190 Track & Field/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. hrs./2 periods (1 lec., 1 lab)****PED 285 Intermediate Tennis/1 cr. hr./2 periods (1 lec., 1 lab)**

Course is designed for students who have already completed PED 186, Beginning Tennis. Emphasis on refinement of basic tennis skills at an intermediate level. Running forehand drive, running backhand drive, volley placement, spin service, perfecting return of service, physical and mental stress, analysis of opponent's game will be introduced at this level.

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 070.

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 /5 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 /5 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, relatively and radioactivity, quantum physics.

POLITICAL SCIENCE**POL 050 Immigration Law and Practices/3 cr. hrs./3 periods/3 lec.**

The legal and political status of immigrants from Mexico, the process of immigration and counseling for the immigrant.

POL 050 Derecho, Conceptos y Proceso de Emigración**3 cr. hrs./3 periods/3 lec.**

Se estudiará el derecho de emigración a los Estados Unidos, sus procesos y ramificaciones legales.

POL 100 Introduction to Political Science/3 cr. hrs./3 periods/3 lec.

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/3 lec.**

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/3 lec.**

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/3 lec.

Historical background, organization and functions of the national, state and local governments based on the constitutions of the United States and Arizona. Satisfies the requirements for teacher certification.

POL 120 Introduction to Comparative Politics**3 cr. hrs./3 periods/3 lec.**

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/3 lec.**

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/3 lec.**

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/3 lec.

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.

POL 250 Political Science Internship/3 cr. hrs./15 periods/15 lab

This internship with the City of Tucson or other local governmental unit is designed to give the student practical experience in government. To qualify, students should have completed 6 credits of political science and Writing 101.

POSTAL SERVICE MANAGEMENT**PSM 100 Postal History and Organization/3 cr. hrs./3 periods/3 lec.**

Traces delivery of written communication and merchandise from earlier eras to present; compares private, corporate and governmental agencies responsible for mail service; and studies postal organization, philosophies, policies, procedures, rules and regulations.

PSM 120 Postal Service Labor-Management/3 cr. hrs./3 periods/3 lec.

Presents overview of laws and practices related to Postal Service Labor-Management, including development and current status of Labor Union; problems and issues; national and local agreements; bargaining units and associations; grievance and disciplining procedures; and National Labor Relations Board.

PSM 130 Postal Employee Services/3 cr. hrs./3 periods/3 lec.

Survey of personnel office services provided for postal employees; policies and practices for selection, placement, training, promotion, self-development, equal employment, insurance and retirement benefits, salary schedules, and awards, safety and health programs.

PSM 140 Mail Processing I /3 cr. hrs./3 periods/3 lec.

Covers mail classification and rates; service standards; postal terminology; mail processing functions; distribution systems; objectives and responsibilities; mail preparation operation; manual distribution; revenue protection; and bulk mail centers.

PSM 200 Postal Service Finance/3 cr. hrs./3 periods/3 lec.

Covers sources, receipt and control of postal revenue; procedures of Board of Governors and Postal Rate Commission; budgeting; financial accounting and reporting; timekeeping; travel regulations; Postmaster General's annual report; and Administrative Services.

PSM 240 Mail Processing II /3 cr. hrs./3 periods/3 lec.

□Prerequisite: PSM 140.

Survey of postal mechanization; machine distribution; human resources management; reporting systems and data analysis; operational planning; scheduling and staffing; budgeting; and functional coordination with customer services.

PSM 250 Postal Service Delivery and Collection
3 cr. hrs./3 periods/3 lec.

Provides functional knowledge of mail delivery and collection systems within U.S. Postal Service: duties, responsibilities and skills needed in carrier crafts; management of rural delivery service; Fair Labor Standards Act requirements. Emphasizes methods of improvement/standard operating procedures and route inspections and evaluations.

PSM 260 Postal Problems Analysis/3 cr. hrs./3 periods/3 lec.

Presents actual postal problems for analysis and solution using systematic approaches of problem identification, determination and analysis of dimensions, probability causes, adverse consequences, alternative solutions, specification and defense of best solution.

PSM 270 Postal Customer Services/3 cr. hrs./3 periods/3 lec.

Provides in-depth knowledge of all services for postal customers: customer relations, retailing postal products, non-postal services, duties of customer service representatives. Emphasizes means to achieve and manage a professional window service operation.

PROFESSIONAL DEVELOPMENT

PRD 050 The Arizona Community College/3 cr. hrs./3 periods/3 lec.

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 50 The Psychology of Death and Loss
3 cr. hrs./3 periods/3 lec.

Course emphasizes adjustment to death and loss. Current social and attitudinal considerations are reviewed.

PSY90 Psicología Chicana/3 cr. hrs./3 periods/3 lec.

Una introducción a los conceptos básicos de la psicología de los chicanos. Se le dará énfasis a las determinaciones e implicaciones de las diferencias en la psicología tradicional y chicana.

PSY 100 Introduction to Psychology I /3 cr. hrs./3 periods/3 lec.

Survey of psychology; growth of the individual, behavior disorders, introduction to social psychology, learning and history of the field.

PSY 100 Introducción a la Psicología I /3 cr. hrs./3 periods/3 lec.

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/3 lec.

Biological bases of behavior, sensation and perception, motivation, emotion and stress.

PSY 102 Introduction to Social Psychology/3 cr. hrs./3 periods/3 lec.

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/3 lec.

Psychological functioning and coping behaviors for normal personality development. Early adulthood is stressed.

PSY 104 Introduction to Behavior Modification
3 cr. hrs./3 periods/3 lec.

An introduction to the principles of behavior modification with emphasis on application in practical situations.

PSY 115 Human Sexuality/3 cr. hrs./3 periods/3 lec.

The human sexual experience throughout the life cycle viewed from sociological and psychological perspectives. (Same as SOC 115.)

PSY 203 Normal Personality II /3 cr. hrs./3 periods/3 lec.

□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/3 lec.

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/3 lec.**

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 60 Time Management/1 cr. hr./1 period/1 lec.**

Techniques and procedures to effectively manage time are discussed. Discussion sessions identify time wasters.

PAD 105 Introduction to Public Administration**3 cr. hrs./3 periods/3 lec.**

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/3 lec.**

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/2 lec.**

All phases of the care and cleaning of buildings, fixtures and furnishings including various types of building interiors.

RADIOLOGIC (X-RAY) TECHNOLOGY**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 Biology, Nuclear Medicine and Therapy 3 cr. hrs./3 periods/3 lec.

□Prerequisite: Satisfactory completion of required first-year courses. An introduction to radiation biology and specialties of nuclear medicine and radiation therapy which utilize ionizing radiation for the diagnosis and treatment of benign and malignant diseases. Emphasis is on the biologic effects of radiation on human tissues and the equipment and technology utilized in nuclear medicine and radiation therapy.

RAD 85 Radiographic Positioning III /5 cr. 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 cr. 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 the 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.

RAD 100A Radiographic Tomography/1 cr. hr./1 period/1 lec.

□Prerequisite: Technologists who are certified by the American Registry of Radiologic Technologists (ARRT) and technologists who are eligible to take the registry examination (ARRT). Instructor's permission required. This course is designed to renew and improve the radiologic technologist's knowledge of the principles of tomography and its applications. The course includes historical context of tomography, factors affecting tomographic images, testing the system, applications and special techniques. The course will enhance the radiologic technologist's ability to perform all types of tomographic examinations.

RAD 100B Radiographic Tubes/1 cr. hr./1 period/1 lec.

□Prerequisite: Technologists who are certified by the American Registry of Radiologic Technologists (ARRT) and technologists who are eligible to take the registry examination (ARRT). Instructor's permission required. This course is designed to update the knowledge of the radiologic technologist on the selection and utilization of the x-ray tube. The course covers the following modules: historic development and tube selection, tube failure, tube rating charts, tube conservation and special applications, and tube components and functions.

RAD 100C Quality Assurance in Radiography/1 cr. hr./1 period/1 lec.

□Prerequisite: Technologists who are certified by the American Registry of Radiologic Technologists (ARRT) and technologists who are eligible to take the registry examination (ARRT). Instructor's permission required. This course will cover the principles of quality control in diagnostic radiography. The course covers the following modules: Film processor quality control, radiographic equipment, peripheral systems, test tools and accessory equipment, safety items.

RAD 105 Skull Refresher/2 cr. hrs./2 periods/2 lec.

□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.

READING**REA 052 Bilingual Reading/3 cr. hrs./3 periods/3 lec.**

□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 052 Lecturas Bilingües/3 cr. hrs./3 periods/3 lec.

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 068 Techniques of Vocabulary/1 cr. hr./1 period/1 lec.

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.

REA 071 Spelling/1 cr. hr./1 period/1 lec.

Spelling skills are improved through concentration on and application of principles of spelling.

REA 073 Understanding What You Read/2 cr. hrs./2 periods/2 lec.

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, making inferences, drawing conclusions, and differentiating between fact and opinion.

REA 077 Study Skills/2 cr. hrs./2 periods/2 lec.

Study skills are improved through development of skills in listening, memory, notetaking, outlining, and through application of study methods and interpretation of pictorial aids.

REA 078 Test-Taking Techniques/1 cr. hr./1 period/1 lec.

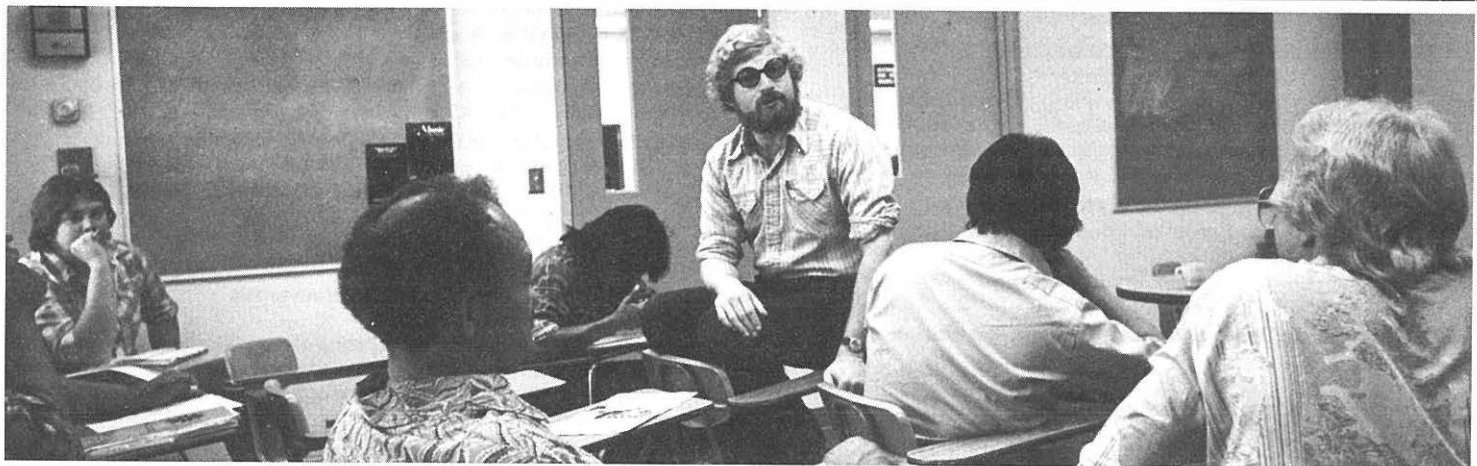
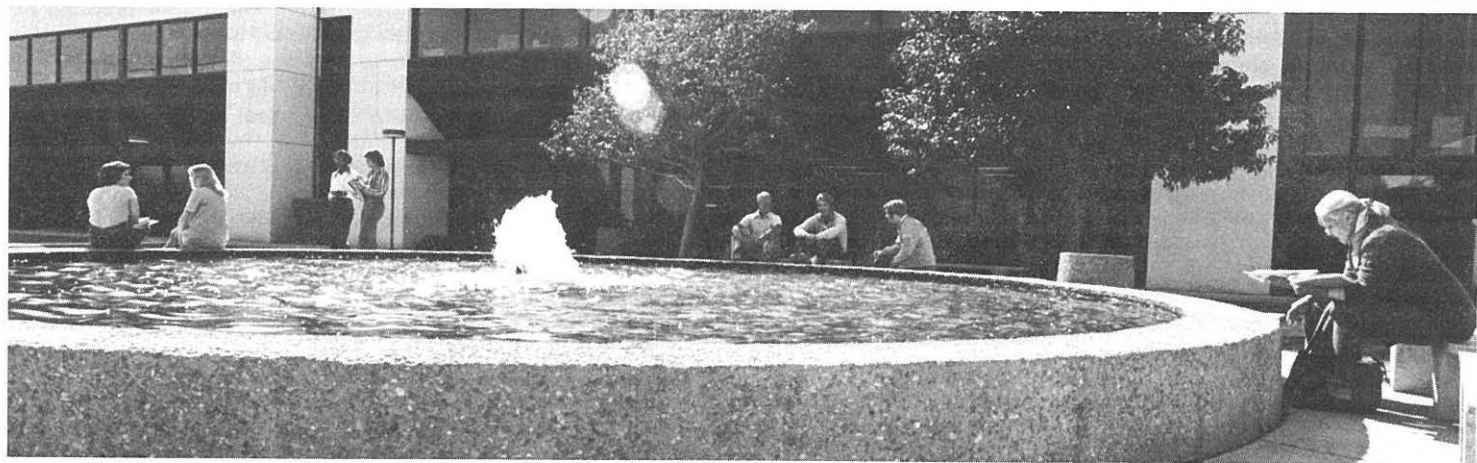
This course is designed to teach skills to prepare for and take a variety of tests as found in a college setting.

REA 100 Reading/4 cr. hrs./4 periods

All students should register for REA 100. Course 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. Afternoon and evening classes meet two hours twice a week. 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 six courses which are:

REA 100—Reading Fundamentals**REA 101—Reading Improvement****REA 110—Reading Techniques****REA 111—Developmental Reading I****REA 112—Developmental Reading II****REA 120—Critical Reading**

Reading courses are not necessarily consecutive. Students may register for Reading 100 up to four times for full credit.



REAL ESTATE

RLS 101 Real Estate Principles/3 cr. hrs./3 periods/3 lec.

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 requirements.

RLS 102 Real Estate Practices/3 cr. hrs./3 periods/3 lec.

□Prerequisite: RLS 101 or Arizona Real Estate Salesman's License.

Real estate 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 120 Real Estate Escrow Principles/3 cr. hrs./3 periods/3 lec.

An overview of the concept of real estate escrow and the fundamental principles involved in real estate escrow activities. Included are opening, processing, and closing escrow accounts.

RLS 121 Real Estate Escrow Practices/3 cr. hrs./3 periods/3 lec.

□Prerequisite: RLS 120 or equivalent.

In-depth study of unusual and difficult types of escrow and their possible solutions with strong emphasis in real estate transactions. Designed for persons currently performing escrow duties.

RLS 201 Real Estate Law/3 cr. hrs./3 periods/3 lec.

□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/3 lec.

□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.

RLS 210 Real Estate Escrow Problems/3 cr. hrs./3 periods/3 lec.

□Prerequisite: RLS 121.

An advanced course in real estate escrow, principles, practices, and problems emphasizing the adverse consequences of failure to understand and apply the essentials of sound escrow concepts.

RECREATION

REC 51 Arts and Crafts/3 cr. hrs./3 periods/3 lec.

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/3 lec.

An introduction to national, state, county, city and private parks and the recreational system offered in each.

REC 74 Public Relations and Communigraphics 3 cr. hrs./3 periods/3 lec.

The development of flyers, brochures and pamphlets; problems of dealing with the public and providing information on the agency's functions and activities.

REC 76 Federal Lands and Management/1 cr. hr./1 period/1 lec.

Students are acquainted with the historical development of federal resources protection agencies and the implementation of policy.

REC 77 Federal Lands and Urbanization/1 cr. hr./1 period/1 lec.

Students are provided with some insight into potential problems concerning utilization of federal lands near major population centers.

REC 78 Federal Lands and Fire Control Policy 2 cr. hrs./2 periods/2 lec.

This course covers the use of tools, safety gear, communication equipment, and techniques in the control of fires on federal land.

REC 79 Federal Lands Facility Planning and Visitor Services 1 cr. hr./3 periods (2 lec., 1 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.

REC 101 Introduction to Parks and Recreation 3 cr. hrs./3 periods/3 lec.

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/2 lec.

Course provides a knowledge of human leisure, 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/3 lec.**

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/3 lec.**

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/3 lec.

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/3 lec.

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/2 lec.

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/2 lec.

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/2 lec.

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 PED 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 AJS 152.)

REC 154 Mountaineering/2 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.

RELIGION, COMPARATIVE

REL 120 Old Testament/3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

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/3 lec.

An introduction to the philosophical study of religion. (Same as PHI 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/3 lec.

□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/5 lec.

□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 physio-therapy 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/4 lec.

□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/4 lec.

□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.

RESTAURANT, CULINARY AND FOOD MANAGEMENT

RCF 101 Introduction to Restaurant and Food Service

3 cr. hrs./3 periods/3 lec.

Fundamentals of organizing a quantity food preparation kitchen, work stations and personnel. Emphasis on methods, sanitation and safety.

RCF 102 Food Service Specialties I/Culinary Preparation

3 cr. hrs./4 periods (2 lec., 2 lab)

Preparation of cuisines involving meat, fish, seafood, poultry, vegetables, soups, sauces and gravies with emphasis on continental cuisine.

Organization, planning and writing of menus.

RCF 103 Food Service Specialties II/Baking

3 cr. hrs./4 periods (2 lec., 2 lab)

Essentials of baking. Preparation of yeast rolls, breads, cakes, cookies, tarts, doughnuts and desserts. Emphasis on use and care of equipment, sanitation, safety and hygiene.

RCF 104 Food Service Specialties III/Garde-Manger

3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: RCF 103 or concurrent registration.

Creation and storage of salads, sandwiches and appetizers. Emphasis on eye appeal, texture, color contrast, artistic touch and harmony of combinations.

RCF 105 Advanced Techniques in Garde-Manger

3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: RCF 104.

Techniques for preparing aspics, pates, terrines, gelatins, chaudfroids, ice carvings, tallow, salt and sugar. Manipulation of Garde-Manger tools is stressed.

RCF 106 Advanced Techniques in Gourmet Dining

3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: RCF 105 or concurrent registration.

Preparation of haute cuisine. Proper accounting techniques and principles of food purchasing, receiving and storage. Emphasis on proper use of flavorings, spirits, seasonings, garnishes and flambe in gourmet food preparation.

SAFETY EDUCATION

SED 050 Motorcycle Safety/1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: Automobile Driver's License.

The course is designed through classroom instruction and practice to teach individuals motorcycle safety including controls, basic maneuvers, defensive riding, selection, and insurance.

SED 090 Driving Training/3 cr. hrs./4 periods (2 lec., 2 lab)

This course teaches adult students the fundamentals of safe driving.

Arizona law and defensive driving techniques are taught. Students spend their laboratory periods under the supervision of a licensed instructor.

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/3 lec.

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 /3 lec.

□Prerequisite: SML 130.

A continuation of SML 130.

SML 210 Sheet Metal Pattern Layout III /3 cr. hrs./3 periods/3 lec.

□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.

SIGN LANGUAGE

SLG 100 The Community and the Exceptional Person 3 cr. hrs./3 periods/3 lec.

This course is designed to expose students to community programs and agencies directly involved with the handicapped person. Field trips will offer discussions with educators, agency persons, handicapped members of the community and working interpreters.

SLG 101 Manual Communication I /4 cr. hrs./6 periods (3 lec., 3 lab)

A beginning course in the language of signs. Emphasis is on the development of transmissive skills in the use of the manual alphabet and numbers, plus increasing sign vocabulary. Lab session in the language lab. Each student will spend a minimum of three hours per week in the lab working with an assigned instructor.

SLG 102 Manual Communication II /4 cr. hrs./6 periods (3 lec., 3 lab)

Intermediate course in principles, methods and techniques of communicating manually with the deaf. Emphasis on the development of receptive skills in the use of the manual alphabet and numbers plus increasing sign vocabulary. Lab session in language lab. Each student will spend a minimum of three hours per week in the lab working with an assigned instructor.

SLG 120 History of Deafness/3 cr. hrs./3 periods/3 lec.

This course covers the treatment of deaf individuals and their education and legal status in western cultures from early civilizations to the present day, touching on political and philosophical stance supporting each.

SLG 150 Psycho-Social Aspects of Deafness/3 cr. hrs./3 periods/3 lec.

Provides an overview of deafness, different types of hearing losses, their effects on the functioning and status of the deaf individual (physical, educational, social). Includes discussion of the multiple handicapped deaf individual.

SLG 180 Principles of Etiology and Audiology 3 cr. hrs./3 periods/3 lec.

This course offers a study of the normal ear and its function, normal audition and its measurement, and the most common causes of hearing loss and their effects on hearing. Hearing aids, their functions and limitations are discussed.

SLG 201 Manual Communications III /4 cr. hrs./6 periods (3 lec., 3 lab)

Advanced vocabulary, introduction to the grammar of American Sign Language. Includes body language, mime and other forms of nonverbal communication. Lab sessions in language lab. Each student will spend a minimum of three hours per week in the lab working with an assigned instructor.

SLG 202 Manual Communications IV /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: SLG 201.

Advanced course in American Sign Language stressing idioms and reading techniques. Lab session in language lab. Each student will spend a minimum of three hours per week in the lab working with an assigned instructor.

SLG 220 Interpreting I /3 cr. hrs./3 periods/3 lec.

Introduces the student to theories, principles, and special settings of interpreting. Covers ethics, definitions, and related topics of interpreting. Also covers oral interpreting and interpreting for the deaf-blind. Role playing and simulated interpreting experiences will be included in the course.

SLG 250 Interpreting II /3 cr. hrs./3 periods/3 lec.

Concentrates on rapid verbatim interpreting similar to that found in classrooms, workshops and conference settings. Covers educational, platform, and religious interpreting and the professional ethics involved. Introduces legal and medical interpreting.

SLG 290 Practicum/3 cr. hrs./16 periods (1 lec., 15 lab)

The course is designed to provide practical interpreting skills in various settings and under varying conditions. Students may select the setting in which they wish to work after consultation with the proper advisor.

SOCIAL SERVICES

SSE 115 Drugs in American Society/3 cr. hrs./3 periods/3 lec.

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 116 Introduction to Alcohol Abuse/3 cr. hrs./3 periods/3 lec.

An introductory course on past and present use and abuse of the drug alcohol including identification and treatment of the abuser and alcoholic. Consideration will be given to treatment alternatives and resources available to members of the abuser's and/or alcoholic's family.

SSE 127 Political and Legal Aspects of Drug Use

3 cr. hrs./3 periods/3 lec.

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/3 lec.

An introduction to our social welfare system; what it is, has been, and what it may become nationally and locally. Also included is an in-depth review of community agencies and resources.

SSE 134 Casework Methods/3 cr. hrs./3 periods/3 lec.

□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/3 lec.

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 216 Organización y Desarrollo de la Comunidad

3 cr. hrs./3 periods/3 lec.

El curso repasa la teoría de la organización de grupos para crear cambio y el papel del organizador profesional; brinda una examinación de las instituciones enseñando por qué cambian o por qué no quieren cambiar; abarca las diferentes estrategias necesarias para un cambio efectivo. Los estudiantes participan, bajo supervisión, en grupos formales e informales en la comunidad tucsonense para poder observar.

SSE 217 Evaluation and Support of the Drug User

3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/3 lec.

□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/3 lec.

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/3 lec.

□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/ 3 lec.

□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.

SOCIOLOGY

SOC 52 Sociological Forces in Later Life/3 cr. hrs./3 periods/3 lec.

The sociological problems faced by the elderly which includes the intellectual, cognitive, and behavioral aspects of the aging process. The social and transmatic concerns of the aged and retired.

SOC 100 Introduction to Sociology/3 cr. hrs./3 periods/3 lec.

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/3 lec.**

□Prerequisite: SOC 100 for University of Arizona transfer.
How individuals get constructively involved.

SOC 103 Explorations in Prejudice/3 cr. hrs./3 periods/3 lec.

□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/3 lec.

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/3 lec.**

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 115 Human Sexuality/3 cr. hrs./3 periods/3 lec.

The human sexual experience throughout the life cycle viewed from sociological and psychological perspectives. (Same as PSY 115.)

SOC 127 Marriage and the Family/3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/3 lec.

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, sociocultural factors, economics of aging and cross-cultural perspectives.

SOC 201 Ghetto Society/3 cr. hrs./3 periods/3 lec.

□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/ 3 lec.**

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 POL 149.)

SOC 203 Sociology of Utopia/3 cr. hrs./3 periods/3 lec.

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/3 lec.

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 050 Conversational Spanish I /4 cr. hrs./4 periods/4 lec.**

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 055 Conversational Spanish II /4 cr. hrs./4 periods/4 lec.

□Prerequisite: SPA 050 or 110 or knowledge of Spanish.

A continuation of SPA 050 with study on a more advanced level. Emphasis is on listening and speaking abilities. For non-native speakers only.

SPA 056 Advanced Conversational Spanish/4 cr. hrs./4 periods/4 lec.

□Prerequisite: SPA 055 or SPA 111.

Emphasis is on improving speaking skills of students interested in increasing their conversational abilities in Spanish or a more advanced level. Classes are conducted in Spanish.

SPA 070 Spanish for Medical Personnel/3 cr. hrs./3 periods/3 lec.

A conversational course for medical personnel to learn speaking and listening skills for daily medical situations. Covers basic rules of Spanish pronunciation, greetings, expressions of courtesy and medical terminology.

SPA 101 Spanish for Native Speakers I /4 cr. hrs./4 periods/4 lec.

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 Para Estudiantes de Habla Hispana I
4 cr. hrs./4 periods/4 lec.**

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 Spanish for Native Speakers II /4 cr. hrs./4 periods/4 lec.

□Prerequisite: SPA 101.

This is a continuation of intensive Spanish for Native Speakers.

**SPA 102 Español Para Estudiantes de habla Hispana II
4 cr. hrs./4 periods/4 lec.**

□Requisito: 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/4 lec.

Basic communication skills are taught with emphasis on listening, speaking and 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/4 lec.

□Prerequisite: SPA 110 or equivalent.

A continuation of Elementary Spanish I.

SPA 205-206 Imaginative Writing I, II /3-3 cr. hrs./3 periods/3 lec.

The course is designed to develop creative writing abilities in Spanish.

SPA 205-206 Literatura Creativa I, II /3-3 cr. hrs./3 periods/3 lec.

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/4 lec.

□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/4 lec.

□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/3 lec.**

□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
3 cr. hrs./3 periods/3 lec.

□Prerequisite: SPA 211 or equivalent.

El curso está diseñado para lograr mayor facilidad en el español hablado y escrito. Se preparan 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/3 lec.

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/3 lec.

Este curso incluye los siguientes temas Chicanos: proceso histórico, el fenómeno social y la creación literaria.

SPEECH

SPE 102 Introduction to Oral Communication
3 cr. hrs./3 periods/3 lec.

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/2 lec.

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/3 lec.

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/2 lec.

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/2 lec.

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/3 lec.

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/3 lec.

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/1 lec.

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 Discussions/3 cr. hrs./3 periods/3 lec.

Study and training in group participation and leadership, the nature, use and function of group discussion, problem-solving groups, norms of group interaction and group relations.

SPE 136 Oral Interpretation of Literature/3 cr. hrs./3 periods/3 lec.

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 non-verbal communication, communication theory, mass media, rhetorical criticism, etc.

SWAHILI**SWA 050-051 Elementary Swahili I, II /4-4 cr. hrs./4 periods/4 lec.**

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.

TRAINING FOR SPECIAL EDUCATION**TSE 130 Techniques for Teaching Multiple Handicapped
3 cr. hrs./3 periods/3 lec.**

This course teaches students techniques and methods of working with students who are multiply handicapped. Students learn the psychological, social, and learning problems that are associated with students who have had various diseases.

**TSE 132 Behavior Modification for Special Education
3 cr. hrs./3 periods/3 lec.**

This course teaches the major theories of personality development and methods of changing behavior.

**TSE 142 Special Speech and Language Techniques
3 cr. hrs./3 periods/3 lec.**

This course is designed to assist teacher aides in developing an awareness of the components involved in normal speech and language development and to provide a brief description of speech and language disorders in children.

**TSE 144 Alternative Approaches to Problem Behaviors
3 cr. hrs./3 periods/3 lec.**

This course helps para-professionals learn effective ways to relate to their students. By clarifying the purposes of children's behavior, this presentation also helps para-professionals learn how not to reinforce their student's unacceptable behaviors and how to encourage cooperative behaviors.

TSE 190 Special Education Practicum I /3 cr. hrs./15 periods/15 lab

A course of instruction for training aides in community school special education aimed at closely relating the study of theory and practical experience, carried on simultaneously, for the purpose of program planning for the growth and learning of special children.

**TSE 236 Teaching Methods of Special Education
3 cr. hrs./3 periods/3 lec.**

This course focuses on the selection of educational materials and teaching methods for the special needs learner.

**TSE 238 Characteristics of Learning Disability I
3 cr. hrs./3 periods/3 lec.**

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.

**TSE 239 Characteristics of Learning Disability II
3 cr. hrs./3 periods/3 lec.**

□Prerequisite: TSE 238.

This course will deal with the teaching and testing remediation techniques, diagnosis in learning disabilities and characteristics of learning disability.

**TSE 240 Techniques for Teaching the Mentally Handicapped Student
3 cr. hrs./3 periods/3 lec.**

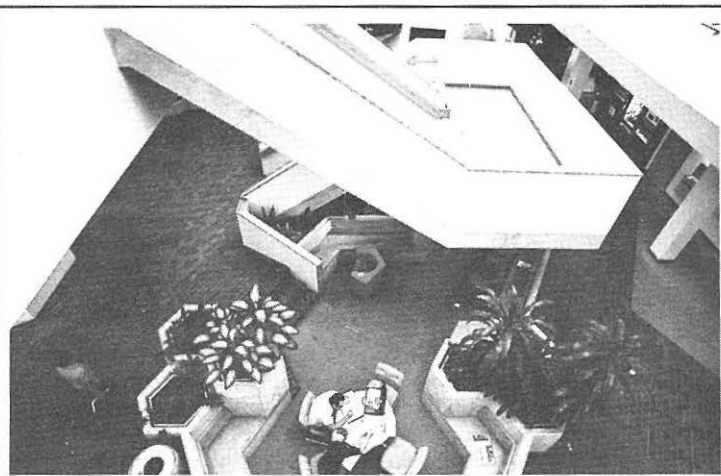
This course is designed for para-professionals who assist teachers of mentally handicapped students. Includes prescribed techniques, materials, and procedures for working with the mentally handicapped.

TSE 250 Effective Teacher Relations/3 cr. hrs./3 periods/3 lec.

This course is designed to help persons develop communication skills in interpersonal relationships that are especially effective in the classroom.

TSE 290 Special Education Practicum II /3 cr. hrs./15 periods/15 lab

A course of instruction for training aides in community school special education aimed at closely relating the study of theory and practical experience, carried on simultaneously, for the purpose of program planning for the growth and learning of special children.



TRANSPORTATION AND TRAFFIC MANAGEMENT

TTM 070 Skills in Packing and Moving/3 cr. hrs./3 periods/3 lec.

Fundamental skill development for employment in the professional moving industry. Instruction in packing, proper furniture handling, Department of Transportation in Interstate Commerce Commission rules and regulations.

TTM 101 Fundamentals of Transportation/3 cr. hrs./3 periods/3 lec.

The study of the domestic freight and passenger transportation systems and the role played by the users, carriers, and government. Topics covered are the most significant changes and trends in transportation, to include history, present systems, supply and demand, shipper problems, regulatory systems, and transportation policy. Provides the minimum transportation background necessary for general business activity in the transportation industry and is a prerequisite for more advanced coursework.

TTM 102 Economics of Transportation/3 cr. hrs./3 periods/3 lec.

Development of the economic and philosophic bases of transportation as a regulated industry. A critical analysis of the impact of regulatory decisions on managerial options.

TTM 103 History of Regulation/3 cr. hrs./3 periods/3 lec.

An in-depth study of the history of transportation as a regulated industry, to include an analysis of pertinent laws from early English Common Law through present laws, including analysis of benchmark cases.

TTM 104 Rates and Tariffs/3 cr. hrs./3 periods/3 lec.

An in-depth study of transportation costs and freight rates. Topics include the economic and legal characteristics, regulation, application, terminology, structures, and economic effects of rates and tariffs.

TTM 201 Principles of Air Transportation/3 cr. hrs./3 periods/3 lec.

An introduction to the commercial airline industry with emphasis upon managerial practices and regulatory policies. Topics include historical developments, industry structure, economics, marketing, finance, aircraft selection, scheduling, labor relations, route regulations, pricing, international aviation and regulatory policies and procedures.

TTM 202 Principles of Motor Transportation/3 cr. hrs./3 periods/3 lec.

A study of the managerial and economic aspects of motor transportation as conducted under the auspices of state and federal regulations.

TTM 203 Interstate Law and Regulations/3 cr. hrs./3 periods/3 lec.

A study of Interstate Commerce Law as established by Congress, and applicable regulations as instituted by the Federal Regulatory Agencies; to include the applications, economic effect, and future of interstate law and regulations in the transportation industry.

TTM 204 Principles of Traffic Management/3 cr. hrs./3 periods/3 lec.

An in-depth study of physical distribution systems: transportation, warehousing, inventory control, material handling, industrial packaging, order processing and location analysis. Included are studies of managerial responsibilities and recent transportation regulation actions.

TRAVEL AND TOURISM INDUSTRY

TVL 101 Principles of Travel-Tourism Industry

3 cr. hrs./3 periods/3 lec.

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/3 lec.

□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/3 lec.

□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. hrs./3 periods/3 lec.

□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/1 lec.

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/1 lec.

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/2 lec.

□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/1 lec.

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/1 lec.

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/1 lec.

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 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/2 lec.

□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/2 lec.

□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 control and carbon absorption. 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.

WELDING

WLD 050 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 octogena.

WLD 115 Blueprint Reading/3 cr. hrs./3 periods/3 lec.

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).

WRITING

WRT 5 Poetry Writing/3 cr. hrs./3 periods/3 lec.

Offered concurrently with WRT 205 but not designed for transfer credit.

WRT 6 Short Story Writing/3 cr. hrs./3 periods/3 lec.

Offered concurrently with WRT 206 but not designed for transfer credit.

WRT 62 Literary Magazine Workshop/3 cr. hrs./3 periods/3 lec.

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/3 lec.

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/1 lec.

□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/1 lec.

This mini-course covers the mechanics of writing, including punctuation, capitalization, numbers and abbreviations.

WRT 77 Paragraphs/1 cr. hr./1 period/1 lec.

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/1 lec.

Course promotes fluency, spontaneity and creativity in writing through a daily practice of writing skills. Entry skills will be evaluated.

WRT 100 Writing Fundamentals/3 cr. hrs./3 periods/3 lec.

Review of sentence structure, paragraph development, organization of short essays. Designed to prepare students for WRT 101.

WRT 100-A Sentence Development/1 cr. hr./1 period/1 lec.

Review of sentence structure and practice in writing various sentence patterns.

WRT 100-B Paragraph Development/1 cr. hr./1 period/1 lec.

Improvement of skills in adequate and coherent development of paragraphs. Also includes practice in making clear transitions.

WRT 100-C Essay Development/1 cr. hr./1 period/1 lec.

Practice in writing short well-organized essays on a variety of subjects.

WRT 101 Writing I /3 cr. hrs./3 periods

□Prerequisite: WRT 100 or satisfactory score on writing assessment test. 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 101-A Planning the Essay/1 cr. hr./1 period/1 lec.

□Prerequisite: Consent of instructor.
Practice in structuring a college level essay.

WRT 101-B Writing to Persuade/1 cr. hr./1 period/1 lec.

□Prerequisite: Consent of instructor.
Instruction and practice in writing argumentative essays.

WRT 101-C Developing A Style/1 cr. hr./1 period/1 lec.

□Prerequisite: Consent of instructor.
Instruction and practice in editing and revising to achieve greater clarity of expression and more effective word choice.

WRT 102 Writing II /3 cr. hrs./3 periods/3 lec.

□Prerequisite: WRT 101.
A continued practice in writing with emphasis on longer and more analytical compositions, including a research paper or annotated papers. Reading may include fiction, poetry, drama or non-fiction. Designed for transfer credit.

WRT 102-A Critical Essay/1 cr. hr./1 period/1 lec.

□Prerequisite: WRT 101 or consent of instructor.
Writing of short critical essays on selected works of literature.

WRT 102-B Research/1 cr. hr./1 period/1 lec.

□Prerequisite: WRT 101 or consent of instructor.
This mini-course provides instruction and practice in gathering information, designing and writing a research paper.

WRT 102-C Writing Reports/1 cr. hr./1 period/1 lec.

□Prerequisite: WRT 101 or consent of instructor.
Instruction and practice in the writing of short formal or informal reports.

WRT 150 Practical Communications/3 cr. hrs./3 periods/3 lec.

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/3 lec.

□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/3 lec.

□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/3 lec.

□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/3 lec.

□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/3 lec.

□Prerequisite: WRT 101 or 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/3 lec.

□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 required in courses and in future occupations.

WRT 280 Workshop in Tutoring Composition/3 cr. hrs./9 periods/9 lab

□Prerequisite: WRT 101, 102 and consent of instructor.

Instruction and practice in tutoring writing. Designed for transfer credit.

WRT 280-A Beginning Workshop in Tutoring Composition

1 cr. hr./3 periods/3 lab

□Prerequisite: WRT 101, 102 and consent of instructor.

This is an introductory workshop in tutoring composition. Students receive instruction and practice in tutoring techniques.

WRT 280-B Intermediate Workshop in Tutoring Composition

1 cr. hr./3 periods/3 lab

□Prerequisite: WRT 280-A.

This workshop is designed to improve the tutoring skills acquired in WRT 280-A. Students receive additional instruction and practice in tutoring techniques.

WRT 280-C Advanced Workshop in Tutoring Composition

1 cr. hr./3 periods/3 lab

□Prerequisite: WRT 280-B.

The course is designed to further improve the tutoring skills required in WRT 280-B. Students receive additional instruction and practice in tutoring techniques.

YOUTH CARE**YCA 163 Introduction to Youth Care/3 cr. hrs./3 periods/3 lec.**

Surveys the rights, roles and responsibilities of a youth care specialist in the supervision and treatment of children in 24-hour care outside the home, including detention, residential facilities for youth, and foster care. Topical units include the concept of youth care work, understanding the child's behavior, communication skills, problem solving and effective discipline, interviewing and counseling skills and structuring recreation and creative programs. (Identical to AJS 163.)

YCA 263 Youth Care Techniques/6 cr. hrs./6 periods/6 lec.

□Prerequisite: YCA 163 or consent of instructor.

Provides a variety of options to the student in youth care to increase individual competency in specific skill areas. The course is designed in modular format with one-credit-hour modules. Specific competencies included are those considered to be vital to the youth care worker:

- a) Alternative Family Relationship Building; b) Problem-Solving Techniques;
- c) Health Awareness; d) Coping With Stress in Youth Care Work;
- e) Observing and Recording Behavior; f) The Special Needs Child.

YCA 263-A Alternative Family Relationship Building

1 cr. hr./1 period/1 lec.

□Prerequisite: YCA 163.

A one-unit skills module of YCA 263. Provides specialized coursework toward developing competency in the building of positive relationships with youth in alternative care settings. This course builds on concepts which are a part of the YCA 163 content.

YCA 263-B Problem-Solving Techniques/1 cr. hr./1 period/1 lec.

□Prerequisite: YCA 163.

A one-unit skills module of YCA 263. Provides specialized coursework toward developing competency in problem-solving in youth care situations, including principles of problem-solving, identification of problems and problem ownership, seeking alternatives in problem-solving, reaction and response, and consequences.

YCA 263-C Health Awareness/1 cr. hr./1 period/1 lec.

□Prerequisite: YCA 163. A one-unit skills module of YCA 263. Provides specialized coursework toward developing competency in Health Awareness. Includes recognizing and responding to the needs of the malnourished child, understanding the uses and effects of medication, effects of physical health on behavior, and techniques for implementing health awareness in a youth care setting.

YCA 263-D Coping With Stress in Youth Care Work

1 cr. hr./1 period/1 lec.

□Prerequisite: YCA 163.

A one-unit skills module of YCA 263. Provides specialized coursework toward developing competency in awareness of stress factors in youth care, recognizing levels of personal stress related to youth care, techniques for coping with stress and avoiding burnout.

YCA 263-E Observing and Recording Behavior/1 cr. hr./1 period/1 lec.

□Prerequisite: YCA 163.

A one-unit skills module of YCA 263. Provides specialized coursework towards developing competency in observation and recording the behavior of youth in a youth care setting. Includes the development of observational and feedback skills; reporting as it relates to youth care; setting reporting priorities and developing assessment skills.

YCA 263-F The Special Needs Child/1 cr. hr./1 period/1 lec.

□Prerequisite: YCA 163.

A one-unit skills module of YCA 263. Within the context of youth care, provides specialized coursework towards developing competency in understanding the needs of and techniques for working with children who have special needs. Among these needs categories are learning disabled, physically handicapped, emotionally handicapped, mentally retarded, dangerous delinquent, autistic, and others. One topic would be chosen for emphasis.

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 /3 cr. hrs./3 periods/3 lec.

AUTOMOTIVE APPRENTICESHIP PROGRAM

AAT 101 Automotive Electrical Systems/3 cr. hrs./3 periods/3 lec.

AAT 102 Automotive Power Plant/3 cr. hrs./3 periods/3 lec.

AAT 103 Automotive Engine Analysis and Service
3 cr. hrs./3 periods/3 lec.

AAT 104 Automotive Brake Systems/3 cr. hrs./3 periods/3 lec.

AAT 105 Automotive Suspension and Steering
3 cr. hrs./3 periods/3 lec.

AUT 106 Automotive Drive Train/3 cr. hrs./3 periods/3 lec.

AAT 107 Automotive Engine Rebuilding Procedures
3 cr. hrs./3 periods/3 lec.

AAT 108 Automotive Heating and Refrigeration
3 cr. hrs./3 periods/3 lec.

AAT 109 Automotive Parts Management/3 cr. hrs./3 periods/3 lec.

AAT 110 Automotive Service Department Management
3 cr. hrs./3 periods/3 lec.

AAT 111 Advanced Automotive Engine Analysis and Service
3 cr. hrs./3 periods/3 lec.

AAT 112 Advanced Automotive Electrical Systems
3 cr. hrs./3 periods/3 lec.

BRICKLAYING

BKL 50-55 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/5 lec.

BCT 51 Building Trades Blueprint Reading/5 cr. hrs./5 periods/5 lec.

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/5 lec.

FLR 51 Tile and Linoleum/5 cr. hrs./5 periods/5 lec.

FLR 52 Carpet/5 cr. hrs./5 periods/5 lec.

GLAZING

GLZ 50 Orientation to the Glazing Trade/5 cr. hrs./5 periods/5 lec.

GLZ 51 Glazing, Tools, Equipment and Materials
5 cr. hrs./5 periods/5 lec.

GLZ 53 Blueprint Reading and Sketching/5 cr. hrs./5 periods/5 lec.

GLZ 54 Store Front Construction and Glazing
5 cr. hrs./5 periods/5 lec.

GLZ 55 Locks, Latches and Door Closers/5 cr. hrs./5 periods/5 lec.

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/5 lec.
LTH 51	Ceiling and Wall Construction/5 cr. hrs./5 periods/5 lec.
LTH 52-53	Blueprint Reading and Sketching I, II 5-5 cr. hrs./5 periods/5 lec.

OPERATING ENGINEERS

OEG 50-51	Diesel Engine I, II /5-5 cr. hrs./5 periods/5 lec.
OEG 52	Equipment Structure and Function/5 cr. hrs./5 periods/5 lec.
OEG 53	Transmission of Power I /5 cr. hrs./5 periods/5 lec.
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/5 lec.
OEG 56-58	Grades, Plans and Earthwork I-III @ 5 cr. hrs./5 periods/5 lec.
OEG 59	Basic Electricity and Wiring/5 cr. hrs./5 periods/5 lec.
OEG 62	Plant Equipment Structure and Function 5 cr. hrs./5 periods/5 lec.
OEG 63	Construction Material Processes/5 cr. hrs./5 periods/5 lec.
OEG 64	Mathematics for Operating Engineers 3 cr. hrs./3 periods/3 lec.
OEG 65	Mechanical Drawing for Operating Engineers 3 cr. hrs./3 periods/3 lec.
OEG 66-68	Refrigeration I-III /@ 5 cr. hrs./5 periods/5 lec.

PAINTING & DECORATING

PNT 50	Introduction to the Painting Trade/5 cr. hrs./5 periods/5 lec.
PNT 51	Color Harmony and Design/5 cr. hrs./5 periods/5 lec.
PNT 52	Blueprint Reading and Estimating/5 cr. hrs./5 periods/5 lec.
PNT 53	Wall Covering/5 cr. hrs./5 periods/5 lec.
PNT 54	Drywall Taping/5 cr. hrs./5 periods/5 lec.
PNT 55	Industrial Painting/5 cr. hrs./5 periods/5 lec.

PLASTERING AND CEMENT MASONRY

PCM 50	Related Mathematics and Science/5 cr. hrs./5 periods/5 lec.
PCM 51	Trade Theory/5 cr. hrs./5 periods/5 lec.
PCM 52	Blueprint Reading and Plaster and Cement Masons 5 cr. hrs./5 periods/5 lec.
PCM 53	Drafting and Sketching/5 cr. hrs./5 periods/5 lec.
PCM 54	Estimating and Building Codes/5 cr. hrs./5 periods/5 lec.
PCM 55	Trade Practices/5 cr. hrs./5 periods/5 lec.

PLUMBING AND PIPEFITTING

- PFT 50 Plumbing and Pipefitting I / 5 cr. hrs. / 5 periods / 5 lec.
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 / 5 lec.
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 / 5 lec.
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 / 5 lec.
PFT 63-65 Pipefitting VIII-X / @ 4 cr. hrs. / 5 periods (3 lec., 2 lab)

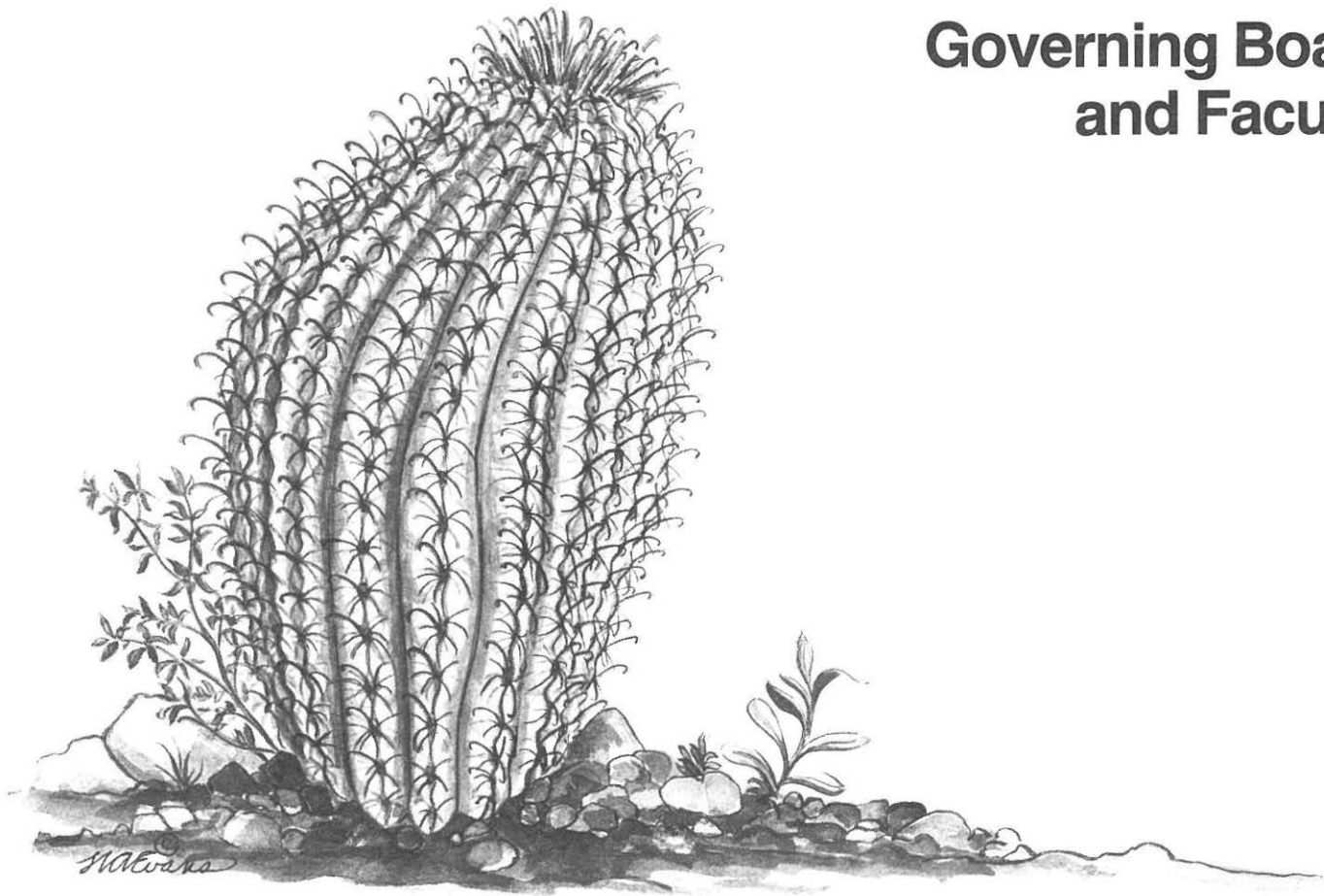
SHEETMETAL

- SML 50 Introduction to the Sheet Metal Trade
5 cr. hrs. / 5 periods / 5 lec.
SML 51-55 Apprentice Sheet Metal I-V / @ 5 cr. hrs. / 5 periods / 5 lec.
SML 56 Apprentice Air Conditioning / 5 cr. hrs. / 5 periods / 5 lec.

THEORY AND PRACTICE OF ELECTRICITY

- TGE 50-52 Electrical Theory I-III / @ 6 cr. hrs. / 6 periods / 6 lec.
TGE 53-55 Advanced Apprenticeship Training I-III
@ 1 cr. hr. / 1 period / 1 lec.
TGE 56 Advanced Apprenticeship Training IV
2 cr. hrs. / 2 periods / 2 lec.
TGE 57 Advanced Apprenticeship Training V
1 cr. hrs. / 1 period / 1 lec.
TGE 58-60 Advanced Apprenticeship Training VI-VII
@ 6 cr. hrs. / 6 periods / 6 lec.
TGE 61 Advanced Apprenticeship Training IX
2 cr. hrs. / 2 periods / 2 lec.
TGE 62 Advanced Apprenticeship Training X
3 cr. hrs. / 3 periods / 3 lec.
TGE 63-64 Advanced Apprenticeship Training XI-XII
1-1 cr. hr. / 1 period / 1 lec.
TGE 65 Advanced Apprenticeship Training XIII
2 cr. hrs. / 2 periods / 2 lec.
TGE 66-68 Advanced Apprenticeship Training XIV-XVI
@ 6 cr. hrs. / 6 periods / 6 lec.

Governing Board and Faculty



STATE BOARD OF DIRECTORS FOR COMMUNITY COLLEGES OF ARIZONA

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Michael J. Hansen	1982
James B. Klein, M.D.	1981

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Ed.D.—Wayne State University

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M.Ed.—University of Utah
Ph.D.—Pennsylvania State University

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M.S.—Southern Illinois University
M.A.—California State University
Ed.D.—University of Wyoming

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M.S.—Brigham Young University
Ph.D.—Arizona State University

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M.A.—Arizona State University

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M.Ed.—University of Arizona

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B.A.—University of Arizona

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M.Ed.—University of Arizona

Lawrence R. Toledo, Director of Athletics, Intramurals, and Recreation

B.A.—California Western University
M.Ed.—University of Arizona

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M.B.A.—University of Michigan

Bert G. Landau, Comptroller

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M.S.—University of Arizona

Hugo A. Olsson, Director of Facilities Planning

B.A.—University of Arizona
Registered Architect

Maurice E. Speer, Director of Purchasing

B.S.—University of Arizona

John A. Roberts, Director of Auxiliary Services

B.S.—University of Arizona

Harold H. Thompson, Director of Plant Operations

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A.B.—Princeton University
M.B.A.—Stanford University
Ph.D.—University of California, Berkeley

Russell C. Collmer, Director of Institutional Research

B.S.—University of New Mexico
M.S.—University of Iowa

Layton J. Cutforth, Director of Computer Services/Information Services

B.S.—University of Arizona

Jacqueline A. Ferguson, Grants Coordinator

B.A.—Arizona State University

WEST CAMPUS

Raymond J. Stith, Executive Dean

B.C.E.—University of Dayton
M.S.—University of Notre Dame

Johnny W. Bowens, Cultural Activities Specialist

B.A.—Dillard University
M.A.—University of Arizona
Ph.D.—Union Graduate School

Jerry L. Boy, Director of Financial Aid

B.Ed.—University of Toledo
M.Ed.—University of Toledo
Ed.D.—University of Arizona

Joseph W. Cosentino, Associate Dean of Admissions and Registration

B.A.—Mt. Union College
M.Ed.—Kent State University

Arnold Davidson, Associate Dean for Instructional Services (Fine, Applied and Communicative Arts)

B.A.—Emporia State University
M.A.—Emporia State University
Ed.S.—University of Southern Dakota
Ph.D.—Florida State University

Elizabeth Gonzales, Associate Dean for Student Services

B.A.—University of Arizona
M.Ed.—University of Arizona

Gilbert Gonzales, Coordinator of Veterans Affairs

B.S.—University of Arizona

Margaret A. Holleman, Coordinator of Library Services

A.A.—St. Petersburg Junior College
B.A.—University of South Florida
M.A.—Arizona State University
M.L.S.—University of Arizona

Jo S. Pahopin, Associate Dean for Instructional Services (Business/Human Resources)

B.S.—Columbia Teachers College
M.S.—Ohio State University
Ph.D.—Ohio State University

Donald E. Proulx, Associate Dean for Instructional Services (Science Division)

B.A.—University of Arizona
B.S.—University of Arizona
M.Ed.—University of Arizona

David F. Shuford, Associate Dean for Student Services

B.S.—Western Carolina University
M.A.—Western Carolina University
Ed.D.—University of Tennessee

Carl C. Wachsman, Acting Associate Dean for Support Services

B.S.—Dickinson State College
M.A.—Arizona State University

DOWNTOWN CAMPUS

Robert F. Agrella, Executive Dean

B.S.—Purdue University
M.A.T.—Purdue University

Larry W. Brownell, Director of Physical Plant

Sallie A. Guy, Associate Dean for Educational Support Services

B.A.—University of Northern Iowa
M.A.—Syracuse University
Ph.D.—University of Illinois

Dorothy F. Martin, Business Agent

Ph.B.—University of Chicago

Timothy C. Murphy, Educational Development Officer

B.S.E.—Western Illinois University
M.S.E.—Eastern Illinois University

Miguel A. Palacios, Associate Dean for Admission and Registration

B.A.—University of Arizona
M.A.—University of Arizona
Ph.D.—University of Arizona

Donna A. Tang, Coordinator of Library Services

B.A.—Boston University
M.L.S.—University of Arizona

Ralph W. Wahrer, Associate Dean of Extended Day Program

B.A.—Iowa Wesleyan College
M.A.—University of Iowa
Ph.D.—University of Iowa

COMMUNITY CAMPUS

James E. Gibson, Executive Dean

B.S.—Southwest Missouri State College
M.A.—Northern Colorado University
Ed.D.—University of Arizona

Edward Acuna, Associate Dean of Instructional Services

B.S.—University of Arizona
M.Ed.—University of Arizona

Mary D. Hammann, Director, Tucson Career Skill Center

**Gary P. Mickolajak, Educational Director
for Arizona Correctional Training Facility**

B.S.—University of Minnesota
M.Ed.—University of Wisconsin
M.S.—St. Cloud University

John H. Stevanus, Business Agent

B.S.—University of Baltimore

Carl R. Webb, Educational Coordinator

B.S.—U.S. Naval Academy
M.A.—University of California at Los Angeles

EAST EDUCATION CENTER

David L. Landsburg, Dean

B.A.—Albion College
M.A.—Michigan State University
Ph.D.—University of Michigan

Mildred E. Harrington, Business Agent

A.A.—Victor Valley College

Karl B. Johnson, Coordinator of Library Services

B.A.—University of Arizona
M.L.S.—University of Denver
Ph.D.—Arizona State University

Alfred B. Montes, Assistant Dean for Registration and Admissions

B.A.—University of Arizona
M.Ed.—University of Arizona

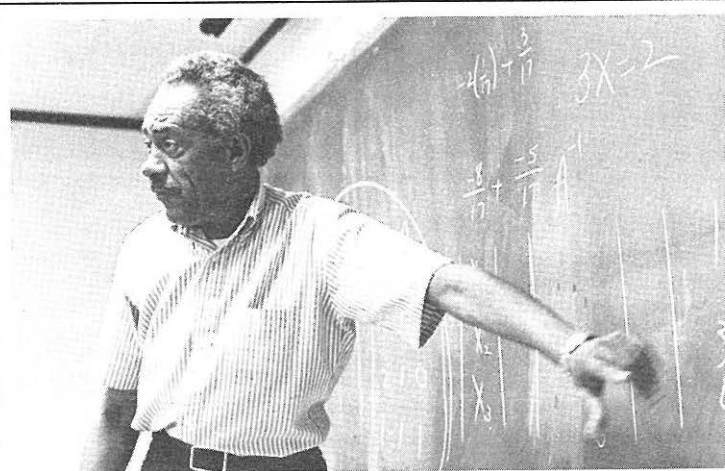
Philip V. Tullar, Assistant Dean of Educational Services

B.A.—Howard Payne University
M.A.—Wayne State University
M.Ed.—University of Arizona
Ph.D.—University of Arizona

COMMUNITY SERVICES

Constance Howard, Director

B.A.—Mt. St. Mary's College
M.S.—University of Arizona



Pima Community College Faculty

Arthur Alberding, Mathematics (1971)

B.S.—Nebraska State Teachers College

M.A.—University of South Dakota

Javier Alcaraz, Spanish (1978)

B.A.—Montezuma Pontifical College

M.A.—Universidad Jaime Balmes

M.Ed.—St. Mary's College

Richard P. Alday, Physical Education (1973)

B.S.—Kansas State Teachers College

M.A.—Kansas State Teachers College

Mary H. Allison, Nursing (1971)

B.S.N.—University of Arizona

Grace A. Altamirano, Office Education (1971)

B.S.—University of Arizona

M.Ed.—University of Arizona

Delfina Alvarez, Counselor (1971)

B.A.—University of Arizona

M.Ed.—University of Arizona

Barbara M. Anderson, Office Education (1970)

A.A.—Cochise College

B.S.—University of Arizona

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B.A.—City University of New York

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Ph.D.—University of Arizona

Irene J. August, Early Childhood Education (1977)

B.A.—University of Arizona

M.Ed.—University of Arizona

Roland D. August, Engineering and Mathematics (1972)

B.S.—Oregon State University

M.S.—George Washington University

Frances F. Bahrs, Reading and ESL (1970)

B.A.—Sacramento State Teachers College

M.A.—Sacramento State Teachers College

G. Elisabet Bailey, Speech (1973)

B.A.—University of Arizona

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Patricia Kay Baker, Nursing (1978)

B.S.N.—Arizona State University

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John P. Barnes, Humanities, Philosophy and Literature (1970)

B.A.—University of Nebraska

M.A.—University of Iowa

Pamela Barnes, Writing (1974)

B.A.—Cedar Crest College

M.A.—Seton Hall University

M.Ed.—University of Arizona

William K. Barnette, Jr., Electronics (1970)

B.S.—Northern Arizona University

M.A.—Northern Arizona University

Tori Basford, Computer Sciences (1978)

BSEE—University of Texas

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Gordon L. Becker, Mathematics (1971)

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Pearlye Belanger, Data Entry (1978)

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A.S.—Mercer County Community College

B.A.—University of Arizona

M.Ed.—University of Arizona

Phillip Bellomo, Ceramics (1975)

B.F.A.—University of Arizona
M.F.A.—University of Arizona

Louis C. Bernal, Photography (1972)

B.A.—Arizona State University
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Theria M. Beverly, Reading (1975)

B.A.—Clark College
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Michael Blicharz, Computer Science (1979)

B.S.—University of San Francisco

Valerie M. Bockman, Business and Management (1971)

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Aristeo Brito, Jr., Spanish (1970)

B.A.—Sul Ross State College
M.A.—University of Arizona
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Fe Brittain, Languages (1977)

B.A.—Florida State University
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B.A.—California State University, Fullerton
M.S.—University of Oregon

Richard Brodesky, Writing (1978)

A.B.—Brandeis University
A.M.—Harvard University
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Louise F. Bronson, Psychology and Sociology (1969)

B.A.—University of Rochester
M.A.—University of Florida
Ph.D.—University of Arizona

Otis F. Bronson, Writing, Humanities and Art (1969)

B.S.—University of Florida
M.A.—University of Florida

Jerome F. Brownson, Counseling (1970)

B.A.—University of Arizona
M.A.—University of Arizona

David K. Bruce, Administration of Justice (1975)

B.S.—Central Missouri State University
M.S.—California State University of San Jose

Thomas Burgess, Mathematics (1976)

B.S.—Idaho State University
M.S.—Colorado State University

Nicholas C. Busch, Life Sciences (1969)

B.A.—Sonoma State College

Fred M. Bustamante, Humanities (1972)

B.A.—University of Arizona
M.A.—University of Arizona

Charles R. Camp, Electronics (1971)

B.A.—Colorado College
M.A.—Colorado College

Colin E. Campbell, Life Sciences (1972)

B.S.—University of Arizona
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Teresa C. Campbell, Writing (1972)

B.A.—New York University
M.A.—Columbia University
J.D.—Fordham University

Jefferson Carter, Writing (1977)

B.A.—Pomona College
M.A.—University of Arizona
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P. Michael Carter, Respiratory Therapy (1977)

B.A.—University of Arizona
Registered Respiratory Therapist (RRT)

Margaret W. Catlin, Nursing (1971)

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A.A.—Phoenix College

B.A.—Arizona State University

Shirley J. Chann, Computer Science (1970)

B.A.—Wellesley College

M.Ed.—University of Arizona

Kenneth R. Chiaro, Political Science and History (1975)

B.A.—University of Arizona

M.A.—University of Arizona

Carolyn C. Christian, Office Education (1976)

B.S.—Bowling Green State University

M.A.—Ball State University

Christine P. Clifford, Life Science (1975)

B.A.—Bowling Green University

M.S.—University of Colorado

John Clifford, Automotive (1974)

B.Ed.—Colorado State University

David C. Coleman II, Mathematics (1972)

B.S.—Bluefield State College

M.S.—Western Reserve University

Ed.D.—University of Arizona

Joseph D. Cortez, Mathematics (1975)

B.S.—University of Arizona

Ed.D.—University of Denver

Taylor H. Cox, Business and Management (1979)

B.S.—Wayne State University

M.B.A.—Wayne State University

Ronald D. Crabtree, Humanities (1970)

B.A.—Washington University

M.A.—Washington University

Barbara Crowley, Dental Assisting (1975)

B.A.—University of Arizona

M.Ed.—University of Arizona

Michael B. Curry, Mathematics (1970)

B.S.—Wheeling College

M.M.—Utah State University

Daniel Davidson, Physics (1971)

B.S.—University of Rochester

Ph.D.—University of Arizona

Patricia J. Davis, Writing and Literature (1971)

B.A.—University of Texas

M.A.—University of Wisconsin

Ph.D.—University of Wisconsin

Donald H. Diggs, Sociology (1972)

B.S.—Kansas State Teachers College

M.S.—Kansas State Teachers College

Ed.D.—University of Kansas

Robert C. Douglas, Dental Laboratory (1975)

Certified Dental Technician

Elaine M. Downing, Social Services (1975)

B.S.—University of Colorado

M.Ed.—Kent State University

Allan E. Doyle, Accounting and Business (1977)

B.A.—John Hopkins University

M.B.A.—New York University

M.A.—University of Arizona

Edward M. Duperret, Counselor (1970)

B.A.—Seton Hall University

M.A.—New York University

M.Ed.—University of Arizona

David G. Ebert, Cooperative Education, Hospitality Education (1975)

B.A.—University of Arizona

M.P.A.—University of Oklahoma

Mary E. Elasowich, Nursing (1975)

R.N.—St. Vincent's Hospital School of Nursing

B.A.—University of Massachusetts

M.A.—Assumption College

Michael S. Engs, Counselor (1977)

B.A.—College of William and Mary

M.Ed.—University of Arizona

Michael Enis, Welding (1970)

Welder's Certificate, Engineers Testing Laboratory

A.A.—Pima Community College

Emilio Escarcega, Spanish (1973)

B.A.—University of Arizona

M.A.—University of Arizona

Ruben Estrada, Management and Accounting (1979)

B.S.—University of Arizona

M.B.A.—University of Arizona

Maria Figueroa, English as a Second Language (1979)

B.A.—University of Arizona

M.A.—Southern Illinois University

Margaret A. File, Nursing (1975)

R.N.—Sacred Heart Hospital School of Nursing

B.S.E.—University of Arizona

M.Ed.—University of Arizona

Georgeanne Fimbres, Home Economics (1979)

B.A.—University of Arizona

M.A.—University of Arizona

Norman P. Finch, Drafting (1970)

B.S.—California State College

M.A.—Arizona State University

Susan S. Finch, Computer Science (1969)

B.S.—University of California at Los Angeles

M.B.A.—University of Arizona

Charles L. Fletcher, Air Conditioning (1973)

Federal Aviation Administration Air Conditioning and Heating Certificate

William Floerke, Jr., Sign Language (1979)

B.A.—Texas A & I

M.S.—University of Arizona

D. Joan Forbes, Radiologic Technology (1974)

RT (ARRT)—St. Cloud Hospital

B.S.—Creighton University

Registered Radiologic Technologist (ARRT)

Mary M. Forsythe, Nursing (1974)

B.S.N.—Montana State University

Norman W. Fowkes, Automotive (1974)

NIASE Certified

Mildred V. Frank, Nursing (1978)

B.S.—Adelphi University

M.S.N.—Adelphi University

Millan A. Freeman, Humanities (1970)

B.A.—Eastern Nazarene College

M.Ed.—University of Arizona

Richard Frontain, Writing (1976)

B.A.—Iona College

M.Ed.—University of Arizona

Sotero V. Fuentevilla, Accounting (1970)

B.A.—University of Havana

M.S.—University of Havana

David W. Gallagher, Psychology (1971)

B.A.—University of Arizona

M.Ed.—University of Arizona

Ignacio A. Garcia, Business (1972)

A.A.—College of the Sequoias

B.A.—California State University

J.D.—Loyola University

**Rosemary Garcia, Sociology, Business,
and Administration of Justice (1972)**

B.A.—University of California

M.A.—University of California

J.D.—Loyola University

Ken Gardiner, Advertising Art (1976)

B.A.—California State College

Barbara M. Garrett, Counselor (1975)

B.A.—Sonoma State College

M.A.—San Francisco State College

Daniel P. Giaquinto, Radiologic Technology (1970)

Diploma—Rochester General Hospital

Registered Radiologic Technologist (ARRT)

Registered Radiotherapy Technologist (ARRT)

George H. Giley, Architectural Drafting (1972)

B.S.—University of Arizona

Betty L. Gilliland, Nursing (1976)

B.S.N.—University of Arizona

M.Ed.—University of Arizona

James R. Goff, Physics and Astronomy (1971)

B.A.—Nebraska Wesleyan University

M.S.—Case Western Reserve University

C. Barclay Goldsmith, Drama and Writing (1970)

B.A.—Stanford University
M.F.A.—Carnegie-Mellon University

Raquel Goldsmith, History (1970)

B.A.—National University of Mexico
Licenciado en Law and Social Sciences—National University of Mexico

Allan S. Goodman, Counselor (1973)

B.S.—Polytechnic Institute of Brooklyn
M.Ed.—University of Arizona
M.S.—University of Arizona
Ph.D.—University of Arizona

Robert Gordon, Mathematics (1971)

B.S.—University of New Mexico
M.A.—University of Arizona

George Gorecki, Electronics (1979)

B.S.—Northern Arizona University

Max Gottschalk, Design and Drafting (1970)

B.A.—Washington University

Donald A. Graham, Writing and Humanities (1971)

B.A.—Yale University
M.A.—University of California
M. Phil.—Yale University

Lisa Grenier, Mathematics (1979)

B.A.—Kutztown State College
M.A.—University of Arizona

Marie C. Gross, Nursing (1971)

B.S.—University of Nebraska
M.S.—Indiana University
M.Ed.—University of Arizona

Anthony S. Guglielmino, Aviation Mechanics and Metallurgy (1971)

Federal Aviation Administration Certifications AP, I.A., D.M.E.
Aviation Technician, Northrup Institute of Technology

Ysidro L. Gutierrez, Drafting (1970)

B.S.—Northern Arizona University

Clare T. Hamlet, Computer Science (1971)

B.A.—University of Arizona
M.Ed.—University of Arizona

Elizabeth J. Hamm, Counselor (1976)

B.S.—State University of New York
M.S.—Syracuse University
M.A.—Hunter College

Benjamin Hankey, Music (1978)

A.A.—Iowa Lakes Community College
B.M.—University of Iowa
M.M.—University of Arizona

Laurene G. Harding, Nursing (1971)

B.S.—University of Arizona
M.A.—University of Arizona

Betty Harris, Art (1977)

B.S.—Pratt University
M.F.A.—University of Arizona

Louise S. Haugh, Reading (1970)

B.A.—University of Kentucky
M.Ed.—University of Arizona

Lester G. Hays, Computer Science (1968)

B.S.—Washington University
M.Ed.—University of Arizona

Angel Hernandez, Recreation (1976)

Certificado—University of Guadalajara

Guadalupe M. Hernandez, Physical Education (1974)

B.S.—Northern Arizona University
M.A.—Northern Arizona University

Pamela Holzmler, Library (1979)

A.A.—San Bernadino Valley College
B.A.—University of Arizona
M.Ed.—University of Arizona

Mark S. Homan, Social Services (1978)

B.A.—University of Arizona
M.S.W.—Arizona State University

Patricia Hruby, Physics and Astronomy (1969)

B.S.—College of Mt. St. Vincent
M.S.T.—Cornell University

José George Iglesias, Health Education and Social Services (1972)

B.A.—University of Michigan
M.S.W.—University of Michigan
M.P.H.—University of Michigan

Madeline Irell, Reading (1979)

B.A.—University of Arizona
M.Ed.—University of Arizona

Roger D. Irwin, Sociology, Psychology and Religions (1970)

B.A.—Wichita State University
M.S.—Kansas State College
Ph.D.—Paideia

Carol G. Jacques, Art (1976)

B.F.A.—University of Denver
M.F.A.—University of Massachusetts

Robert D. Jameson, Computer Science (1978)

B.B.A.—University of Miami
M.B.A.—University of Miami

John Jarchow, Architecture and Drafting (1978)

B.Arch.—University of Arizona

Paul C. Johnson, Earth and Life Sciences (1975)

B.A.—University of Iowa
M.A.—University of Iowa

Philip E. Johnson, Cooperative Education (1970)

B.S.—University of Maine
M.S.—Penn State University
M.Ed.—University of Maine
Ph.D.—University of Arizona

T. Wendell Johnson, Chemistry (1978)

B.S.—Oklahoma State University
M.S.T.—University of Arizona

Margaret Kenski, Political Science (1969)

B.S.—Georgetown University
M.A.—Georgetown University
Ph.D.—Georgetown University

Barbara Kiley, Health Science (1978)

B.A.—Case Western Reserve University

Robert A. Kish, Writing (1970)

B.S.—Indiana State University
M.A.—Arizona State University

James R. Kluger, History (1977)

B.A.—St. Ambrose College
M.A.—University of Arizona
Ph.D.—University of Arizona

Cecilia V. Knauss, Literature and Writing (1976)

B.A.—Silliman University
M.A.—Silliman University

Betty U. Koff, Nursing (1973)

B.S.—New York University
M.S.N.—University of Arizona

Victor H. Krebs, German and Humanities (1970)

B.A.—University of Arizona
M.A.—University of Arizona

Alan K. Krieg, Automotive (1971)

B.S.—University of Arizona

Alan E. Kruse, Chemistry (1974)

B.S.—Massachusetts Institute of Technology
M.S.—Iowa State University

Charles A. Land, Mathematics (1978)

B.S.—Morehouse College
M.Ed.—University of Arizona

Moses A. Leon, Administration of Justice (1970)

A.A.—San Jose City College
B.A.—San Jose State College
M.S.—California State University, San Jose

William Lewis III, Drama and Literature (1970)

B.A.—Fisk University
B.D.—Chicago Theological Seminary
M.A.—University of Arizona

Jean M. Lindeberg, Life Sciences (1974)

B.S.—Montana State University
M.S.—University of Arizona

JoAnn B. Little, Writing and Humanities (1976)

B.A.—University of Arizona
M.Ed.—University of Arizona

Charles S. Lochner, Jr., Chemistry (1969)

B.S.—New Jersey State College
M.S.T.—University of Arizona
M.S.—Colorado State University

Robert Longoni, Writing (1970)

B.A.—St. Edwards University
M.A.—Notre Dame University

John Lowe, Automotive (1979)

James A. Lowell, Life Sciences (1969)

B.S.—University of Arizona
M.S.—University of Arizona
Ph.D.—University of Arizona

Jesse Lucas, Air Conditioning and Sheet Metal (1979)

B.S.—Northern Arizona University

Mary Macon, Office Education (1974)

B.S.—University of Arizona
M.Ed.—University of Arizona

Marvin Mandell, Drafting (1974)

B.A.—Long Beach State College
M.A.—Long Beach State University

Adolfo Marquez, Welding (1976)

Welder's Certificate, Engineers Testing Laboratory
A.A.—Pima Community College

Daniel J. Martin, Jr., Earth Sciences (1969)

B.S.—Colorado State University
M.Ed.—University of Florida
M.A.—University of California

Darla J. Masterson, Art (1970)

B.F.A.—University of Arizona
M.A.—University of Arizona
M.F.A.—Indiana University

David May, Mathematics (1971)

B.S.—University of Arizona
M.A.—University of Arizona

Pamela D. Mayhall, Administration of Justice/Youth Care (1975)

B.S.—University of Arizona
M.Ed.—University of Arizona

Kenneth E. McCollester, Chemistry (1971)

B.S.—Rollins College
M.S.—North Carolina State University

Herbert C. McCommons, Radiologic Technology (1971)

Diploma—Hospital of the University of Pennsylvania
Registered Radiologic Technologist (ARRT)

Larry W. McHolland, Humanities and Philosophy (1971)

B.A.—University of Arizona
M.A.—University of Arizona

James V. Meisel, Sheet Metal (1971)

Certified Plant Maintenance Engineer

Mary M. Memedova, Political Science (1975)

B.A.—Wayne State University
M.A.—Wayne State University

Miguel M. Mendez, Spanish (1970)

Louise A. Meyer, Writing and Literature (1970)
B.S.—St. Louis University
M.A.—University of Minnesota

James Mick, Machine Tool Technology (1973)

Journeyman Machinist Certificate

James M. Mielke, Physical Education (1978)

B.S.—University of Arizona
M.Ed.—University of Arizona

Myrna Mitchell, Mathematics (1976)

B.S.—Anderson College
M.S.—University of Arizona

Ysidro D. Montano, Welding (1971)

Welder's Certificate, Engineers Testing Laboratory
A.A.—Pima Community College

Becky J. Moore, Assistant Catalog Librarian (1978)

B.A.—University of Arizona
M.Ed.—University of Arizona

Beverly Moore, Writing (1978)

B.A.—University of Tennessee
M.S.—University of Tennessee
M.A.—Governors State University

Bessie W. Morris, Nursing (1970)

B.S.N.—University of Arizona

M.S.N.—University of Arizona

Myrna L. Moskowitz, Nursing (1979)

B.S.—New York University

M.A.—New York University

Cody A. Mothershed, Chemistry (1970)

B.S.—Arizona State University

M.Ed.—University of Arizona

Mary E. Mullin, Office Education (1970)

B.Ed.—Plymouth State College

M.Ed.—Boston University

Robert F. Murdock, Area Counselor (1970)

B.D.—Eden Seminary

B.A.—Elmhurst College

M.S.—Indiana University

Maureen A. Murphy, Physical Education (1971)

B.S.—University of Wisconsin

M.A.—University of Arizona

Timothy C. Murphy, Educational Development Officer (1974)

B.S.E.—Western Illinois University

M.S.E.—Eastern Illinois University

Gertrude A. Narum, Nursing (1976)

B.S.N.—University of Arizona

M.Ed.—University of Arizona

Richard E. Newton, Accounting (1975)

B.S.—University of Wisconsin

M.S.—University of Arizona

Ell Noble, Jr., Health Education and Physical Education (1971)

B.A.—St. Augustine's College

M.Ed.—University of Arizona

Keray Nouri, International Student Counselor (1978)

A.A.—Suffolk County Community College

B.A.—State University of New York

M.A.—Arizona State University

Ernest A. Oppenheimer, Psychology (1968)

B.A.—Amherst College

M.B.A.—New York University

Ph.D.—Columbia University

Claire Campbell Park, Art (1978)

B.A.—Scripps College

M.A.—University of California at Los Angeles

M.F.A.—University of California at Los Angeles

Ronald Parker, Business (1976)

B.A.—Chadron State College

M.A.—University of Arizona

Certified Public Accountant

Lucille M. Parks, Mathematics (1970)

B.S.—University of Alberta

M.A.—University of Kansas

James J. Pate, Recreation (1971)

B.A.—Butler University

M.A.—University of Arizona

M.Ed.—University of Arizona

Norman J. Patton, Physical Education (1973)

A.A.—Eastern Arizona College

B.S.—New Mexico State University

M.Ed.—University of Arizona

Carol A. Pearse, Reading (1976)

B.A.—University of Arizona

M.A.—University of Arizona

Mauro G. Peralta, Electronics (1971)

B.S.—Northern Arizona University

Leonel F. Peterson, Fire Science (1979)

A.A.—Pima Community College

Norbert Pittner, Mathematics and Computer Science (1969)

B.A.—University of California

M.A.—San Francisco State College

Anthony Pitucco, Physics (1973)

B.S.—University of Arizona

M.Ed.—University of Arizona

David G. Poedel, Emergency Medical Technology (1975)

Certified Paramedic (ARMT)

George W. Porter, Business (1974)

B.S.—United States Military Academy
M.B.A.—Harvard University

Barbara Quaid, Office Education (1972)

B.S.—University of Arizona
M.Ed.—University of Arizona

Lonieda Rae, Nursing (1978)

B.S.—University of Arizona
M.S.—University of Utah

Steven Rankin, Writing and Literature (1970)

B.A.—Washington University
M.A.—University of Arizona
M.A.T.—Washington University

William Reynolds, Emergency Medical Technology (1978)

A.A.—Pima Community College

Carol Rhodes, Music (1971)

B.Mu.—University of Michigan
M.Mu.—University of Michigan

Frank Rizzuto, Chemistry (1976)

B.S.—University of Utah
Ph.D.—University of Utah

Cynthia A. Roed, Counselor (1977)

B.A.—San Jose State College
M.Ed.—University of Arizona

Ernest P. Rubi, Reading (1970)

B.S.—Arizona State University

P. Stephen Russ, Respiratory Therapy (1976)

A.S.—Pima Community College
Registered Respiratory Therapist (RRT)

Marvin A. Saari, Sheet Metal (1976)

Arturo E. Sachs, Area Counselor (1969)

B.S.—University of Pennsylvania

Constance K. Sacra, Writing (1975)

B.A.—University of Iowa
M.A.—University of Arizona

Rebecca T. Sartlin, Health Care (1975)

B.S.—University of Arizona
M.Ed.—University of Arizona

Christine F. Scharf, Health Services Coordinator (1970)

B.S.—University of Arizona
M.A.—University of Arizona

Francis J. Scheuring, Business (1969)

B.S.—University of Colorado
M.B.A.—University of Denver
M.Acc.—University of Arizona

Ann Schlumberger, Writing (1977)

B.A.—University of Texas
M.A.—University of Arizona

Steven Schneider, Psychology (1972)

B.A.—University of Arizona
M.Ed.—University of Arizona

S. Daniel Schwartz, Sociology and Anthropology (1976)

A.A.—Mercer County Community College
B.A.—California State University at Los Angeles
M.A.—California State University at Los Angeles
M.P.H.—University of California, Berkeley

Leland Scott, Area Counselor (1969)

A.B.—University of Southern California
B.D.—Garrett Theological Seminary
Ph.D.—Yale Graduate School

Steve J. Sedor, Business Services (1978)

B.S.—University of Arizona
M.Ed.—University of Arizona
M.P.A.—University of Arizona

Douglas Shakel, Earth Sciences (1978)

B.S.—California Institute of Technology
M.S.—University of Arizona

Hazel Y. Shee, Office Education (1971)

B.S.—University of Arizona
M.Ed.—University of Arizona

James E. Sherman, Engineering (1971)

B.S.—Wisconsin Institute of Technology
M.S.—University of Arizona

Julian Sidlowski, Life Sciences (1970)

B.S.—Eastern Illinois University
M.S.—University of Arizona
Ph.D.—University of Arizona

Jacquelyn Simons, Nursing (1978)

R.N.—St. Luke's School of Nursing

B.S.N.—University of Arizona

M.Ed.—University of Arizona

Michael T. Sita, Literature and Writing (1969)

B.S.—California State Polytechnic College

M.A.—Loyola University

Ph.D.—Arizona State University

J. Graham Smart, Life Sciences (1974)

B.S.—Appalachian State University

M.A.—Appalachian State University

Ernest E. Smith, Counselor (1976)

B.S.—University of Pittsburgh

M.Ed.—University of Illinois

Richard H. Snider, Drama and Humanities (1970)

B.A.—Ohio Wesleyan University

M.A.—University of Arizona

Ph.D.—University of Arizona

Larry J. Solomon, Music (1973)

B.A.—Allegheny College

M.M.—University of Illinois

Ph.D.—West Virginia University

Raymond E. Sparks, Cooperative Education (1975)

B.S.—Northwestern State University

M.S.—Northwestern State University

Oma J. Spillman, Automotive (1971)

Master Technician, Chevrolet

Betty M. Stanley, Cooperative Education (1975)

B.S.—Arizona State University

M.A.—Arizona State University

Ed.D.—Arizona State University

David Stephen, Anthropology (1975)

B.A.—California State University

M.A.—University of Arizona

James S. Stephenson, Graphic Communication (1979)

B.S.—Northern Arizona University

Arlene D. Stevenson, ESL (1971)

A.A.—Queensborough Community College

B.A.—Hunter College

M.A.—University of Arizona

Joseph L. Swaffar, Economics (1973)

B.A.—University of Missouri

M.A.—University of California

William R. Swanson, Building Maintenance (1978)

B.A.—University of Montana

Harold Symms, Music (1975)

B.A.—Arizona State University

M.M.—Arizona State University

Nard N. Talz, Writing (1970)

B.A.—University of Arizona

M.A.—University of Arizona

Donna A. Tang, Library Services Coordinator (1974)

(Downtown Campus)

B.A.—Boston University

M.L.S.—University of Arizona

Stella Tetar, Recreation (1970)

A.A.—Kendall College

B.S.—Northwestern University

M.Ed.—University of Arizona

Larry C. Thompson, Writing (1974)

B.A.—Virginia Commonwealth University

M.A.—University of Richmond

M.A.—University of Arizona

Ph.D.—University of Arizona

Mary A. Tindall, Nursing (1972)

B.S.—University of Arizona

M.Ed.—University of Arizona

**Herman J. Torrano, Air Conditioning and Sheet Metal/
Apprentice Programs Coordinator (1971)**

B.Ed.—Colorado State University

M.S.—Arizona State University

Jamie L. Trainer, Counselor (1974)

B.S.—Texas Tech University

M.S.—Texas Woman's University

Francine B. Trotter, Marketing (1977)

B.S.—University of Arizona
M.S.—University of Arizona

Patricia J. Tuntland, Psychology (1971)

B.A.—Concordia College
M.A.—University of Arizona

Virginia R. Turner, Home Economics (1971)

B.S.—Bennett College
M.Ed.—Wayne State University

Ronald T. Tyler, Writing and Journalism (1976)

B.A.—University of California
M.A.—University of California
Ph.D.—University of Nevada

Billie Underwood, Early Childhood Education (1975)

B.A.—University of Arizona
M.S.—University of Arizona
Ph.D.—University of Arizona

Flame J. Vallentine, Area Counselor (1972)

B.S.—University of Arizona
M.A.—Northern Arizona University

Yone B. Van Olphen, Reading, Writing and ESL (1970)

B.A.—San Jose State College
M.A.—Arizona State University

John C. Varga, Electronics (1971)

B.S.—University of Arizona
M.S.—University of Arizona

Manuel Velez, Writing (1970)

B.A.—University of Arizona
M.A.—University of Arizona

Laurence J. Victor, Psychology (1974)

B.S.—Rensselaer Polytechnic Institute
M.S.—University of Chicago
Ph.D.—Yale University
Ph.D.—University of Minnesota

James E. Wald, Art (1971)

B.F.A.—University of New Mexico
M.F.A.—University of Arizona

Nancy B. Wall, Writing and Literature (1971)

B.A.—Colorado State University
M.A.—University of Arizona

Stephen A. Wallace, Humanities (1977)

B.S.—Georgetown University
M.A.—University of Arizona

James C. Wallis, Drafting (1971)

B.S.—Ball State University

Evelyn B. Wallraff, Life Sciences (1972)

B.S.—Rosary College
M.S.—University of Chicago
Ph.D.—University of Arizona

Eugene J. Wanat, Jr., Ophthalmic Dispensing (1979)

A.A.S.—Ecti County Technical College
National Academy of Ophthalmics
B.S.—State University College at Buffalo

Arligh B. Watlins, Early Childhood Education (1971)

P.S.C.—Toronto Teacher's College
B.A.—University of Arizona

William B. Watkins, Physical Education (1970)

B.Ed.—Arizona State University
M.S.—Arizona State University
Ed.D.—University of Arizona

Robert L. Watson, Electronics (1978)

B.S.—Northern Arizona University

Glynn D. Webb, Life Sciences (1970)

B.M.—Louisiana State University
M.S.—University of Arizona

George R. Welch, Art (1971)

B.S.—Central State University
M.S.—Bank Street College of Education

Sharon L. Welch, Office Education (1970)

B.S.—University of Arizona
M.Ed.—University of Arizona
Certified Professional Secretary

Paul J. Welsh, Jr., Mathematics (1976)

B.S.—John Carroll University
M.S.—University of Notre Dame
Ph.D.—University of Notre Dame

Bruce Weng, Sociology (1978)

B.S.—Central Michigan University
M.A.—Central Michigan University
M.S.S.W.—University of Wisconsin

James P. Wesselmann, Mathematics (1972)

B.S.—University of Arizona
M.A.—University of Arizona
M.Ed.—University of Arizona

Kathleen S. White, Humanities, Literature and Speech (1976)

B.A.—University of Utah
M.A.—University of Utah
M.A.—University of Arizona

Shirley P. Wicklund, Library Technical Services Coordinator (1970)

B.A.—Moorhead State College
M.S.—Florida State University

Doris Williams, Counselor (1974)

A.A.—Pima Community College
B.A.—University of Arizona
M.S.—University of Arizona

Stanley P. Witt, Humanities and Philosophy (1976)

B.A.—University of Arizona
M.A.—University of Arizona
Ph.D.—University of Arizona

Donna Yoder, Office Education (1978)

B.A.—Goshen College
M.A.—University of Northern Colorado

Linda M. Zellner, Dental Lab Technology (1978)

Certified Dental Lab Technician

Angela Zerdavis, Anthropology (1972)

B.A.—University of Illinois
M.A.—California State University

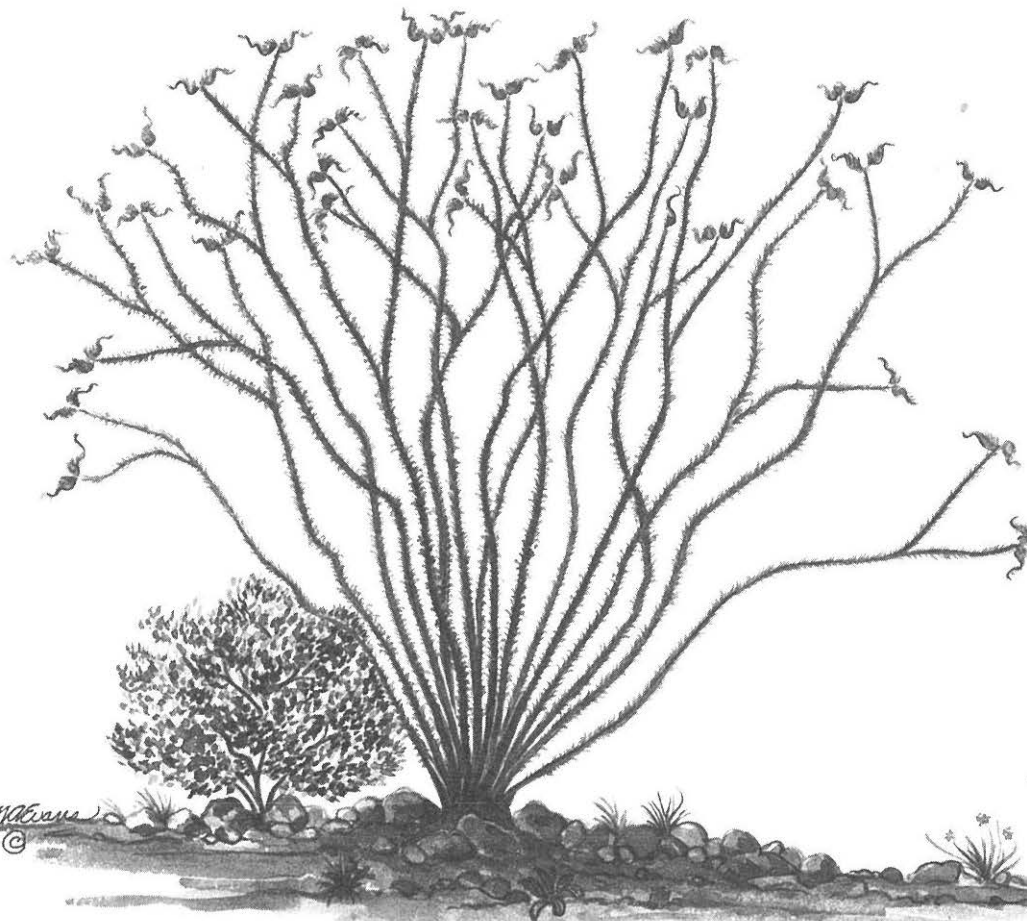
Mary A. Zimmer, Nursing (1976)

B.S.—College of St. Catherine's

Tamas D. Zsitvay, Political Science and Public Administration (1970)

B.A.—Arizona State University
M.A.—Arizona State University
Ph.D.—University of Arizona

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