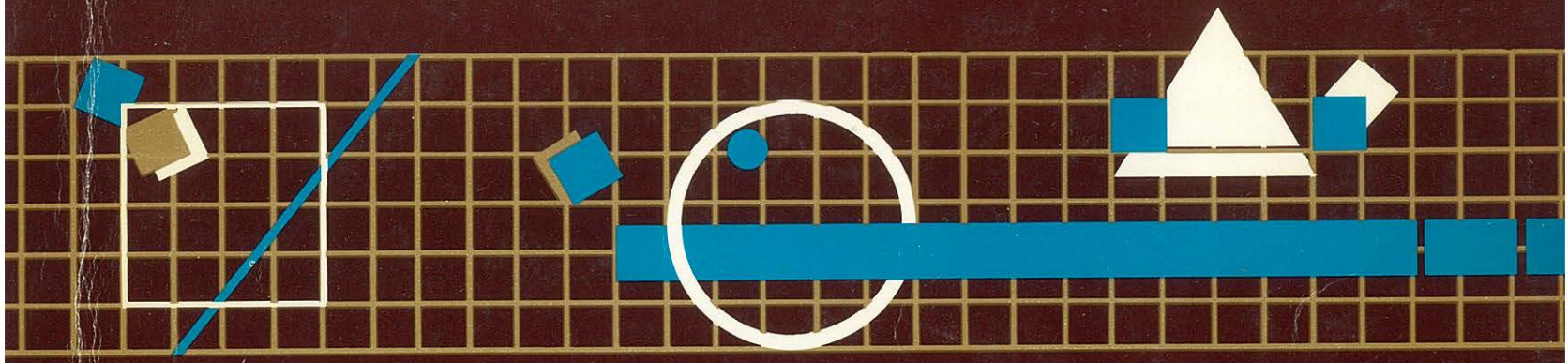
Pima Community College Catalog 83/84

Pima County Community College District



Pima County Community College District

1983/84

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

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

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

COMMUNITY SERVICES
21 E. Speedway Boulevard
Tucson, Arizona 85705
(602) 884-6720

PIMA COMMUNITY COLLEGE SKILL CENTER
1859 W. Grant Road, #101
Tucson, Arizona 85705
(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 at the District Service Center, 200 N. Stone Ave. 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: May 1983

Family Educational Rights and Privacy Act

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

Local regulation explains, in detail, the procedures to be used by the institution for compliance with the provisions of the Act. Copies of the regulations can be obtained at the Office of 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.

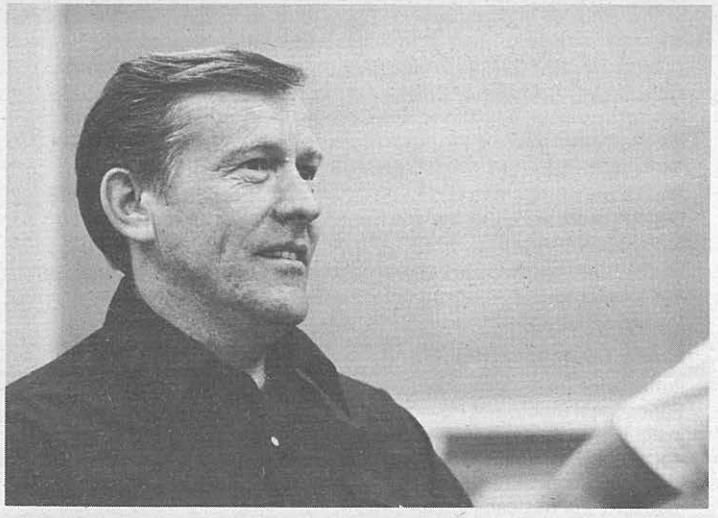
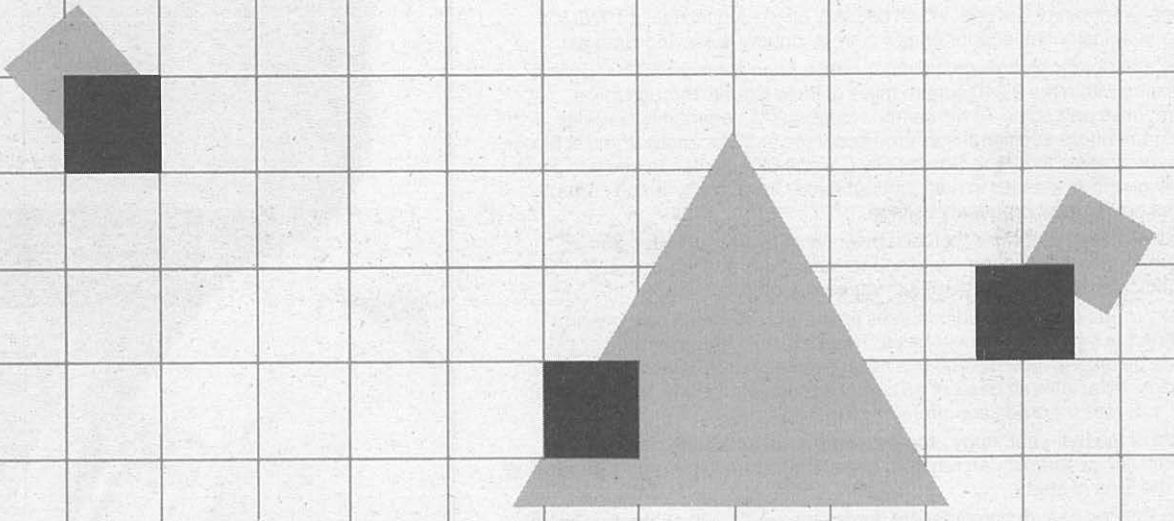


Table of Contents



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.

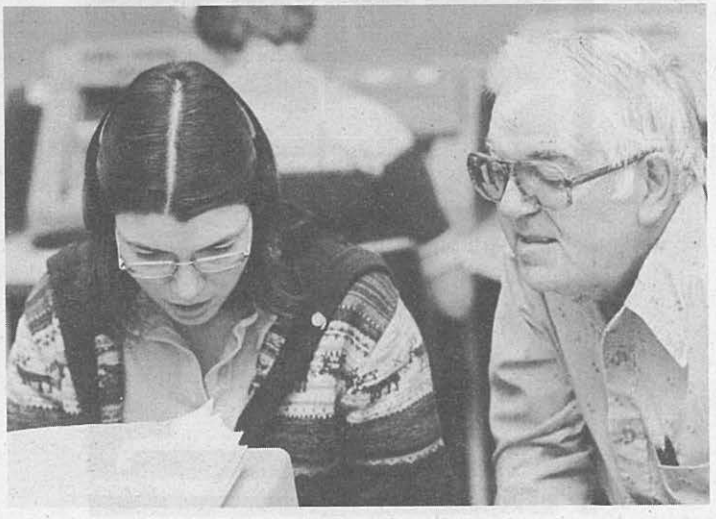
The multi-campus college district serves a population of 580,000 people residing within the 9,240 square miles of Pima County through three campuses and some 70 off-campus locations. A community services program offers additional non-credit courses at 50 locations. Pima is also responsible for the Pima Community College Skill Center. In addition, Pima College offers classes in neighboring Santa Cruz County which currently does not have a community college.

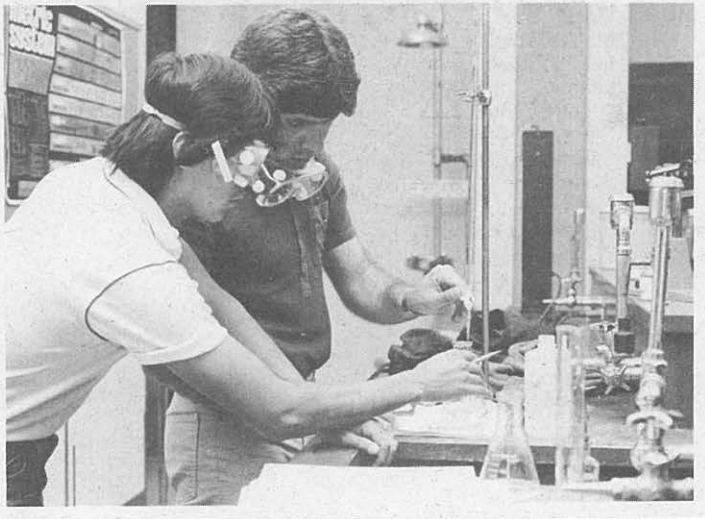
College credit programs include university parallel or transfer studies representing the freshman and sophomore levels and job-oriented technical-occupational studies of various lengths.

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 850 courses for credit 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 21,500 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.

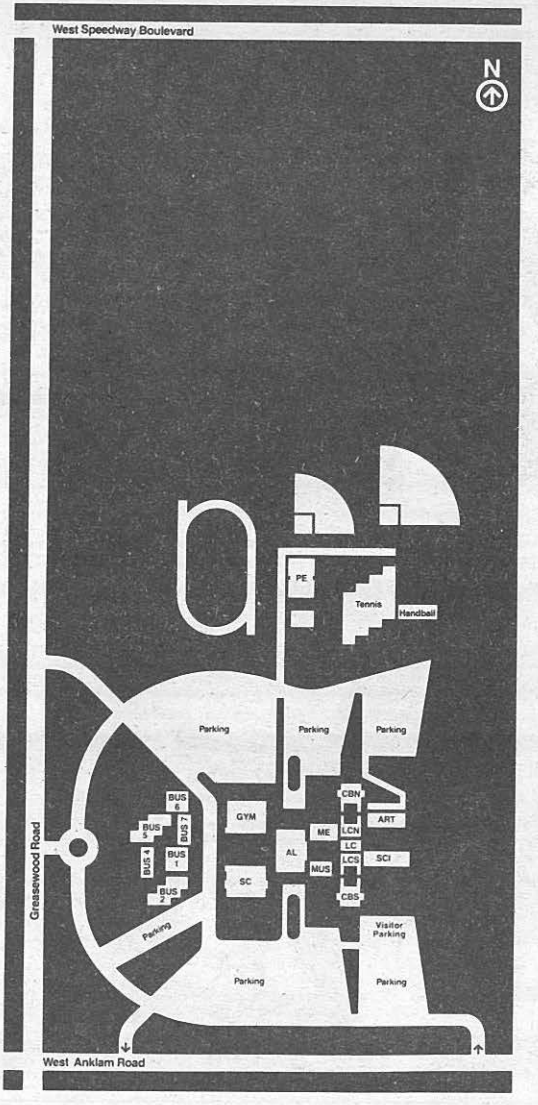
The West Campus is located on a 273-acre site in the foothills of the Tucson Mountains, three miles west of Tucson's central business district. Completed in the early part of 1971, campus facilities include 11 permanent buildings and six relocatable buildings.

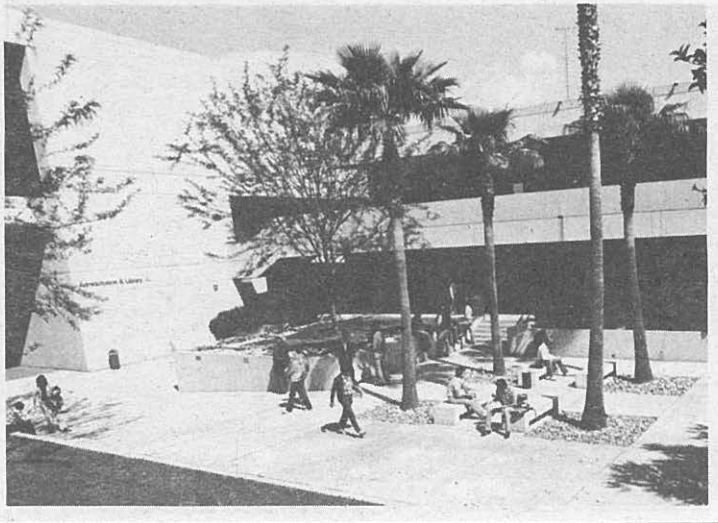
Buildings, designed in the form of a close-knit complex, and landscaping surrounding the campus blend in with the rolling desert terrain. Malls hidden within the complex, however, sport areas of lush grass, shrubs and tall trees.

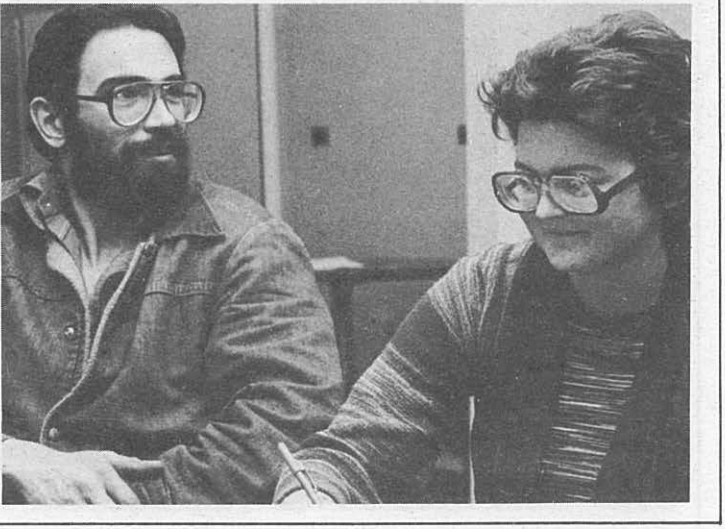
Facilities include two classroom buildings; a lecture center; a student center housing various student service offices, an art exhibition gallery, a cafeteria and lounges; a music building; a sciences building; a math/electronics building; an arts building; a library/administration building; learning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

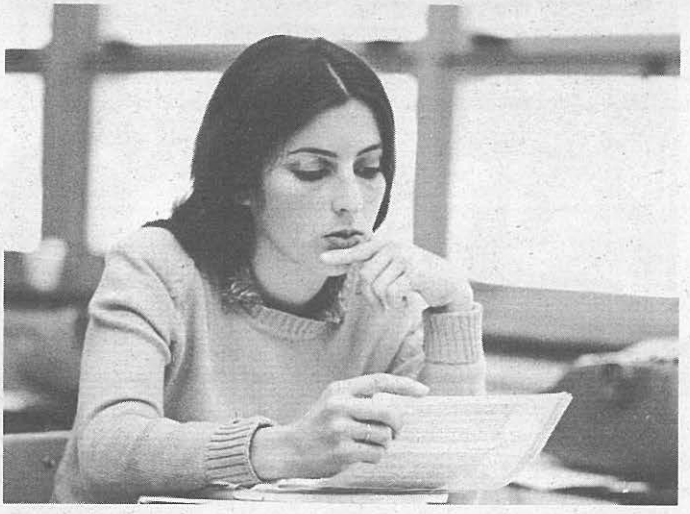
The West Campus enrollment is approximately 9,700.

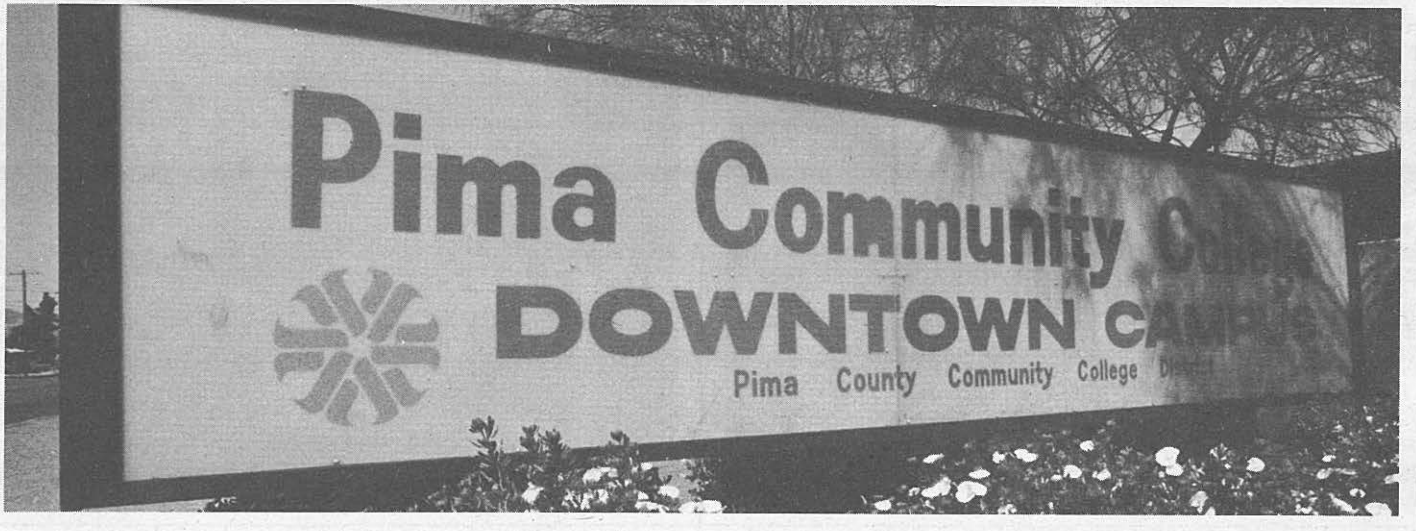
SC	Student Center
GYM	Gymnasium
PE	Physical Education Annex
AL	Administration/Library
MUS	Music
ME	Math/Electronics
LCN	Learning Center—North
LCS	Learning Center—South
LC	Lecture Center
CBN	Classroom Building—North
CBS	Classroom Building—South
SCI	Sciences
ART	Arts
Area R	Relocatable Buildings
	1—Relocatable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










Pima Community C
DOWNTOWN CA
Pima County Community College

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. The 13 buildings house classrooms, laboratories, and support services designed to meet the needs of the students.

The campus site is easily accessible to public transportation from most sections of the city.

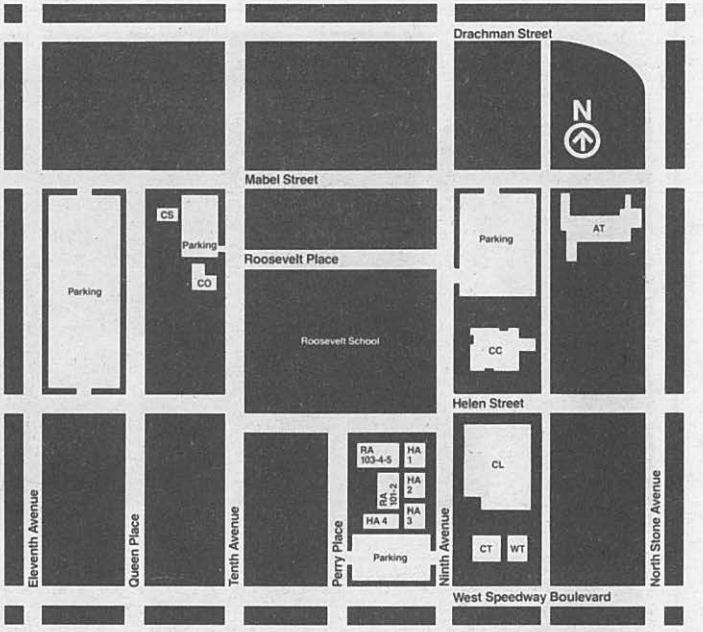
In addition to offering a fully comprehensive study program, the campus also houses some of the specialized industrial technologies programs such as automotive, air conditioning and sheet metal, machine tool and welding.

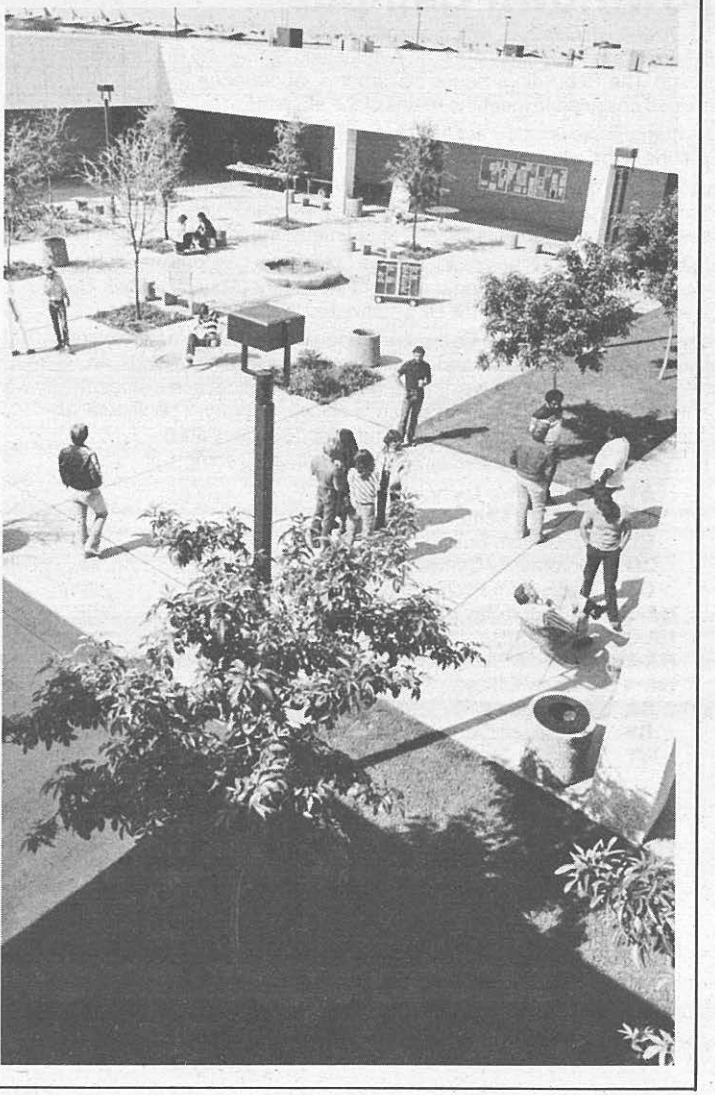
Students can take all their studies at the Downtown Campus or a portion at that campus and the remainder at any of the other college locations. Bus service is available linking the Downtown and West Campuses.

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 services offices, a library, a bookstore, an alternative learning center, lounges and a food services area.

The Downtown Campus enrollment is approximately 7,100.

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





East Campus

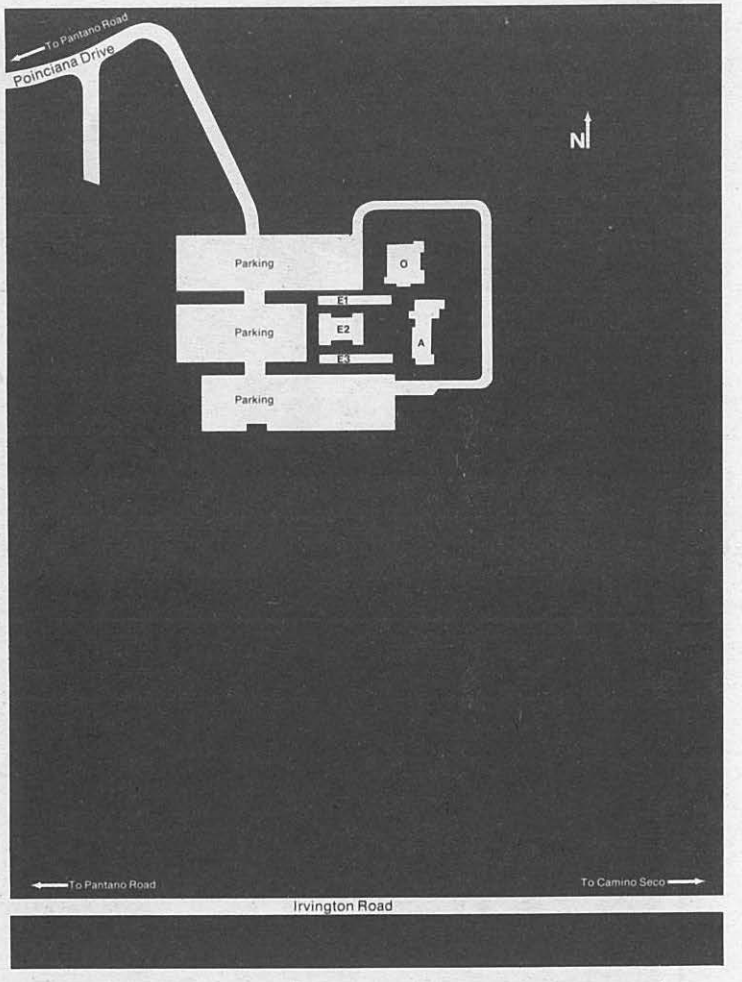
The East Campus, which opened in the fall of 1976, offers introductory courses in a wide range of subject areas, some advanced general education courses, and selected courses in occupational programs.

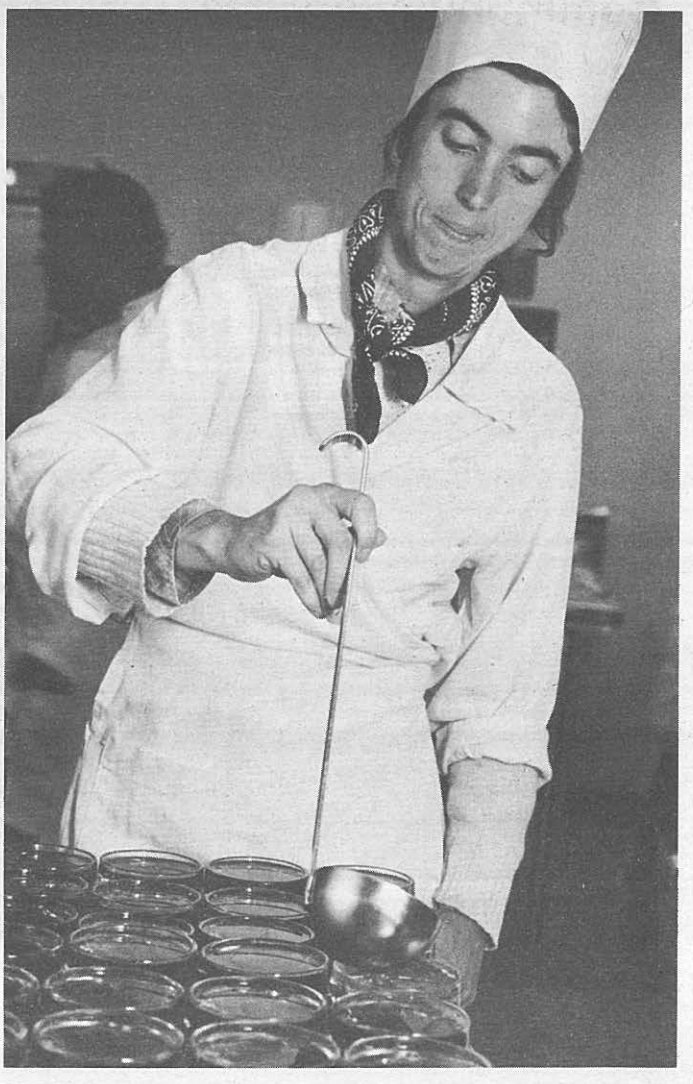
The Campus is located close to Irvington and Pantano Road (8202 E. Poinciana Dr.) on Tucson's east side. The new facilities opened for fall semester classes in 1981. The campus originally was established as an education center which was located at the corner of Broadway and Pantano Road.

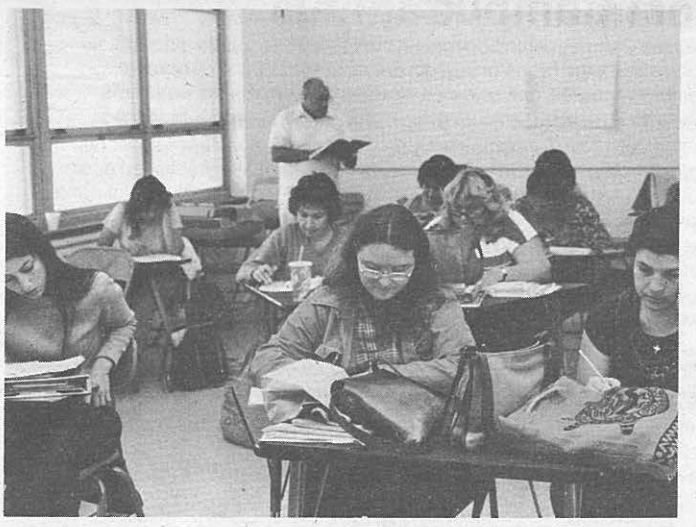
Opening of the campus was aimed at relieving high enrollment pressures at the West and Downtown Campuses and also to bring classes closer to people on the east side. It had been found that nearly half of Pima's annual student body lives east of Alvernon Way.

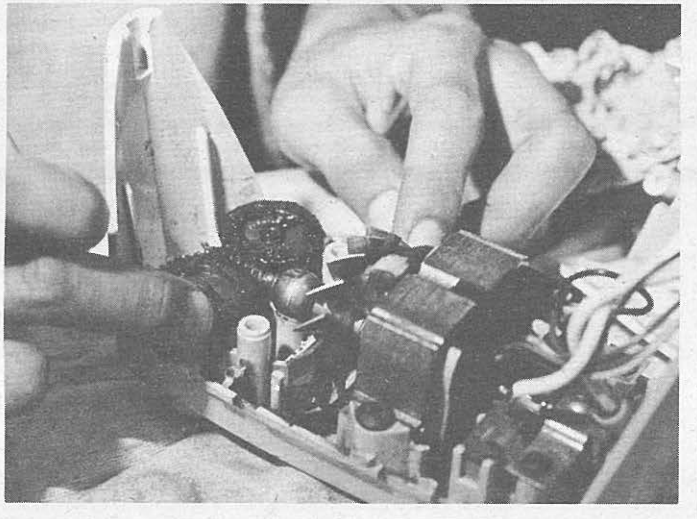
Housed at the campus are classrooms, laboratories and support services including advising and counseling, an alternative learning center, a library, financial aid services, student activities, veterans advising, and a bookstore.

The East Campus enrollment is approximately 4,200.









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 Ave., adjacent to the Downtown Campus.

The Community Campus enrollment is about 5,800 with classes held at: Ajo High School, Amphitheater Junior High School, Amphitheater High School, Araneta's Mexican Inn, Avra Valley Fire Station, Aztec Inn, Burr Brown Plant, Canyon del Oro High School, Carrillo Elementary School, Catalina 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, 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, Marana High School, Midway Business Park, Nogales High School, Palo Verde High School, Patagonia High School, Plaza International Hotel, Pueblo High School, Ramada Inn, Rincon High School, Sahuarita High School, Sahuaro High School, Santa Rita High School, Sells High School, Skill Center, Smuggler's Inn, Sunnyside High School, Tucson General Hospital, Tucson High School, Tucson Marriott Hotel, Tucson Medical Center, University of Arizona, Valley National Bank locations, Western Savings Bank, and several other locations.

Community Services

Community Services offers non-credit programs and classes in approximately 50 locations. Major program areas are General Interest Education, Senior Education, Business and Industry Training, Personal and Professional Development, Special Projects, Seminars and Workshops. In addition, Educational Study Tours are conducted throughout the Southwest and Mexico.

It is the goal of Community Services to meet the non-credit self-defined educational needs of the community and its citizens in an effective and efficient manner. To this end, flexibility and innovation characterize Community Services programs. Nearly 16,000 persons yearly are involved in Community Services programs and classes and approximately 4,000 of these are seniors.

The Community Services office is located at 21 E. Speedway Blvd., adjacent to the Downtown Campus.

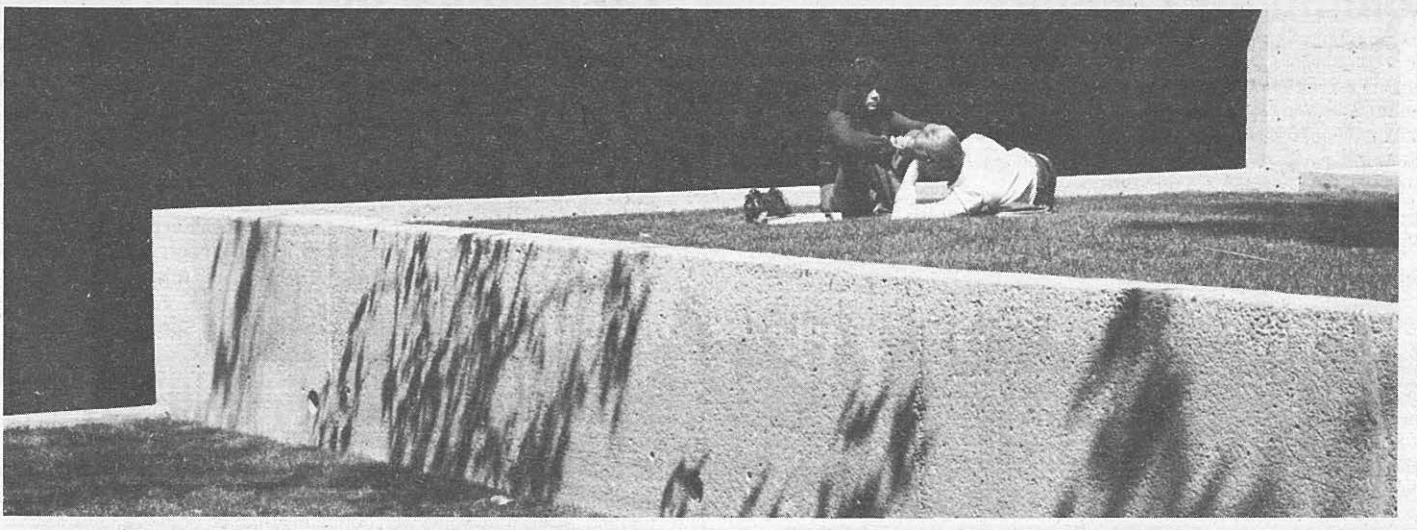
Pima Community College Skill Center

The Pima Community College 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 9, 1979, officially recognized the Center as part of the college organization.

The Skill Center is located at 1859 W. Grant Road, #101, on Tucson's west side.



Academic Calendar 1983/84

Fall Semester (1983)

Registration/Advising	
Continuing students by appointment	Aug 1-4
Pre-applied new students by appointment	Aug 8-9
Open registration and drop/add	Aug 10-11, 15-18
Late registration and drop/add	Aug 22-26
Fall Classes Start	Aug 22
Labor Day Holiday	Sept 5
Advising—Spring Semester by Appointment	Oct 10-Nov 24
Graduation Applications Due	Nov 1
Early Registration/Advising Spring Semester	
Continuing students by appointment	Nov 14-18
Pre-applied new students by appointment	Nov 21-23
Early Drop/Add	Nov 30
Veterans Day Holiday	Nov 11
Thanksgiving Day Holiday	Nov 24-27
Evaluation/Assessment/Exam Week	Dec 12-16
Final Grades Due	Dec 16
Fall Semester Ends	Dec 16
Christmas & New Year's Holidays	Dec 17-Jan 15

Spring Semester (1984)

Registration/Advising	
Open registration and drop/add	Jan 9-13
Late registration and drop/add	Jan 16-20
Spring Classes Start	Jan 16
Graduation Applications Due	Mar 5
Rodeo Days Holiday	Mar 1-4
Spring Vacation	Mar 19-23
Evaluation/Assessment/Exam Week	May 8-11
Final Grades Due	May 11
Spring Semester Ends	May 11
Graduation	May 10

Summer Session (1984)

Summer Advising/Registration Period	May 21-24
Memorial Day	May 28
Session A (5 weeks)	
Classes Begin	May 29
Late Registration/Drop Add	May 29-31
Classes End	June 28
Session B (5 weeks)	
Advising/Registration Continues	June 27-28
Independence Day	July 4
Classes Begin	July 2
Late Registration/Drop Add	July 2-3, 5, 9
Classes End	Aug 2
Session C (8 weeks)	
Classes Begin	May 29
Late Registration/Drop Add	May 29-31
Independence Day	July 4
Classes End	July 19

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 human potential in accordance with their chosen goals. To achieve this end, Pima Community College believes education should be designed as a lifelong process, developing an awareness in individuals, both of themselves and their environment, and thus preparing them to function more effectively in a highly complex society.

The College encourages all individuals to take pride in their own heritage and, at the same time, to develop an awareness and appreciation of differences which come from diverse backgrounds.

The College supports the continuous evaluation of all activities to improve its services to the community and to increase awarenss of accountability in all its participants.

Mission

Pima Community College is a comprehensive, multi-campus two-year institution located in southern Arizona. The College serves a heterogeneous student population representative of the composition of Pima County citizens. The College provides an atmosphere which is responsive to the individual differences in its student population by providing a multiplicity of subject matter, materials, and instructional approaches. Through the transfer, occupational, and general interest programs, Pima College strives to prepare its students to function effectively in a highly complex and technological society; assists all students in reaching their highest potential; and contributes to the educational, social, and cultural development of Pima County.

Goals

The goals derived from the mission statement build upon the concepts of the College transfer and general education function, the occupational function, the dvelopmental support function, the special interest function, the community services function, and the overall function to promote quality in all programs. They are:

- Include general education in all programs to enhance the capacity for personal enrichment, and for intelligent and responsible participation in society.
- Prepare students to progress smoothly into upper division work at colleges and universities.
- Assist all students in the exploration of alternatives and the establishment of career and educational goals.
- Prepare students for employment and advancement within their chosen careers.
- Provide special opportunities for students who need to bring their academic skills up to an adequate level.
- Include general education in all programs to enhance the capacity for personal enrichment, and for intelligent and responsible participation in society.
- Prepare students to progress smoothly into upper division work at colleges and universities.
- Assist all students in the exploration of alternatives and the establishment of career and educational goals.
- Prepare students for employment and advancement within their chosen careers.
- Provide special opportunities for students who need to bring their academic skills up to an adequate level.
- Offer continuing education to serve both occupational and avocational interests.
- Provide community services related to specific community needs, including cultural, recreational, and general interest offerings.
- Provide educational opportunities to assist all students in developing their highest academic potential.

Accreditation

Pima Community College is accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools.

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 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.

Notification of Vocational Opportunities

Pima Community College wishes to inform students, parents, employees and the general public that it provides an equal opportunity vocational education program. All courses, services, and activities are offered without regard to race, color, national origin, sex, or handicapping condition.

Program areas planned for the 1983 school year include:

Agriculture—Landscape Technician; Recreation.

Distributive Education—Finance; Banking; Credit Union; Hotel/Motel Management; Fast-Food Industry; Restaurant-Culinary Food Management; Advertising; Marketing; Salesmanship; Real Estate; Transportation & Traffic Management; Travel-Tourism; Postal Service Management; International Business Communications.

Health Occupation—Dental Assisting; Dental Laboratory; Emergency Medical Technology; Associate Degree Nursing; Licensed Practical Nursing; Medical Assistant; Radiologic Technology; Respiratory Therapy.

Home Economics—Child Development Associate; Early Childhood Education; Fashion Design & Clothing; Home Economics Professions; Institutional Food Service; Teacher Aides.

Diversified and Work Education Occupations—Cooperative Education.

Office Occupations—Accounting; Computer Science; Office Education-Secretarial; Medical Secretarial; Bilingual Secretarial; Legal Assistant.

Technical Education—Electronics; Microelectronics Technology; Wastewater Technology.

Trade & Industrial Education—Advertising Art; Automotive; Air Conditioning & Sheet Metal; Administration of Justice-Law Enforcement-Corrections; Aviation Mechanics; Building Technology; Bricklaying; Carpentry; Design; Drafting; Electronics-Industrial; Glazing; Graphic Arts; Ironworking; Machine Tool; Media; Plaster & Cement Masonry; Plumbing & Pipefitting; Sign Language; Social Services; Welding; Youth Care.

Special Needs Education—Training for Special Education.

Limited English-speaking skills will not be a barrier to admission or participation in vocational education. The primary requirements for admission are an established desire to pursue a career in the chosen occupational field and the ability to meet the requirements for entry-level employment in that field of work.

The College's Title IX Coordinator is Vice President Diego Navarrette, who can be reached at 884-6986 at the Pima Community College District Service Center, 200 N. Stone Ave., P.O. Box 3010, Tucson, Arizona 85702-3010.

The College's Title VI and VII of the Civil Rights Acts of 1964 Section 504 Coordinator is the Personnel Director, who can be reached at 884-6025 at the Pima Community College District Service Center, 200 N. Stone Ave., P.O. Box 3010, Tucson, Arizona 85702-3010.

History

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

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

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

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

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

All college programs were moved to the completed 11-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 under way 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.

The College continued next page

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 under way.

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 institution'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 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.

A major undertaking during the 1979/80 academic year was the acquisition of a 60-acre site for a permanent educational facility on the east side of Tucson. The deed for the land at Irvington and Pantano Road was signed on April 16, 1980.

The College established an Office of Minority Affairs in its continuing efforts to aid minority students.

The College's first five-year Master Plan was approved by the Board of Governors in September, 1980. The document provides the framework for annual operating plans which are part of the planning-management-evaluation system begun in 1979/80.

The Tenth Anniversary of the College was celebrated in October at the Tucson Community Center.

For the first time, students in the fall of 1980 paid a general tuition in addition to regular student fees. The tuition was necessary because of new state legislation which limited the College's ability to increase revenue from other sources.

The East Campus was completed in July, 1981, at a cost of $2.9 million. The 35,000-square-foot facility quickly filled to capacity when 3,900 students enrolled in fall semester classes. The three campus buildings have roughly the same area as the former East Education Center but are designed for increased instructional facilities.

Two other branches of the College moved to new leased facilities in 1981. The Pima Community College Skill Center's scattered classrooms were consolidated into a single complex at the Grant Road Industrial Park. Community Services moved its headquarters from a small house to a building at 21 E. Speedway. The building has space for four classrooms.

In October, 1981, the North Central Association of Colleges and Secondary Schools granted the College accreditation for a six-year period. The associate degree nursing program was awarded accreditation for eight years by the National League for Nursing.

Many of the major developments during the 1981/82 fiscal year involved instructional programs. Changes in state aid funding allowed the college to expand vocational offerings in a short-term format and to offer open-entry, open-exit classes and concentrated "block program" formats. The PCC Institute began as a collaborative effort with industry to offer short-term training.

A pilot honors program for exceptional students was begun and a developmental education program addressed the needs of the academically disadvantaged. General education requirements for associate degree and advanced certificate programs were established for the first time.

In January, 1982, Robert Agrella, Downtown Campus Dean, was appointed Vice President for Educational Services, and Dr. Judith Leslie, formerly Executive Assistant to the President, was made Vice President for Planning and Development.

Two buildings were purchased during the 1982/83 year. Roosevelt School, adjacent to the Downtown Campus, was purchased from Tucson Unified School District on August 11, 1982. The school allows for expanded classroom space at the campus.

On Nov. 15, 1982, the College acquired the 24,000-square-foot District Service Center at 200 N. Stone. The administrative center was purchased to alleviate a shortage of instructional space on the West Campus where district administrative staff had been headquartered.

In November, 1982, Andrea M. Milligan was elected from District 4 to a four-year term on the Board of Governors. Carl H. Holzman was appointed the following January to fill the District 3 seat. Other Governing Board members are: Georgia C. Brousseau, District 2; Dr. Alphus Christensen, District 5; and Esther D. Tang, District 1.

The 1982/83 fiscal year budget was $45 million. The 12% increase over the previous year was to be used to provide instruction for more students, to expand instructional and service facilities, and to acquire a new administrative center.

In the fall of 1982, enrollment was 21,780, with 9,700 attending West Campus classes; 7,100, Downtown Campus classes; 4,200, East Campus classes; and 5,800, 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 comunity 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.

Meetings and special functions are held each year where members have an opportunity to meet and hear from students and faculty about the programs taking place at the College.

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

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

OFFICERS

James W. Cocke, President
Elmer M. Thierman, Vice President
Mary Foster, Secretary
Jack D. Davis, Treasurer
Stewart V. Lancaster, Executive Director

DIRECTORS OF PIMA COMMUNITY COLLEGE FOUNDATION

Dewey F. Barich
Leland D. Case
James W. Cocke
Donald F. Coonan
Jack D. Davis
Mary Lou Davis
Robert Dreyer
Walter H. Fathauer
Mary Foster
Thomas B. Freeman
Edward S. Frohling
Abbey J. Grunewald
Edward C. Hagen
Walter C. Holberg, Jr.
S. James Manilla
Sally B. Rollings
Edward J. Rusing
Rubin Salter, Jr.
Norman W. Shipp
Jack Skog
Seth W. Slaughter
William Hawes Smith
Elmer M. Thierman
Joseph B. Wilcox
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 multiplicadad 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 prepara 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

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

1. A graduate from an accredited high school:
2. A recipient of a G.E.D. Certificate of high school equivalency:
3. A transfer student from an accredited college:
4. A non-high school graduate who is 18 years of age or older, who can benefit from instruction:
5. A non-high school graduate between the ages of 16 and 18 who has officially withdrawn from high school and who can benefit from instruction:
6. A student currently enrolled in high school who presents written approval from the student's principal and parents or legal guardian:
7. An international student planning to enroll for 12 credit hours or more must have completed an academic program equivalent to an American secondary school and have a score of 450 or better on the Test of English as a Foreign Language:
8. An international student planning to enroll for less than 12 credit hours must demonstrate English proficiency if enrolling in courses other than English as a Second Language or courses offered bilingually.

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

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

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

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

Student 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 the one year prior to the first day of each term 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 Campus or the Community Campus. 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 at the West Campus 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 500 or better on the Test of English as a Foreign Langauge (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. Finally, upon admission to the College, the international student must take IBC 120 during the first semester of enrollment.

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

Arizona Higher Education Course Equivalency Guide

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

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 (maximum for summer is twelve). This limitation includes residence work as well as concurrent registration with the University of Arizona and in extension, correspondence, or high school courses.

Students who wish to exceed this maximum credit hour load must obtain appropriate approval.

Withdrawals

Students may withdraw from a course at any time before the end of the term but should first talk with their instructor or a counselor. If they still decide to withdraw they must notify the Registrar's Office in writing. Course information, date, and the reasons for withdrawal must be recorded. A withdrawal grade may be requested by the student or the instructor after the instructor has notified the student 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

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

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

Students participating in official college activities are responsible for notifying their instructors in advance of an absence for official college activities and for completing all class assignments as required.

Repeat of Course for Credit

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

When a course is repeated with the intent of improving the Grade Point Average (GPA), the highest grade earned will be used for computation of the GPA. All courses will remain on the student's transcript but only one successful completion will be counted toward degree and certificate requirements, except for certain courses as specified in the college catalog.

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.

Student Costs

Fees and Tuition

Credit Hours	Resident	Non-Resident*	Non-Resident**
1	$ 15.00	$ 17.00	$ 17.00
2	30.00	34.00	34.00
3	45.00	51.00	51.00
4	60.00	68.00	68.00
5	75.00	85.00	85.00
6	90.00	102.00	102.00
7	105.00	700.00	525.00
8	120.00	800.00	600.00
9	135.00	900.00	675.00
10	150.00	1,000.00	750.00
11	165.00	1,100.00	825.00
12	180.00	1,200.00	900.00
13	195.00	1,215.00	915.00
14	210.00	1,230.00	930.00
15	225.00	1,245.00	945.00
16	240.00	1,260.00	960.00
17	255.00	1,275.00	975.00
18	270.00	1,290.00	990.00

*Out-of-state/country student costs.

**Out-of-county student costs. Out-of-county students living in counties having a college district are not subject to the out-of-county student costs but will pay only the resident student costs.

Note: To calculate fees and tuition above 18 credit hours, add $15.00 per credit hour.

Other Costs

Withdrawal Fee	$15.00
Course Repeat	17.00/cr. hr.
Music Lesson (Private)	
½ hour per week	100.00
1 hour per week	200.00
Health Science Liability Fee	7.00
Out-of-State Application Fee	10.00
Transcript (per copy)	1.00
Graduation Application	12.00
GED Test	15.00
GED Test (repeat)	3.00
Non-Sufficient Funds (NSF) Check	10.00
Laboratory—Nominal non-refundable fees may be assessed	
Excessive Loss or Breakage	Replacement cost
Lost Books	Replacement cost
Faculty/Staff/Dependent Fee Waiver	TBA
Parking and Traffic Fine	3-7.00
I.D. Card	2.00

Refund Regulation (Credit Courses—Fall and Spring Semesters)

CANCELLED CLASSES—In the event class(es) is cancelled by the College, a 100% refund will be made for all tuition and fees attributable to the cancelled class(es).

TOTAL "DROP" FROM CLASSES—If a student processes a total "drop" from the College within the guidelines below, a 100% refund, less a $15.00 processing fee, will be made:

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

No refunds for withdrawals will be made after the 13th calendar day after the start of the class or semester as appropriate.

SCHEDULE CHANGES (PARTIAL "DROP")—If a student remains enrolled for at least one class but decreases his/her schedule of classes by processing a "drop" within the above guidelines, a 100% refund of student fees and tuition applicable to that class(es) will be made.

See Class Schedule for Refund Regulation for summer sessions.

Refund Regulation (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.

Graduation

General Education Requirements

Subject Area	Number of Hours					
	AA*	AS*	AAA*	AAS*	AGS*	ATC*
Humanities & Fine Arts	8	6-9	3	3	--	0
Social & Behavioral Sciences	9	6-9	3	3	--	0
Science and/or Mathematics	8	10	6	6	3	3
Communication	6	6	6	6	3	3
Reading**	4	4	4	4	4	0
Total Hours	35	35	22	22	10	6

*AA - Associate Arts
AS - Associate Science
AAA - Associate Applied Arts
AAS - Associate Applied Science
AGS - Associate General Studies
ATC - Advanced/Technical Certificate

**Students applying for graduation in an associate degree program must demonstrate reading competency at the level of REA 112 or higher. Students who demonstrate this competency level will have fulfilled the reading requirement.

General Education Course List

1. Humanities & Fine Arts Courses
   ART 130*, 131*, 132, 135, DRA 240*, 241*, ECE 108, 112, HUM 110*, 111*, Foreign Language*, LIT 265, 272, MUS 151*, 201, 202, PHI 101*, 102, 120
2. Social & Behavioral Science
   ANT 100*, 110*, 200*, 210*, 215*, 225*, ECE 107, 117, ECO 100*, 101*, ESC 103*, HIS 101*, 102*, 141*, 142*, 147*, MAN 110, POL 100* 110*, 111*, 112* 130*, PSY 100*, 101*, 103, SOC 100*, 101*
3. Science & Mathematics
   ACC 050, 101*, 102*, AST 101*, 102*, 111*, 112, BUS 051, CHM 101*, 102*, 110*, 111*, 120*, 121*, ECE 124, ESC 101*, 102*, 115*, 120*, 121*, LSC 102, 103*, 104*, 106, 120*, 121*, 205*, 206*, 207*, 220*, MTH 060, 065, 070, 090, 101, 102, 103, 110, 115, 120, 125, 130*, 134, 135, 140*, 145*, 150*, 155*, 160*, 170*, 175*, 180*, 185*, 210*, 215*, 219*, 220*, PHY 101, 102, 105, 121*, 122*, 131*, 132*, 210*, 216* 221*, 230*, WWT 203
4. Communication
   OED 151, 251, SLG 101, 102, 201, 202, 203, SPE 120*, WRT 100, 101* 102*, 150, 154

*Transfers as general education courses to most universities.

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 processsing 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 Associate of Arts, Associate of Science, and Associate of General Studies degrees in a variety of subject areas. Certain occupational programs, in addition, offer students a choice of an Associate of Applied Science or Associate of Applied Arts 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 15 semester hours of the total required to qualify for an associate degree must be earned at Pima Community College.

CERTIFICATES—Basic, advanced, and technical certificates are awarded in many short-term study program areas. Generally 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

ADVANCED PLACEMENT CREDIT—It is recognized that a student may have already fulfilled expected knowledge and/or competency levels for certain course and program requirements; therefore, a student shall have the opportunity to officially earn and record advanced placement in the college.

Advanced placement credit shall include:

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

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

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

ADVANCED PLACEMENT FROM HIGH SCHOOL—These exams are administered in various high schools each year 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 Examination: 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 complete 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 currenty 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 15 hour residency requirement nor can it be used in qualifying a student for veterans benefits.)

Honors

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

Graduation with Honors—3.500 to 3.799 grade point average.

Graduation with High Honors—3.800 to 4.000 grade point average.

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

Student Records

Grading Policies

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

A—Superior (4 grade points per credit hour)

B—Above Average (3 grade points per credit hour)

C—Average (2 grade points per credit hour)

D—Below Average (1 grade point per credit hour)

F—Failure (0 grade point per credit hour)

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

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

W—Official Withdrawal (This grade may be requested by the student at any time within the term of the course or may be given by the instructor on or before the official census reporting date to students who have ceased attending class before that date.)

Y—Unofficial Withdrawal (This grade indicates unofficial withdrawal. It is given by the instructor at the end of the term to a student who has ceased to attend classes after the official census date, but who has not filed a formal request for a grade of W.)

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

AU—Audit (To audit a course means to enroll in and to attend a class without working for or expecting to receive credit. The symbol for audit, AU, appears on the transcript of grades and on the class list by the student's name. Students auditing a class must register by the end of the official refund period and must receive the written permission of the instructor.)

Graduation requirements include a 2.0 overall Grade Point Average (GPA). The GPA is found by multiplying the number of credit hours for each course by the number of points for the grade and dividing the sum of the total points by the total number of credit hours of A, B, C, D, and F grades. D grades do not fulfill graduation requirements if they are received in core courses. F grades do not fulfill any requirements. The GPA is based only on work completed at Pima Community College. A complete record of all credit courses attempted at Pima Community College is maintained for each student. Grade reports are mailed to each student at the end of each session.

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

Core Courses— D grades do not fulfill graduation requirements if they are received in core courses. Core courses are designated in each College program by a footnote.

Academic Standards of Progress—The following criteria will be applied to determine good academic standing at Pima Community College. All students will be in good academic standing unless:

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

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

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

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

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

Academic Alert—Students will be placed on academic alert when:

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

The Academic Alert system:

1. Informs students of academic status.
2. Allows students one semester to achieve good academic standing.
3. Advises students of available college resources which may assist in improving academic performance.

Academic Disqualification—A student on academic alert will be academically disqualified under the following conditions:

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

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

Appeal of Academic Disqualification—A student who has been academically disqualified must follow established College appeal procedures for immediate reinstatement if he/she feels that mitigating circumstances contributed to the unsatisfactory academic progress.

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

Reinstatement—For reinstatement after academic disqualification:

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

After reinstatement the student will be placed on academic alert status.

Assessment

Pima Community College requires skill assessment tests in Mathematics, Reading, and Writing. These tests are provided free of charge and are administered throughout the College District.

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

B. Prior to the end of a student's third hour of instructional activity, all three assessment tests shall be required in accordance with the following criteria:
   1. Any full-time student; or
   2. Any student enrolling for the first time in a Mathematics, Reading and/or Writing 070, 072, 073, 077, 100, 101 course and related modules; or
   3. Any student whose academic performance falls below a minimum grade point average of 2.0.

Assessment Equivalencies

Assessment equivalencies have been developed to facilitate the admission of students into Pima College courses who have previously demonstrated adequate competencies in the basic skill areas. These equivalencies may not be used to meet college general education requirements or other specified program entrance requirements. Assessment tests are not required for students who have achieved one of the following:

1. A minimum composite score of 930 on the scholastic aptitude test (SAT), or
2. A minimum composite score of 21 on the American College Test (ACT), or
3. A degree or advanced certificate from an accredited college.

Documentation of national assessment scores, degrees and certificates must be filed with the Admissions Office by the time of registration.

Student Classification and Standing

Pima Community College students will be classified using the following criteria:

Full-Time Student—Students enrolled for twelve (12) or more credit hours for the fall or spring semester or six (6) or more credit hours for an eight-week summer session or four (4) or more credit hours for a five-week session will be classified as full-time students.

Part-Time Student—Students enrolled for 1-11 credit hours during fall or spring semester or five (5) or fewer credit hours for an eight-week summer session or three (3) credits or fewer for a five-week summer session will be classified as part-time students.

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

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

Honors Program

The Honors Program of Pima Community College is designed to give students with exceptional academic record challenging educational experiences. Under this program, students may engage in advanced studies in areas of their interest as well as participate in seminars using an interdisciplinary approach.

The offerings include Honors Seminar, Honors Independent Studies, special topics courses in specific subject areas, accelerated courses, and classes in which students may choose an enriched course of study.

The Honors Program also sponsors special events—lectures, workshops, field trips, social activities, forums—to foster informal interaction between students and faculty.

The Pima Community College Honors Program has been designed to parallel similar honors programs across the country so that students enrolling in the program may transfer the credits to other universities and institutions.

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.

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 be reimbursed only for appropriate fees charged at registration. Recipients of VA Educational Benefits enrolled in non-standard semester courses, (i.e., open entry/open exit or short-term courses) should be aware that their monthly rate may vary depending on the number of credits for which enrolled, the length of the non-standard semester courses and whether the student is combining standard and non-standard semester courses.

If a veteran has received credit through DANTES (formerly 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.

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

All eligible persons will be requested to select 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, US Code.

The Veterans Administration requires that eligible persons who have attended another college or university prior to enrollment at Pima Community College must provide an official transcript of such records. Upon doing so, Pima Community College will award appropriate credit for previous education where applicable and report this to the Veterans Administration Regional Office. Students failing to provide official transcripts for an evaluation could find their benefits delayed or terminated.

Each eligible person will be required to comply with the academic standards of progress for all students as indicated in the College Catalog.

Educational benefits will not be paid for courses unless they are used in computing graduation requirements. Veterans and dependents receiving the grade of Unofficial Withdrawal or Official Withdrawal or Incomplete (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 VA for any difference in pay, retroactive to the beginning of the semester unless they can report mitigating circumstances when requested by the VA Regional Office.

Veterans or eligible persons who are academically disqualified 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

Cooperative Education programs at Pima Community College provide students the opportunity to earn credit while working in jobs related to their area of study.

Students enrolled in the Cooperative Education program attend related class meetings to learn to develop competencies in the following areas:

1. Planning a career
2. Obtaining employment
3. Maintaining a job
4. Human relations
5. Economic understanding

Students in the program will be assigned a cooperative education instructor who will work with the students individually and offer assistance in job placement and upgrading, and skills and career development.

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.

Employers hiring students through the Cooperative Education program will evaluate the student/employee's performance each semester. In addition, the employer has the advantage of using college capabilities for training employees on new equipment or for newly created jobs. With this program the College assesses the employer's training needs while providing a practical education for those employed.

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. Under Arizona law, summer programs must be self-supporting and receive no public support.

Special Services

Pima Community College's Special Services department is committed to providing educational support services for disabled students on all campuses. Special Services assists students and instructors in adapting learning environments to allow each individual to realize his/her fullest academic potential within the scope of the College. Special Services refers disabled students to other college departments and community agencies that can also enrich their educational experience. Services provided by Special Services may include: advising, classroom assistance, special education tutoring, notetaking, sign language interpreting, mobility assistance, specialized equipment, developmental classes for the hearing impaired, and workshops for faculty, staff and the community about students with disabilities.

Bilingual and International Education Programs

Bilingual Program

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

Both English and Spanish Used

Bilingual program courses are taught using both English and Spanish. Bilingual instructors help students to understand and learn better by using both English and Spanish in their presentations and in their explanations when answering questions. If a student needs more help in English or vice-versa, they will be provided help through the language they best understand.

Take Other Courses While Studying English

The bilingual program makes it possible for students with limited English proficiency to begin coursework in the field which interests them because these courses are taught using both languages. While they are taking these bilingual courses they need to take ESL classes, if they are foreign students, as there are only a limited number of bilingual courses offered each semester. Bilingual degree programs all include some courses taught only in English. The vast majority of the classes offered at Pima Community College are taught in English only; thus, it is most important for them to take ESL courses to attain proficiency in English.

Students Fluent in English Also Take Bilingual Courses

Students who are not limited in their English proficiency and who wish to increase their proficiency in Spanish in certain subject matter areas such as accounting, secretarial skills, business, etc., should also be informed of the bilingual program offerings and/or encouraged to speak to instructors or staff members of the bilingual program area. These students do not have to read Spanish; they merely have to understand and speak some Spanish. Taking bilingual program courses will help them improve their proficiency in Spanish while learning course content. Learning terminology in Spanish in particular subject matter areas such as accounting, secretarial studies, education, business, etc., provides them with additional marketable, saleable skills.

Bilingual and International Education Programs continued next page

Programa Bilingüe

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

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

El estudiante que estudia inglés

Mientras el estudiante estudia inglés puede tomar clases bilingües en algún campo de interés para él, accumulando creditos para un certificado del Colegio Pima o para transferir a nivel universitario.

El estudiante que desea destrezas en español

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

International/Intercultural Education

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

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

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

To respond to this need, the College endeavors to provide a multiplicity of academic, social and cultural activities which increase international/intercultural understanding. On display on all campuses is a brochure entitled "Courses and Activities with International and Intercultural Dimensions", which highlights these activities.

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

The following is a list of these courses:

ACC	202	Intermediate Accounting
BUS	100	Introduction to Business
DFT	140	Construction Drafting
ESC	103	Cultural Geography
ESL	050	A & B, English as a Second Language
ESL	052	English as a Second Language
ESL	054	English as a Second Language
GRA	101	Graphic Technology
HCA	154	Health Care
HCE	110	Approaches to Long-Term Care and Rehabilitation
HUM	110	Humanities
HUM	111	Humanities
MKT	111	Marketing
OED	271	Office Procedures
POL	110	American National Government and Politics
PSY	102	Introduction to Social Psychology
REL	130	Comparative Religions: Oriental
REC	103	Recreation Administration
SPA	110	Intermediate Spanish
WRT	102	Writing

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

Library and Learning Centers

Learning Resource Center (Library)

The main library, located on the second and third floors 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, Career Information, Children's Literature, Paperback Leisure Reading, Film and Video, and Current Best Sellers. Also available for use in the LRC are phonograph records and 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 databases, student and faculty manuals, a self-paced library skills workbook, a self-paced audio tour, and the use of calculators and typewriters.

The Downtown Campus library, located on the second floor of the Campus Center, houses a collection numbering approximately 30,000 items of print and non-print materials for reference and curriculum support. This library specializes in the areas of automotive technology, sheet metal and air conditioning, welding, machine shop, alternative energy (especially solar), graphic technology, advertising art, hospitality, small business, office education, and practical nursing. Current magazines and newspapers are available for informational and leisure reading. Backfiles of selected periodicals in the areas of specialization are also available for research. The library maintains a small collection of popular fiction, non-fiction and poetry for leisure reading. The staff of the Downtown Campus library offer the same services and facilities to users that are offered at the West Campus LRC. 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 Campus library has a collection of over 10,000 print and non-print materials for reference and in support of the curriculum. A collection of magazines and newspapers also is maintained. Backfiles of periodicals unique to the East Campus are available for research. Research assistance, guidance and referral to other library resources is available from the library staff. Students registered at the East Campus may also use the resources of the Downtown Campus and West Campus libraries either independently or through the reference services offered by the East Campus library staff.

Community Campus students taking courses at locations throughout the college district are urged to use library sources at either the West, Downtown, or East Campuses. Instructors often place reference material at participating public libraries.

Alternative Learning Centers

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

DOWNTOWN CAMPUS—The Alternative Learning Center (ALC), located on the second floor of the Campus Center provides students with three major services: (1) Courses for credit in math, reading and writing; (2) Supplemental tutorial assistance; and (3) Placement testing.

1. The ALC offers many courses for credit in Math, Reading and Writing. Each course has an individual plan which allows for scheduling during the day and evening as well as self-paced study. Personal and individual attention from instructors, lab assistants and tutors is given to help the student successfully complete the one, two, three and/or four credit hour courses. The open entry/open exit format permits the student to enroll for credit after other classes have begun and to finish before the semester ends.
2. Tutoring in Math, Reading,and Writing is offered to students enrolled in ALC classes as well as those enrolled in DTC classroom sections. Students may drop in during regularly scheduled hours for tutoring in the ALC.
3. Five placement tests are administered in the ALC: Math, Reading, Writing, ESL and the TOLEDO. Before registering in any of the ALC courses, students are strongly advised to assess their abilities in the basic skills. This assessment information will help the advisors and counselors make the best recommendations to the students for program choices and course selections.

EAST CAMPUS—The Supplemental Learning Center, located in Rooms E3-5 and E3-6, provides free tutoring and testing services. Tutoring is available for courses in Accounting, Chemistry, Computer Science, ESL, French, Humanities, Math, Spanish, and Writing. Students may make appointments for tutoring sessions, or they may be tutored on a walk-in basis.

The Testing Lab offers assessment tests in Math, Reading, and Writing to help students in selecting appropriate courses. Some instructors use the Testing Lab to administer their class examinations.

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

Library and Learning Centers continued next page

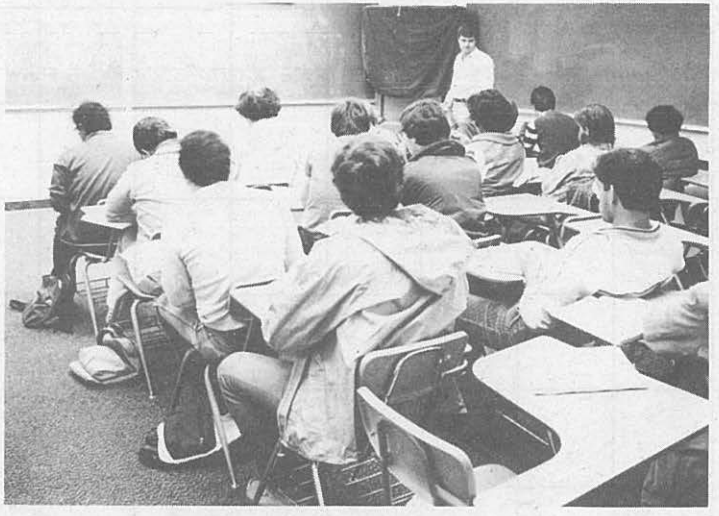
Career Centers

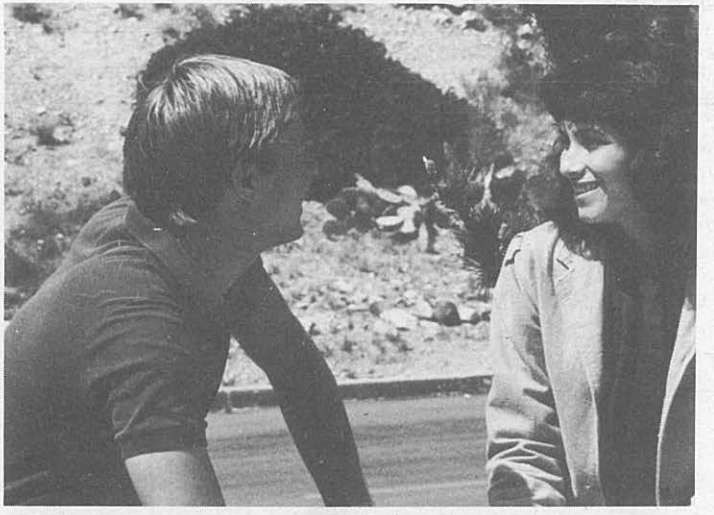
Career Centers located in the Student Center at the West Campus, the Campus Center at the Downtown Campus, and in the "O" Building at the East Campus provide information on various careers, training needed for different careers, salary projections, future outlooks for employment, special job requirements,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

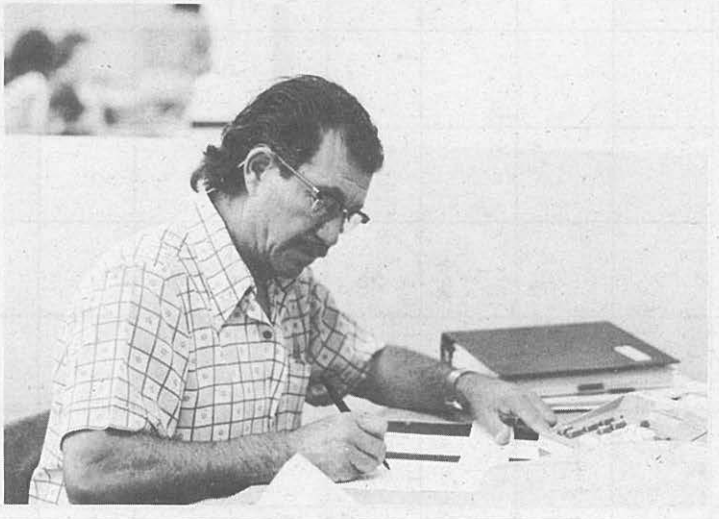
Career and Job Placement

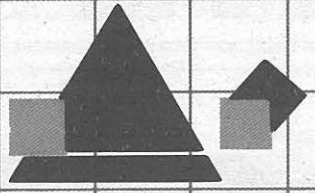
Through the Pima College Career and Job Placement Service, students can receive employment preparation, referrals to employment, and special personal assistance in seeking employment while in college.

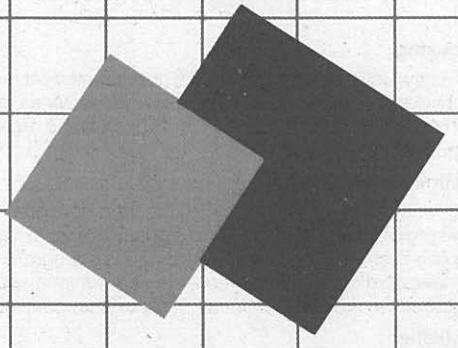
Placement offices are located at each campus. Once you have been a student at Pima Community College, you have the privilege of using the Career and Job Placement Center for future employment needs.

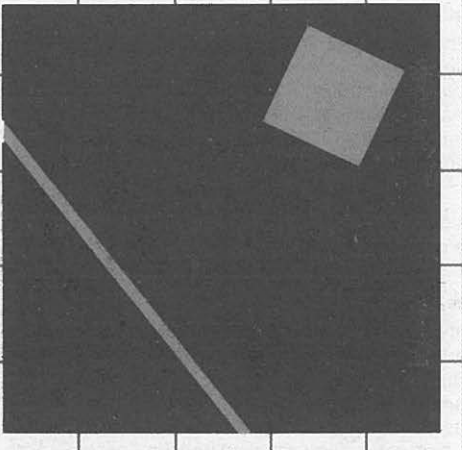












Student Life

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 Campus, 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 Campus, 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.

Human 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.

Office for Minority Affairs

The Director for Minority Affairs reports to the Vice President for Student Services and provides leadership for the planning, monitoring, refinement and judging of a District-wide minority communities program. He/she is responsible for coordination of the necessary educational/service support for minority groups in their search for a quality educational experience.

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. Students are also elected to a District student council comprised of two representatives from each campus.

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 and women), basketball (men and women), tennis (men and women), track (men and women), baseball (men), volleyball (women), wrestling (men), golf (men), softball (women), and archery (men and 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, racquetball, 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.

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 the "Aztec Press"and two literary magazines, "Mazagine" and "Llueve Tlaloc."

Those who would like to serve on the newspaper staff in any capacity should contact either the Fine, Applied and Communicative Arts area office or the Student Activities Office on the West Campus.

Students enrolled in Journalism 057 produce the student newspaper, the "Aztec Press." Additional journalism courses are offered for students desiring more advanced work.

Student Life continued next page

Journalism 160 through 169—a sequence of 10 one-credit- hour courses—allow students an opportunity to produce campus publications 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 or ethnic background. Early application for financial aid is essential. Contact a campus financial aid office for information and application.

For all types of Federal financial aid, exclusive of the Guaranteed Student Loan, students must be committed to educational programs which contain at least 24 credit hours of instruction. Federal regulations establish these limitations.

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, Guaranteed 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. 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.

Pell Grants are available to eligible students enrolled at least half-time in a program which leads to a certificate or a degree. Students who previously earned a bachelor's degree are ineligible. Applications can be obtained from any of the College's Financial Aid Offices or from high school counselors.

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:

- American Airlines Scholarship
  Source: American Airlines, Inc.
  Eligibility: Promising full-time student in Transportation and Traffic Management Program
  Value: $150, 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
- American Legion Post #66 Nursing Scholarship
  Source: Green Valley Post #66
  Eligibility: Needy, deserving student in RN program
  Value: $400, one award per year
- Arizona Bank Scholarship
  Source: Arizona Bank
  Eligibility: Needy and academically deserving students, with preference to minority or disabled/handicapped
  Value: $300, one award per year
- The Anita and Larry Christensen Scholarship
  Eligibility: Promising full-time students with academic potential in the field of Earth Sciences or related area
  Value: $250, two awards per year
- Continental Airlines Foundation Scholarship
  Source: Continental Airlines Foundation
  Eligibility: Promising students in any field
  Value: $120, one award per year

- Delta Nu Alpha Scholarship
  Source: Delta Nu Alpha Organization
  Eligibility: Promising full-time students in the Transportation and Traffic Management Program
  Value: $150, number of awards varies
- 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 Interstate Bank Scholarship
  Source: First Interstate Bank of Arizona
  Eligibility: Students in the business field
  Value: $250, 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, TMD
  Eligibility: Promising and needy students pursuing a four-year degree program
  Value: $500, two awards each year
- Golden Plate Scholarship
  Source: National Institute for the Foodservice Industry, National Restaurant Association
  Eligibility: Full-time student in Hospitality Education Program
  Value $750, 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
- Kiwanis Club of Green Valley Scholarship
  Source: Kiwanis Club of Green Valley
  Eligibility: Promising and needy students
  Value: $350, one award per year
- Kiwanis Club of Tucson Scholarship
  Source: Kiwanis Club of Tucson
  Eligibility: Promising and needy students
  Value: $350, 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
- Little Chapel of All Nations Scholarship
  Eligibility: Promising and needy full-time students, with preference to the field of Library Technology or related field
  Value: $250, two awards per year
- Mary Macon Memorial Scholarship for Office Education Students
  Source: Family and friends
  Eligibility: Promising and needy students in Office Education
  Value: Varies, number of awards 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 assistants or an allied medical program
  Value: $150, one award per year

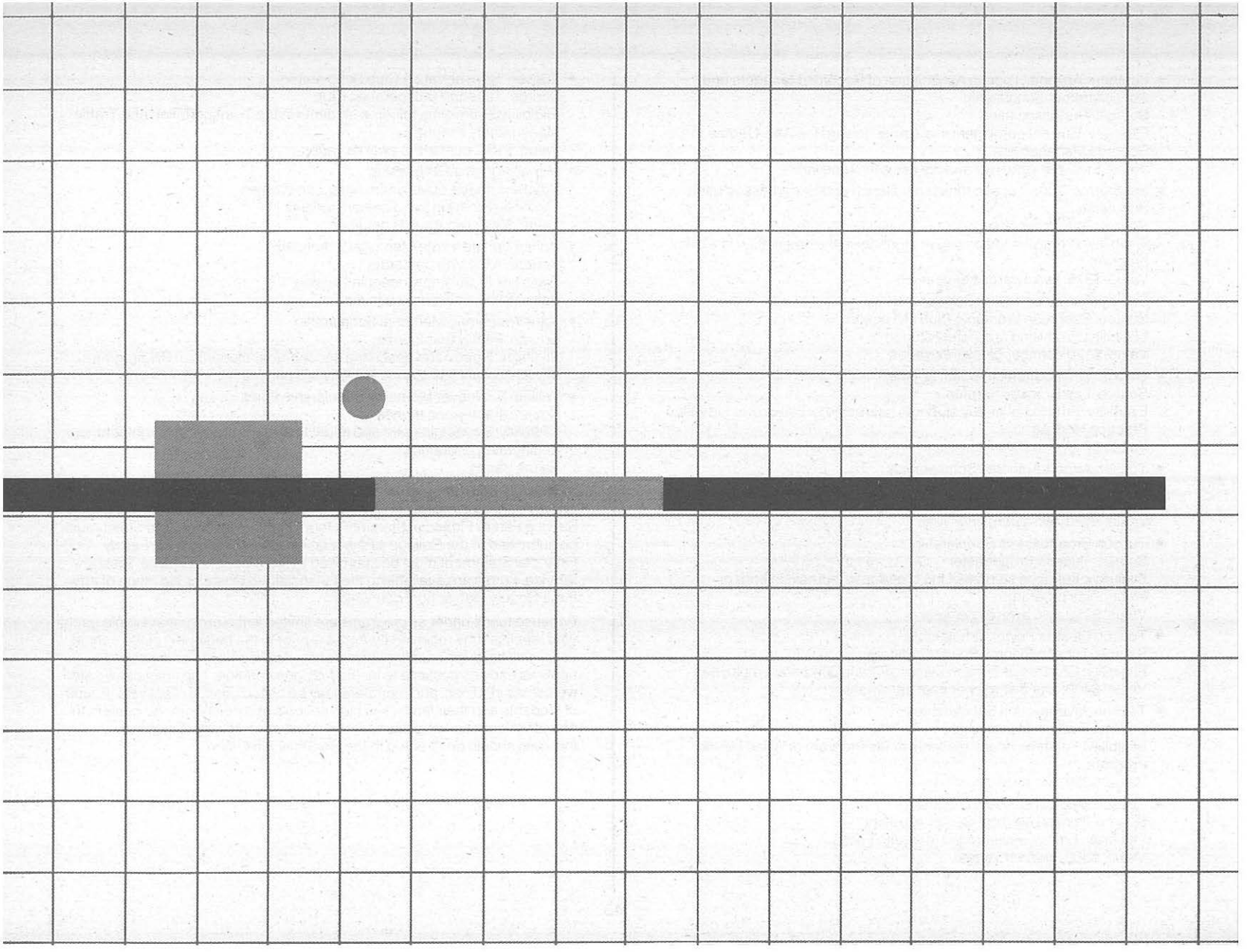
Financial Aid continued next page

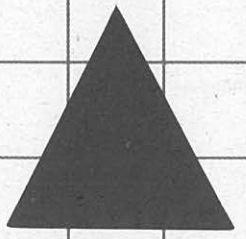
- J.G. (Jack) Moore Memorial Scholarship
  Source: Mrs. Margery Moore
  Eligibility: Promising students interested in becoming teachers
  Value: $250, two awards per year
- National Semiconductor Scholarship
  Source: National Semiconductor
  Eligiblity: Full-time enrollment in Microelectronics program, with preference to employees and dependents
  Value: $325, one award per year
- Phi Delta Kappa Scholarship
  Source: Phi Delta Kappa, Chapter 30
  Eligiblity: Education majors
  Value: $100, one award per year
- Pima Community College Faculty/Staff Scholarship Fund
  Source: Donations from faculty and staff
  Eligibility: Deserving students in any field
  Value: $120, number of awards varies
- Pima Community College Foundation, Inc.
  Source: Various Donors
  Eligibility: Outstanding scholastic achievement and financial need
  Value: $200, number of awards varies
- Pima Community College General Scholarship Fund
  Source: General donations to the fund
  Eligibility: Promising students in any field
  Value: Amount varies, number of awards varies
- Pima County Sheriff's Posse—Law Enforcement Scholarship
  Source: Pima County Sheriff's Possee
  Eligibility: Career oriented in law enforcement and show economic need
  Value: $1,000, two or more awards per year
- Pima Study Grant
  Source: Various
  Eligibility: Promising and needy students
  Value: $140, 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 $308, number of awards varies
- Rodeo Club Scholarship
  Source: Various
  Eligibility: Active participation in Rodeo Club
  Value: Varies, number of awards varies
- Rollers Van and Storage Co. Scholarship
  Source: Rollers Van and Storage
  Eligibility: Promising full-time student in Transportation and Traffic Management Program.
  Value: $150, one award per year
- Jeffrey H. Ross Memorial Scholarship
  Source: Family and Friends
  Eligibility: Students in Law-Enforcement
  Value: Amount varies, number varies
- Rotary Club of Tucson Scholarship
  Source: Rotary Club of Tucson
  Eligibility: Worthy and deserving students
  Value: Varies, number of awards varies
- Samsonite Corporation Scholarship
  Source: Samsonite Corporation
  Eligibility: Promising full-time student in Transportation and Traffic Management Program
  Value: $150, one award per year
- Evelyn Schumacher Memorial Scholarship
  Source: William R. Schumacher, D.D.S.
  Eligibility: Promising and needy students in Dental Assisting
  Value: $400, one award each year
- David Scott Memorial Scholarship for Handicapped Students
  Source: Family and Friends
  Eligibility: Promising and needy handicapped students
  Value: Varies, number varies
- Seven Up Assistance Scholarship
  Source: Seven Up Bottling Company of Tucson
  Eligibility: Graduating Seniors of Amphitheater or Flowing Wells High Schools
  Value: $300, two awards 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: $308 per year, number of awards varies
- Southern Arizona Restaurant Association
  Source: The Association
  Eligibility: Promising Pima County resident in Foodservice
  Value: $600, one award per year

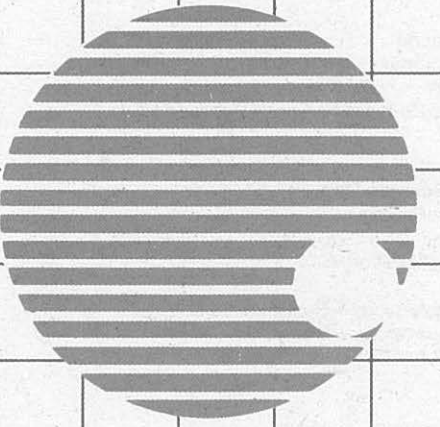
- Southern Arizona/Tucson Association of Records Managers and Administrators Scholarship
  Source: The Association
  Eligibility: Current enrollment in a course toward the AAS Degree in Records Management
  Value: $150 per year, two awards per year, renewable
- Southern Arizona Tucson Innkeeper Ranch and Resort Association Scholarship
  Source: The Association
  Eligibility: Promising second-year students in the hospitality/tourism program
  Value: $375, two awards per year
- Suburban Women's Club Scholarship
  Source: Suburban Women's Club of Tucson
  Eligibility: Promising and needy students
  Value: $120, number of awards varies
- 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 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 Electric Power Scholarship
  Source: Tucson Electric Power Company
  Eligibility: Children of Tucson Electric Power Company employees
  Value: $400, four awards per year, renewable
- Tucson Jaycee-ettes Scholarship
  Source: Tucson Jaycee-ettes
  Eligibility: Full-time needy students in RN Program or Allied Health Program
  Value: $250, two awards per year
- Tucson Medical Center Scholarship
  Source: Tucson Medical Center Auxiliary
  Eligibility: Employees enrolled in Health Fields
  Value: $600, number varies
- Tucson Transportation Club Scholarship
  Source: Tucson Transporation Club
  Eligibility: Promising, 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
- Adrian Van de Verde Memorial Scholarship
  Source: Alice Van de Verde
  Eligibility: Promising student in Nursing
  Value: $100, one award per year
- Kara Watchman Memorial Scholarship
  Source: Family and friends
  Eligibility: Needy and deserving second-year students in RN program
  Value: Amount varies, one book award per year
- William R. Weaver Memorial Scholarship Fund
  Source: Family and friends
  Eligibility: Economic need and intent to pursue degree in manufacturing, engineering or drafting
  Value: Varies

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
Corrections
Criminal Justice
Drama, Applied
Drama Education
Drama Production
Drama Theory
Fine Arts
Journalism
Liberal Arts
Mathematics
Music
Physical Education
Recreation Education
Social Services
Social Services (Substance Abuse Subspecialty)
Speech
Youth Care

Associate of Science Degree
Automotive Technology
Biology
Business Administration
Chemistry
Electronics Technology—Communications
Electronics Technology—Consumer
Electronics Technology—Industrial
Engineering
Geology
Liberal Art & Science
Microbiology
Physics
Pre-Agriculture
Pre-Dental
Pre-Medical
Pre-Medical Technology
Pre-Pharmacy
Pre-Veterinary
Public Administration

Associate of Applied Arts Degree
Applied Arts
Applied Design
Interpreter Training

Associate of General Studies
General Studies

Associate of Applied Science Degree
Accounting
Administrative Assistant
Advertising Art
Air Conditioning and Sheet Metal Technology
Associate Degree Nursing
Automotive Technology
Banking
Building Technology
Business Administration
Computer Programmer/Analyst
Computer Specialist, Small Business
Corrections
Credit Union
Criminal Justice
Dental Laboratory Technology
Drafting, Architectural
Drafting, Electro-Mechanical
Drafting, Mechanical
Electronics Technology—Communications
Electronics Technology—Consumer
Electronics Technology—Digital
Electronics Technology—Industrial
Fashion Design
Graphic Technology
Hotel-Motel Operations
Landscape Technician
Legal Assistant
Machine Tool Technology
Media Technology
Microelectronic Technician
Natural Resource Recreation
Ophthalmic Dispensing Technology
Postal Service Management
Public Transportation Maintenance Technician
Radiologic Technology
Real Estate, Sales/Brokerage
Records Management
Recreation Leader
Respiratory Therapy
Restaurant, Culinary & Food Management
Savings and Loan

Seamstress, Professional
Secretary, Bilingual
Secretary, Executive
Secretary, General
Secretary, Legal
Secretary, Medical
Social Services
Social Services (Substance Abuse Subspecialty)
Teacher Director (Pre-Service Program)
Trade and Industrial Technology (Apprentice)
Training for Special Education
Transportation and Traffic Management
Wastewater Technology
Welding
Youth Care

Certificates

Basic Certificate

Advertising Art
Air Conditioning
Airframe and Powerplant Mechanics
Allied Health Services
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
Institutional Food Service
International Business Communication Studies
Interior Design
Machine Shop Fundamentals
Media Technology
Microelectronic Technician
Nursing Assistant
Postal Service Management
Public Transportation Maintenance Technology
Real Estate, Sales/Brokerage
Real Estate, Escrow
Restaurant Management
Savings and Loan
Secretary, Bilingual
Sheet Metal Fabrication
Sign Language
Social Services
Television Repair
Trade and Industrial Technology (Apprentice Major Area)
Training for Special Education
Transportation and Traffic Management
Travel Agent
Wastewater Technology
Welding

Advanced Certificate

Accounting
Alteration Specialist
Business Administration
Clerk-Typist
Credit Union
Dental Assisting
Housekeeping-Executive
Institutional Food Service
Interior/Functional Design
Landscape Technician
Microelectronic Technician
Postal Service Management
Practical Nursing
Public Transportation Maintenance Technology
Real Estate, Sales/Brokerage
Real Estate, Escrow
Receptionist (Medical, Legal, General)
Records Management

Certificates continued next page

Respiratory Therapy
Savings and Loan
Secretary, Bilingual
Social Services (Substance Abuse Subspeciality)
Systems Programmer
Teacher Aide/Assistant (Pre-Service Program)
Travel-Tour Agency Manager
Training for Special Education
Transportation and Traffic Management
Wastewater Technology
Youth Care

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

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.

Accounting
Advanced Certificate
For Direct Employment

Required Courses (35)	**First Semester**	**Cr. Hrs.**
Principles of Accounting	ACC 101*(1)	3
Practical Accounting Procedures	ACC 050*(1)	3
Mathematics of Business	BUS 051	3
Introduction to Business	BUS 100	3
Business Law I	BUS 200	3
Writing I	WRT 101	3
		18
	Second Semester	
Principles of Accounting II	ACC 102*(1)	3
Tax Accounting	ACC 204*(1)	3
Introduction to Computers	CSC 100	3
Business Law II	BUS 201	3
Human Relations in Business	MAN 110	3
Calculating Machines	OED 121	2
		17

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.

Accounting
Associate of Applied Science Degree
For Direct Employment

Required Courses (60-64)	**First Semester**	**Cr. Hrs.**
Principles of Accounting I	ACC 101*(1)	3
Introduction to Business	BUS 100	3
Mathematics of Business	BUS 051	3
Human Relations in Business	MAN 110	3
Business English	OED 151	3
Reading Requirement*(2)		
		15

	Second Semester	
Principles of Accounting II	ACC 102*(1)	3
Introduction to Computers	CSC 100	3
Tax Accounting	ACC 204*(1)	3
Elective*(3)		3-4
Speech Elective	SPE 110 or 120	3
		15-16
	Third Semester	
Cost Accounting	ACC 203*(1)	3
Business Law I	BUS 200	3
Intermediate Accounting I	ACC 201*(1)	3
Introduction to Microeconomics	ECO 100	3
Elective*(3)		3-4
		15-16
	Fourth Semester	
Business Organization and Management	MAN 280	3
Elective*(3)		3-4
Humanities Elective*(4)		3-4
COBOL Programming	CSC 160	3
Intermediate Accounting II	ACC 202*(1)	3
		15-17

Notes:

*(1) Core courses: D grades do not fulfill graduation requirement.

*(2) For reading requirement see page 26.

*(3) Approved Electives:
Select three of the following courses or other courses with the consent and written approval of the subject area or department coordinator:
MTH 070 or MTH 130 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

*(4) See page 26 for Humanities electives.

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 Applied Science Degree
For Direct Employment

Required Courses (66-69)		**Cr. Hrs.**
Introduction Administration of Justice	AJS 101*(1)	3
Criminal Law	AJS 109*(1)	3
Crime & Delinquency	AJS 225*(1)	3
Criminal Procedures	AJS 115*(1)	3
Juvenile Justice Procedures	AJS 212*(1)	3
Rules of Evidence	AJS 201*(1)	3
Field Experience	AJS 290*(1)	3
Reading Requirement*(2)		
		21

Administration of Justice continued next page

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
Introduction Microeconomics	ECO 100	3
Business & Professional Communication	SPE 120	3
Electives*(3)		4-6
Humanities Elective		8-9
Math/Science Elective*(4)		6
		45-48

Notes:

*(1) Core courses: D grades do not fulfill graduation requirement.

*(2) For reading requirement see page 26.

*(3) Suggested Electives

At least 3 units of these electives must be chosen from related courses: AJS 123, AJS 163, AJS 240, AJS 245, or AJS 123.

Corrections as a System	AJS 123	3
Child Abuse: Intervention & Protection	AJS 146	3
First Aid	REC 121	2
Introduction to Youth Care	AJS 163	3
Police Community and Human Relations	AJS 210	3
Treatment of the Offender	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
Organized Crime Investigation	AJS 220	3
Crisis Intervention—Theory/Technology	SSE 236	3
Casework Methods II	SSE 234	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
Environment and Management in Public Organization	PAD 201	3

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

*(4) See page 26 for Math/Science electives.

Corrections
Associate of Arts Degree
For Transfer*(1)

Required Courses (68-70)	**First Semester**	**Cr. Hrs.**
Writing I	WRT 101	3
Introduction to Logic or Natural Science	PHI 120 or Natural Science elective*(2)	3-4
College Algebra	MTH 150*(3)(4)	3
American National Government	POL 110	3
Introduction to Administration of Justice	AJS 101*(5)	3
Criminal Law	AJS 109*(5)	3
Reading Requirement*(6)		
		18-19
	Second Semester	
Writing II	WRT 102	3
Introduction to Logic or Natural Science	PHI 120 or Natural Science elective*(2)	3-4
Finite Math	MTH 170	3
American State/Local Government	POL 111	3
Introduction to Public Administration	PAD 105	3
Criminal Procedures	AJS 115*(5)	3
		16
	Third Semester	
Introduction to Microeconomics	ECO 100	3
Business & Professional Communication	SPE 120	3
Stat. Methods in Economics & Business	BUS 205	3
Juvenile Justice Procedures	AJS 212*(5)	3
Humanities or Foreign Language	HUM or Language*(7)	4
		16

	Fourth Semester	
Introduction to Macroeconomics	ECO 101	3
Introduction to Computers	CSC 100	3
Accounting for Government Agencies	ACC 173	3
Humanities or Foreign Language	HUM or Language*(7)	4
Crime & Delinquency	AJS 225*(5)	3
		16

Notes:

*(1) 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.

*(2) Fullfilled 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 110, 111; ESC 101, 102; and LSC 103, LSC 104. In the care 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.

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

*(4) 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.

*(5) Core courses: D grades do not fulfill graduation requirement.

*(6) For reading requirement see page 26.

*(7) 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 Applied Science Degree
For Direct Employment

Required Courses (66-69)		**Cr. Hrs.**
Introduction Administration of Justice	AJS 101*(1)	3
Criminal Law	AJS 109*(1)	3
Criminal Procedures	AJS 115*(1)	3
Police Community/Human Relations	AJS 210*(1)	3
Crime and Delinquency	AJS 225*(1)	3
Rules of Evidence	AJS 201*(1)	3
AJS Field Experience	AJS 290*(1)	3
Reading Requirement*(2)		
		21
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
Introduction to Microeconomics	ECO 100	3
Business & Professional Communication	SPE 120	3
Electives*(3)		4-6
Humanities Elective*(4)		8-9
Math/Science Elective*(4)		6
		45-48

Notes:

*(1) Core courses: D grades do not fulfill graduation requirement.

*(2) For reading requirement see page 26.

*(3) Suggested Electives

Corrections as a System	AJS 123	3
Child Abuse Intervention & Protection	AJS 146	3
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
Co-op Related Class in AJS	AJS 299*(1)	1
Co-op Work in AJS	AJS 299B*(1)	2
Police Administration	AJS 208	3
Traffic Safety Functions	AJS 106	3
Organized Crime Investigation	AJS 220	3

Criminal Justice continued next page

Criminal Investigation & Report Prep.	AJS 204	3
Detention Super. Methods	AJS 240	3
Treatment of the Offender	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
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
Environment and Management in Public Organization	PAD 201	3

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

*(4) See page 26 for Humanities and Math/Science electives.

Criminal Justice
Associate of Arts Degree
For Transfer* (1)

Required Courses (68-70)	**First Semester**	**Cr. Hrs.**
Writing I	WRT 101	3
Introduction to Logic or Natural Science	PHI 120 or Natural Science elective*(2)	3-4
College Algebra	MTH 150*(3)(4)	3
American National Government	POL 110	3
Introduction to Administration of Justice	AJS 101*(5)	3
Criminal Law	AJS 109*(5)	3
Reading Requirement*(6)		
		18-19

	Second Semester	
Writing II	WRT 102	3
Introduction to Logic or Natural Science	PHI 120 or Natural Science elective*(2)	3-4
Finite Math	MTH 170	3
American State/Local Government	POL 111	3
Introduction to Public Administration	PAD 105	3
Criminal Procedures	AJS 115*(5)	3
		18-19
	Third Semester	
Introduction to Microeconomics	ECO 100	3
Business & Professional Communication	SPE 120	3
Stat. Methods in Economics & Business or	BUS 205	
Introductory Statistics	MTH 210	3
Humanities or Foreign Language	HUM or Language*(7)	4
Rules of Evidence	AJS 201*(5)	3
		16
	Fourth Semester	
Introduction to Macroeconomics	ECO 101	3
Introduction to Computers	CSC 100	3
Police Community/Human Relations	AJS 210*(5)	3
Accounting for Government Agencies	ACC 173	3
Humanities or Foreign Language	HUM or Lang*(7)	4
		16

Notes:

*(1) 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.

*(2) 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 fom 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, 110, 111; 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.

*(3) The prerequisite for MTH 150 is MTH 130 or two years of algebra. Math placement tests are available; if interested, see an advisor.
*(4) 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.
*(5) Core courses: D grades do not fulfill graduationrequirement.
*(6) For reading requirement see page 26.
*(7) Fulfilled by either 2 semesters (8 units) of a single foreign language or Humanities I and II (HUM 120, 111) or other approved Humanities electives. See an advisor for information concerning these electives.

Corrections: Rehabilitation
Associate of Arts Degree
For Transfer

Required Courses (67-70)*(1)	**First Semester**	**Cr. Hrs.**
Writing I	WRT 101	3
Psychology I	PSY 100	3
Intro. to Admin. of Justice	AJS 101*(2)	3
Criminal Law	AJS 109*(2)	3
Accounting for Public Agencies	ACC 173	3
Reading Requirement*(3)		
		15
	Second Semester	
Writing II	WRT 102	3
Psychology II	PSY 101	3
Rules of Procedure	AJS 201*(2)	3
Crime and Delinquency	AJS 225*(2)	3
Business and Professional Communication	SPE 120	3
Math Elective*(4)		3
		18
	Third Semester	
Social Science Elective*(5)		3
Humanities or Option*(6)	HUM 110	4 (3-6)
Human Anatomy and Physiology I*(7)	LSC 120	4
Juvenile Justice Procedures	AJS 212*(2)	3
Criminal Procedures	AJS 115*(2)	3
Total		17
Total with option		(16-19)
	Fourth Semester	
Social Science Elective*(5)		3
Humanities or Option*(6)	HUM 111	4 (3-6)
Human Anatomy and Physiology II*(7)	LSC 121	4
Treatment of the Offender	AJS 245*(2)	3
Introduction to Computers	CSC 100	3
Total		17
Total with option		(16-19)

Notes:
*(1) These courses are required. Their arrangement by semester as specified is not required. The student should be careful, however, to satisfy any prerequisites before taking a more advanced course. See an advisor.
*(2) Core Courses: D grades do not fulfill graduation requirement.
*(3) For reading requirement see page 26. A strong reading background is helpful in this program. Students are required to achieve a minimum score of 12th grade reading proficiency as determined by the reading department in order to receive a degree in this program. The student is urged to take the reading test at the beginning of the program and to correct any reading deficiency early in the program.
*(4) In order to count as a transferable course, this math elective must be Algebra II (MTH 130) or above. The student is urged to take this course if it was not taken in high school. Algebra II (MTH 130) will be helpful as a background course for upper division statistical methods courses.
*(5) Requires minimum of 6 units from Anthropology, Psychology, or Sociology, in addition to PSY 100 or 101. Choose transferable courses. See an advisor.
*(6) See page 26 for Humanities options.
*(7) Prior to taking LSC 120, 1212, students should either have had Chemistry in high school, or taken Fundamentals of Chemistry (CHM 110) at either Pima or another college. The student is urged to correct any deficiency in this area during this semester.

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.

Advertising Art
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*(1)	3
Advertising Design I	ADA 110*(1)	3
Production Techniques & Processes I-II	ADA 111*(1), 211*(1)	6
Advertising Drawing I	ADA 103*(1)	3
		21

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.

Advertising Art
Associate of Applied Science Degree
For Direct Employment

Required Courses (63-64)	First Semester	Cr. Hrs.
Practical Communications	WRT 150	3
Graphic Technology I	GRA 101*(1)	3
Advertising Art I	ADA 101*(1)	3
Advertising Design I	ADA 110*(1)	3
Advertising Drawing I	ADA 103*(1)	3
Math (based on placement exam)	MTH	3
Reading Requirement*(2)		
		18
	Second Semester	
Math (second course in sequence)	MTH	3
Graphic Technology II	GRA 102*(1)	3
Advertising Drawing II	ADA 105*(1)	3
Production Techniques & Processes I	ADA 111*(1)	3
Advertising Design II	ADA 120*(1)	3
		15
	Third Semester	
Advertising Design III	ADA 210*(1)	3
Production Techniques & Processes II	ADA 211*(1)	3
Advertising Drawing III	ADA 205*(1)	3
Humanities Elective*(3)		3-4
Business & Professional Communication	SPE 120	3
		15-16
	Fourth Semester	
Human Relations in Business	MAN 110	3
Production Techniques & Processes III	ADA 212*(1)	3
Advertising Drawing IV	ADA 207*(1)	3
Advertising Design IV	ADA 220*(1)	3
Co-op Related Class in ADA	ADA 199	1
Co-op Work in ADA	ADA 199B	2
		15

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for Humanities electives.

Advertising Art
Graphic Artist Option
Associate of Applied Science Degree
For Direct Employment

Required Courses	First Semester	Cr. Hrs.
Practical Communications	WRT 150	3
Graphic Technology I	GRA 101*(1)	3
Advertising Art I	ADA 101*(1)	3
Advertising Design I	ADA 110*(1)	3
Math (based on placement exam)	MTH	3
Reading Requirement*(2)		
		15
	Second Semester	
Advertising Drawing I	ADA 103*(1)	3
Math (second course in sequence)	MTH 3	
Business & Professional Communication	SPE 120	3
Graphic Technology II	GRA 102*(1)	3
Production Techniques & Processes I	ADA 111*(1)	3
		15

	Third Semester	
Production Techniques & Processes II	ADA 211*(1)	3
Advertising Drawing II	ADA 105*(1)	3
Advertising Design II	ADA 120*(1)	3
Color Theory and Practice	GRA 201*(1)	3
Humanities I	HUM 110	4
		16
	Fourth Semester	
Offset Photography	GRA 104*(1)	3
Offset Presswork	GRA 202*(1)	3
Advanced Stripping & Platemaking for Color	GRA 221*(1)	3
Human Relations in Business	MAN 110	3
Co-op Related Class in ADA	ADA 199	1
Co-op Work in ADA	ADA 199B	2
		15

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.

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 also learn 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*(1)	3
Air Conditioning Phase I-II	ACD 120*(1), 125*(1)	8
Technical Math I-II	MTH 110, 120	6
Human Relations in Business	MAN 110	3
		20
Light Commercial Endorsement:		
Above coursework plus		
Air Conditioning Phase III-IV	ACD 210, 220	8
		28

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.

Air Conditioning, Heating, Ventilation
Technical Certificate
For Direct Employment

Required Courses		**Cr. Hrs.**
Air Conditioning Fundamentals	ACD 101*(1)	3
Air Conditioning Phase I-IV	ACD 120*(1), 125,*(1) 210*(1), 220*(1)	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 in Business	MAN 110	3
Combination Welding	WLD 110	3
		43

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.

Air Conditioning continued next page

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

Required Courses (76)	First Semester	Cr. Hrs.
Air Conditioning Fundamentals	ACD 101*(1)	3
Air Conditioning Phase I	ACD 120*(1)	4
Technical Math I	MTH 110	3
Sheet Metal I	SML 110*(1)	4
Technical Drafting I	DFT 150	4
Reading Requirement*(2)		
		18
	Second Semester	
Sheet Metal Pattern Layout I	SML 130*(1)	3
Air Conditioning Phase II	ACD 125*(1)	4
Technical Math II	MTH 120	3
Sheet Metal II	SML 120*(1)	4
Practical Communications	WRT 150	3
Combination Welding	WLD 110	3
		20
	Third Semester	
Air Conditioning Phase III	ACD 210*(1)	4
Human Relations in Business	MAN 110	3
Technical Physics I	PHY 101	3
Sheet Metal Pattern Layout II	SML 135*(1)	3
Technical Communications	WRT 154	3
Air Conditioning Estimating I	ACD 250	3
		19
	Fourth Semester	
Air Conditioning Phase IV	ACD 220*(1)	4
Sheet Metal Pattern Layout III	SML 210*(1)	3
Architectural Sheet Metal	SML 220*(1)	3
Air Conditioning Estimating II	ACD 260	3
Technical Physics II	PHY 102	3
Humanities Elective*(3)		3
		19

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for Humanities electives.

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 students 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:

Students who want to enroll in programs should:

1. Apply to the specific Allied Health program in addition to applying for admission to the college.
2. Show certain educational skills which may change from one program to another. 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

   East Campus
   Emergency Medical Technology
   - Nursing Assistant

   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:

SARAHELP is the Southern Arizona Regional Allied Health Educational Linkage Program. This program helps to develop jobs for community college students and to attract well-trained health workers to rural Southern Arizona. Central Arizona College or the Aravaipa Campus, 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 hospitals. The program also works with health care centers in Cochise and Yuma counties.

Under SARAHELP 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. SARAHELP 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.

Allied Health continued next page

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

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

Allied Health Services
Basic Certificate
For Direct Employment

Required Courses		Lec.		Lab	Cr. Hrs.
Principles of Human Anatomy & Physiology	LSC 102*(1)	3	+	3	4
Introduction to Health Care	HCA 154*(1)	3	+	0	3
Skills for Allied Health Services	HCA 150*(1)	2	+	9	5
					12

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.

Anthropology

(See Also Archaeology)

The anthropology and archaeology programs prepare graduates for further academic studies at a four-year college or university as well as providing practical job-related skills. Anthropology students can select from an Associate of Arts transfer degree program and a basic certificate that emphasizes archaeological fieldwork.

The anthropology program provides a global understanding of the nature of humankind as well as developing student's awareness of the biological and cultural development of humanity, heritage and present cultural diversity of the Southwest. The program prepares students for upper division study in anthropology at a major university. The curriculum generally parallels the lower division Anthropology/Liberal Arts requirements at the state universities.

All students must complete the core curriculum of 18 units (ANT 100, 110, 200, 210, 215, 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.

Anthropology
Associate of Arts Degree
For Transfer* (1)

Required Courses (62-68)	**First Semester**	**Cr. Hrs.**
Human Origins and Prehistory	ANT 100*(2)	3
Introduction to Cultural Anthropology	ANT 110*(2)	3
Foreign Language or Electives*(3)		4
Science or Math*(4)		3-4
Writing I	WRT 101	3
Reading Requirement*(5)		
		16-17
	Second Semester	
Cultural Anthropology	ANT 210*(2)	3
Biological Anthropology	ANT 200*(2)	3
Foreign Language or Electives*(3)		4
Science or Math*(4)		3-4
Writing II	WRT 102	3
		16-17
	Third Semester	
Archaeology	ANT 225*(2)	3
Humanities*(6)		3-4
Foreign Language or Electives*(3)		4
Anthropology Option I or II*(7)		4
		14-15
	Fourth Semester	
The Nature of Language	ANT 215*(2)	3
Humanities*(4)		4-6
Foreign Language or Electives*(4)		4
Anthropology Option I or II*(7)		3-4
Survival	REC 118	2
		16-19
	Summary	
Major Requirements		18
Science or Math Requirements*(4)		6-8
Writing		6
Language Proficiency and/or Electives*(3)		16
Humanities*(6)		8-9
Required Option I or II*(7)		8-9
		62-68

Notes:

*(1) 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.

*(2) Core courses: D grades do not fulfill graduation requirement.

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

*(4) See page 26 for Math/Science electives.

*(5) For Reading Requirement see page 26.

*(6) 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

Anthropology continued next page

*(7) Option I—Students with area emphasis in Archaeology/Physical Anthropology should take Ecology I and a 3 unit elective.
Option II—Students with area emphasis in Cultural Anthropology /Linguistics should select six units in consultation with the cultural anthropology advisor.

Applied Design

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).

Commercial artists create artwork for newspapers, magazines, advertising agencies, billboards, catalogs, flyers, brochures and television commercials.

Functional or industrial designers combine artistic talents with the development of materials and methods of production to improve the appearance and usability of products.

Interior designers or decorators help create more attractive and functional living, working and playing conditions through the use of color, furnishings, fabrics, floor covering and accessories.

These various programs of study can be taken for job training, cultural enrichment or personal interest. The programs also provide an opportunity of combining design courses with other practical studies such as mechanical, electronic and architectural drafting.

Training in these areas is available at Pima Community College through basic and advanced certificate programs as well as a two-year associate of arts degree program in interior design.

All of these courses are designed to interface with the complete drafting program and to augment the skills of drafting students graphically and design-wise.

Functional Design Program
Basic Certificate

Required Courses		Cr. Hrs.
Industrial Graphics	DES 111*(1)	3
Functional Design	DES 150*(1)	3
Design for Living or	DES 156*(1)	
Textiles	FDC 126	3
Industrial Functional Design	DES 250*(1)	3
Construction Drafting I or	DFT 110	
Technical Drafting	DFT 150	4
		16

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.

Interior Design Program
Basic Certificate

Required Courses		Cr. Hrs.
Home Furnishings	DES 155*(1)	3
Design for Living	DES 156	
Textiles	FDC 126	3
Spatial Design	DES 255*(1)	3
Interior Environmental Design	DES 256*(1)	3
Practical Communications or	WRT 150	
Construction Drafting I	DFT 110	
Technical Drafting	DFT 150	3-4
		15-16

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.

Interior/Functional Design
Advanced Certificate

Required Courses	First Semester	Cr. Hrs.
Industrial Graphics	DES 111*(1)	3
Functional Design	DES 150*(1)	3
Home Furnishings or	DES 155*(1)	
Commercial Graphics	DES 211	3
Design for Living or	DES 156	
Textiles	FDC 126	3
Construction Drafting I or	DFT 110	
Technical Drafting	DFT 150	4
Communication Elective*(2)		3
		19

	Second Semester	
Light-Weight Structure Design	DES 151*(1)	3
Advanced Commerical Design or	DES 222	
Landscape Gardening	GTC 090	3
Industrial Functional Design	DES 250*(1)	3
Spatial Design	DES 255*(1)	3
Interior Environmental Design	DES 256*(1)	3
Math/Science Elective*(2)		3
		18

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for Communication, Math/Science electives.

Interior Design
Associate of Applied Arts

Required Courses (64-68)	**First Semester**	**Cr. Hrs.**
Industrial Graphics	DES 111*(1)	3
Design for Living or	DES 156	
Textiles	FDC 126	3
Writing I or	WRT 101	
Practical Communications or	WRT 150	
Comunigraphics I	MET 050	3
Construction Drafting I or	DFT 110	
Technical Drafting	DFT 150	4
Commercial Drafting	DES 211	3
Reading Requirement*(2)		
		16
	Second Semester	
Light-Weight Structure Design	DES 151*(1)	3
Functional Design	DES 150*(1)	3
Home Furnishings	DES 155*(1)	3
Writing II or	WRT 102	
Technical Communications	WRT 154	3
Human Relations in Business	MAN 110	3
Humanities Electives*(3)		3-4
		18-19
	Third Semester	
Industrial Functional Design	DES 250*(1)	3
Spatial Design	DES 255*(1)	3
Advanced Commercial Graphics	DES 222	3
Salesmanship	MKT 113	3
Math/Science Elective*(3)		3-4
		15-16

	Fourth Semester	
Interior Environmental Design	DES 256*(1)	3
Communigraphics I	MET 050	3
Landscape Gardening	GTC 090	3
Applied Design or	DES 080	
Co-op Related Class in DES and	DES 299	1
Co-op Work in DES	DES 299C	3
Math/Science Elective*(3)		3-4
		16-17

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for Humanities and Math/Science electives.

Apprentice Related Instruction

Pima Community College works jointly with local and state apprenticeship groups to offer related instruction in a number of apprenticeship programs. Most programs require 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
Bricklaying
Cableman
Carpentry
Electric Distribution Developer
Engineering Technician
Floor Covering
General Construction
Glazing
Inside Electrical Wireman
Ironworking
Lathing
Lineman
Meterman
Operating Engineer
Painting & Decorating
Pipe Fitting
Plastering & Cement Masonry
Plumbing
Sheet Metal
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.

Apprentice Related Instruction continued next page

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 general education course requirements must also be met:

Course	Cr. Hrs.
Communications	6
Mathematics and/or Science	6
Social Sciences	3
Humanities	3

The remaining 18-20 credit hours of electives should be chosen with help from the college apprenticeship coordinator.

Trade and Industrial Technology*(1)
Associate of Applied Science

28 hours*(2)	Apprenticeship related instruction and/or approved technical courses.
18-20 hours*(2)	Apprenticeship related instruction and/or approved technical courses.
6 hours	Writing
6 hours	Mathematics and/or Science (Select 6 hours from the following: mathematics, astronomy, chemistry, earth sciences, physics.)*(3)
3 hours	Social Sciences (Select 3 hours from the following: anthropology, history, humanities, literature, philosophy, sociology, management.*(3)
3 hours	Humanities elective*(3)
	Reading requirement*(4)
64-66 hours	Total

Notes:

*(1) 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.

*(2) Core courses: D grades do not fulfill graduation requirement. Core courses are for all apprentice related courses.

*(3) See page 26 for math/science and humanities electives.

*(4) For reading requirement see page 26.

Archaeology

(See Also Anthropology)

Field Archaeology

The archaeological fieldwork curriculum at Pima Community College is designed to provide interested persons with a basic level of practical archaeological field experience. Field courses are taught within the context of Arizona prehistory and emphasize an appreciation of the archaeological and environmental resources of the Southwest. No prior experience or prerequieites are necessary to begin the program or to enroll for classes.

Students have the opportunity to develop a wide variety of skills and abilities in field archaeology. Emphasis is placed on actual field experience, supplemented by appropriate lecture courses. The curruculum is flexible enough to meet the needs of students pursuing professional training in archaeology, amateur archaeologists, and people with a general interest in archaeology. The program strives to promote the preservation, and conservation of archaeological resources and to contribute to the knowledge of the prehistory of Southern Arizona. Upon the completion of the courses listed, an individual will receive a Basic Certificate in Archaeological Fieldwork.

Archaeological Fieldwork
Basic Certificate*(1)

Required Courses		Cr. Hrs.
Human Origins & Prehistory	ARC 100*(2)	3
Introduction to Southwestern Prehistory	ARC 141*(2)	3
Archaeology	ARC 225*(2)	3
Archaeology Laboratory	ARC 250*(2)	3
Archaeology Field Methods	ARC 275*(2)	3
Archaeological Excavation	ARC 277*(2)	3
Archaeological Exploration I	ARC 276*(2)	3
Construction Surveying or Elementary Surveying	ENG 110*(2)	3
	ENG 130*(2), *(3)	
		24

Notes:

*(1) Students wishing to complete an A.A. in Anthropology with an emphasis in Archaeology, should consult the anthropology section of this catalog.

*(2) Core courses: D grades do not fulfill graduation requirement.

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

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.)

Applied Arts
Associate of Applied Arts Degree

Required Courses	First Semester	Cr. Hrs.
Basic Design	ART 100*(1)	3
Drawing I	ART 110*(1)	3
Art and Culture I	ART 130*(1)	3
Writing I	WRT 101	3
Humanities Elective*(2)		3-4
Reading Requirement*(3)		
		15-16
	Second Semester	
Color and Design	ART 115*(1)	3
Introduction to Sculpture	ART 120*(1)	3
Art and Culture II	ART 131*(1)	3
Writing II	WRT 102	3
Social Science Elective*(2)		3-4
		15-16

Third and Fourth Semesters

Art requirements: Select any eight additional art courses from the following categories for a total of 24 credits with 6 hours from Math/Science elective*.

Arts and Crafts

Principles of Lapidary, ART 060*(4)
Advanced Lapidary, ART 065
Ceramics I, II & III, ART 160, 260, 261
Metalwork I: Jewelry, ART 170
Metalwork II: Jewelry, ART 270
Metalwork II: Smithing and Casting, ART 271
Weaving, ART 179, 180
Fiber Structures, ART 181
Commercial Graphics, ART 211

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-Columbian Art, ART 135

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

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for Humanities or Social Science electives.
*(3) For reading requirement see page 26.
*(4) Non-transferable.

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.

Fine Arts
Associate of Arts Degree
For Transfer

Required Courses	First Semester	Cr. Hrs.
Basic Design	ART 100*(1)	3
Drawing I	ART 110*(1)	3
Art and Culture I	ART 130*(1)	3
Writing I	WRT 101	3
Humanities Elective*(2)		3-4
Reading Requirement*(3)		
		15-16

Fine Arts continued next page

	Second Semester	
Color and Design	ART 115*(1)	3
Introduction to Sculpture	ART 120*(1)	3
Art and Culture II	ART 131*(1)	3
Writing II	WRT 102	3
Social Science Elective*(2)		3
		15
	Third Semester	
Drawing II or Life Drawing	ART 210*(1) ART 213*(1)	3
Art Electives		6
Lab Science		4
Social Science Elective*(2)		3
		16
	Fourth Semester	
Art Electives		9
Social Science Elective*(2)		3
Math or Lab Science Elective*(2)		4
		16

Notes:

*(1) Core courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for Humanities, Social Science and Math/Science electives.
*(3) For reading requirement see page 26.

Automotive Technology

The automotive 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*(1)	4
Automotive Engine Service Repair	AUT 22*(1)	3
Automotive Diesel Engines	AUT 124*(1)	3
Engine Tune-Up	AUT 125*(1)	4
Human Relations in Business	MAN 110	3
		17

Notes:

*(1) Core courses: D grades do not fulfill graduation requirement.

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

Required Courses		Cr. Hrs.
Internal Combustion Engines	AUT 120*(1)	4
Engine Tune-Up	AUT 125*(1)	4
Automotive Electricity I-II	AUT 128*(1), 129*(1)	6
Automotive Air Conditioning	AUT 142*(1)	3
Human Relations in Business	MAN 110	3
		20

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.

Power Transmission
Basic Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Automatic Transmissions	AUT 132*(1), 133*(1)	8
Automotive Drive Line	AUT 136*(1)	4
Human Relations in Business	MAN 110	3
		15

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.

Suspension and Brakes
Basic Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Automotive Chassis	AUT 138*(1)	4
Automotive Drive Line	AUT 136*(1)	4
Automotive Brakes	AUT 140*(1)	4
Human Relations in Business	MAN 110*(1)	3
		15

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.

Automotive Mechanics*(1)
Technical Certificate
For Direct Employment

Required Courses (52)	First Semester	Cr. Hrs.
Internal Combustion Engines	AUT 120*(2)	4
Automotive Electricity I	AUT 128*(2)	3
Automatic Transmission Removal	AUT 132*(2)	4
Technical Math I*(3)	MTH 110	3
		14
	Second Semester	
Automotive Engine Service Repair	AUT 122*(2)	3
Automotive Electricity II	AUT 129*(2)	3
Automatic Transmission Rebuilding	AUT 133*(2)	4
Technical Physics I	PHY 101	3
		13
	Third Semester	
Engine Tune-Up	AUT 125*(2)	4
Automotive Chassis	AUT 138*(2)	4
Practical Communications	WRT 150	3
Human Relations in Business	MAN 110	3
		14
	Fourth Semester	
Automotive Drive Line	AUT 136*(2)	4
Automotive Brakes	AUT 140*(2)	4
Automotive Air Conditioning	AUT 142*(2)	3
		11

Notes:
*(1) 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.
*(2) Core courses: D grades do not fulfill graduation requirement.
*(3) This course requires prerequisite or placement test.

Automotive Technology*(1)
Associate in Applied Science Degree
For Direct Employment

Required Courses (64)	First Semester	Cr. Hrs.
Internal Combustion Engines	AUT 120*(2)	4
Automotive Electricity I	AUT 128*(2)	3
Automatic Transmission Removal	AUT 132*(2)	4
Technical Math I*(3)	MTH 110	3
Technical Physics I	PHY 101	3
Reading Requirement*(4)		
		17

Automotive Technology continued next page

	Second Semester	
Automotive Engine Service Repair	AUT 122*(2)	
or Engine Tune-Up	AUT 125*(2)	3-4
Automotive Electricity II	AUT 129*(2)	3
Automatic Transmission Rebuilding	AUT 133*(2)	4
Technical Math II	MTH 120	3
Technical Physics II	PHY 102	3
		16-17
	Third Semester	
Automotive Engine Service Repair	AUT 122*(2)	
or Engine Tune-Up	AUT 125*(2)	3-4
Automotive Chassis	AUT 138*(2)	4
Human Relations in Business	MAN 110	3
Practical Communications	WRT 150	3
Humanities Elective*(5)		3
		16-17
	Fourth Semester	
Automotive Brakes	AUT 140*(2)	4
Automotive Air Conditioning	AUT 142*(2)	3
Automotive Drive Line	AUT 136*(2)	4
Technical Communications	WRT 154	3
		14

Notes:

*(1) 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.

*(2) Core courses: D grades do not fulfill graduation requirement.

*(3) This course requires prerequisite or placement test.

*(4) For reading requirement see page 26.

*(5) See page 26 for Humanities electives.

Automotive Technology
Associate of Science Degree
For Transfer

Required Courses (65-71)		**Cr. Hrs.**
Internal Combustion Engines	AUT 120*(1)	4
Automotive Electricity I-II	AUT 128*(1), 129*(1)	6
Automatic Transmissions	AUT 132*(1), 133*(1)	8
Automotive Engine Service Repair	AUT 122*(1)	3
Engine Tune-Up	AUT 125*(1)	4
Automotive Chassis	AUT 138*(1)	4
Automotive Drive Line	AUT 136*(1)	4
Automotive Brakes	AUT 140*(1)	4
General Education Requirements*(2)		28-34
Reading Requirement*(3)		
		65-71

Notes:

*(1) Core courses: D grades do not fulfill graduation requirement.

*(2) Automotive courses to be taken in the same order as for the Associate in Applied Science Degree program. The 28-34 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.

Course	**Cr. Hrs.**
Humanities/Fine Arts*	6-9
Social/Behavior Science*	6-9
Math/Science*	10
Communications*	6
	28-34

*(3) See page 26 for general education electives.

*(4) For reading requirement see page 26.

Aviation Mechanics

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

Airframe and Powerplant Mechanics
Basic Certificate
For Direct Employment

Required Courses		**Cr. Hrs.**
Airframe Mechanics	AVM 220*(1)	6
Airframe Systems & Components	AVM 221*(1)	6
Powerplant Mechanics	AVM 230*(1)	6
Combination Welding	WLD 110	3
Technical Math I	MTH 110	3
Human Relations in Business	MAN 110	3
		27

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.

Bilingual Program

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

Both English and Spanish Used
Bilingual program courses are taught using both English and Spanish. Bilingual instructors help students to understand and learn better by using both English and Spanish in their presentations and in their explanations when answering questions. If a student needs more help in English or viceversa they will be provided help through the language they best understand.

Take Other Courses While Studying English
The bilingual program makes it possible for students with limited English proficiency to begin coursework in the field which interests them because these courses are taught using both languages. While they are taking these bilingual courses they need to take ESL classes if they are foreign students, as there are only a limited number of bilingual courses offered each semester. Bilingual degree programs all include some courses taught only in English. The vast majority of the classes offered at Pima Community College are taugh in English only: Thus, it is most important for them to take ESL courses to improve a proficiency in English.

Students Fluent in English Also Take Bilingual Courses
Students who are not limited in the English proficiency and who wish to increase their proficiency in Spanish in certain subject matter areas such as accounting, secretarial skills, business, etc, should also be informed of the bilingual program offerings and/or encouraged to speak to instructors or staff members of the bilingual program area. These students do not have to read Spanish; they merely have to understand and speak some Spanish. Taking bilingual program courses will help them improve their proficiency in particular subject matter areas such as accounting secretarial studies, education, business, etc., provides them with additional marketable saleable skills.

Program Bilingüe

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

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

El estudiante que estudia ingles
Mientras el estudiante estudia inglés puede tomar clases bilingües en algún campo de interés para él, accumulando creditos para un certificado del Colegio Pima o para transferir a nivel universitario.

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

Building Technology

The following program courses are offered for inmate/residents in the Prison Education Program.

Building Maintenance
Basic Certificate

Required Courses		Cr. Hrs.
Building Materials	GTC 060*(1)	3
Plumbing	BLT 050*(1)	3
Introductory Mathematics	MTH 060	3
Combination Welding	WLD 110*(1)	3
Carpentry I	BLT 055*(1)	3
Basic Electricity	GTC 010*(1)	3
Executive Housekeeping I	HSK 150	3
Practical Communications	WRT 150	3
		24

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Drywall
Basic Certificate

Required Courses		Cr. Hrs.
Drywall I	BLT 090*(1)	3
Drywall II	BLT 094*(1)	3
Drywall Taping	BLT 092*(1)	3
Blueprint Reading	GTC 099*(1)	3
Introductory Mathematics	MTH 060	3
Practical Communications	WRT 150	3
Human Relations in Business & Industry	MAN 110	3
		21

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Painting
Basic Certificate

Required Courses		Cr. Hrs.
Painting I	BLT 070*(1)	3
Painting II	BLT 072*(1)	3
Color and Color Harmony	BLT 080*(1)	3
Blueprint Reading	GTC 099*(1)	3
Introductory Mathematics	MTH 060	3
Practical Communications	WRT 150	3
Human Relations in Business & Industry	MAN 110	3
Drywall Taping	BLT 092*(1)	3
		24

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Building Maintenance
Technical Certificate

Required Courses		Cr. Hrs.
Basic Certificate Requirements in Building Maintenance		24
Air Conditioning Fundamentals	ACD 101*(1)	3
Blueprint Reading	GTC 099*(1)	3
Construction Drafting I	DFT 110	4
Masonry	BLT 060*(1)	3
Combination Welding	WLD 110	3
Basic Construction Principles	GTC 065*(1)	3
Carpentry II	BLT 057*(1)	3
Building & Materials Cost Estimating	GTC 061*(1)	3
Glazing	BLT 062*(1)	3
		52

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Drywall/Painting
Technical Certificate

Required Courses		Cr. Hrs.
Basic Certificates in Drywall and Painting Requirements		30
Conventional and Airless Spray Painting	BLT 074*(1)	3
Advanced Blueprint Reading	BLT 076*(1)	3
Wall Coverings	BLT 082*(1)	3
Supervision	MAN 122	3
Technical Mathematics I	MTH 110	3
Technical Communications	WRT 154	3
		48

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Building Technology
Associate of Applied Science

Required Courses	First Semester	Cr. Hrs.
Building Materials	GTC 060*(1)	3
Blueprint Reading	GTC 099*(1)	3
Introductory Mathematics	MTH 060	3
Practical Communications	WRT 150	3
Construction Drafting I	DFT 110	4
Basic Construction Principles	GTC 065*(1)	3
Reading Requirement*(2)		
		19
	Second Semester	
Applied Accounting	GEB 096*(1)	3
Technical Communications	WRT 154	3
Human Relations in Business & Industry	MAN 110	3
Supervision	MAN 122	3
Building & Materials Cost Estimating	GTC 061*(1)	3
Technical Mathematics I	MTH 110	3
		18

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

Drywall/Painting Option

Required Courses	Third Semester	Cr. Hrs.
Drywall I	BLT 090*(1)	3
Drywall Taping	BLT 092*(1)	3
Painting I	BLT 070*(1)	3
Color and Color Harmony	BLT 080*(1)	3
Advanced Blueprint Reading	BLT 076*(1)	3
		15
	Fourth Semester	
Drywall II	BLT 094*(1)	3
Painting II	BLT 072*(1)	3
Conventional and Airless Spray Painting	BLT 074*(1)	3
Wall Coverings	BLT 082*(1)	3
Humanities Elective*(2)		3-4
		15-16

Building Maintenance Option

Required Courses	Third Semester	Cr. Hrs.
Plumbing	BLT 050*(1)	3
Combination Welding	WLD 110*(1)	3
Carpentry I	BLT 055*(1)	3
Basic Electricity	GTC 010*(1)	3
Executive Housekeeping I	HSK 150	3
		15
	Fourth Semester	
Carpentry II	BLT 057*(1)	3
Air Conditioning Fundamentals	ACD 101*(1)	3
Masonry	BLT 060*(1)	3
Glazing	BLT 062*(1)	3
Humanities Elective*(3)		3
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for Humanities electives.

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.

In order to be admitted into the College of Business and Public Administration at the University of Arizona, Pima College students must transfer with a minimum of a 2.25 grade point average. Students planning to transfer to other business programs should consult the catalog for that university for minimum grade point average admission requirements.

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.

Business Administration
Associate of Science Degree* (1)
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 *(2)		3-4
American National Government	POL 110	3
Elective *(3)		3
Finite Math *(4)	MTH 170	3
Physical Education Elective (Optional)*(5)		1
Reading Requirement*(6)		
		16-17
	Second Semester	
Writing II	WRT 102	3
PHI 120 or Natural Science*(2)		3-4
Social Science Elective*(3)		3
Introduction to Computers	CSC 100*(7)	3
Topics in Calculus*(4)	MTH 175*(7)	3
Physical Education Elective (Optional)*(5)		1
		16-17
	Third Semester	
Principles of Accounting I	ACC 101*(7)	3
Introduction to Microeconomics	ECO 100*(7)	3
Humanities or Foreign Language Elective*(8)		3-4
Business and Professional Communication	SPE 120	3
Statistical Methods in Economics & Business I	BUS 205*(7)	3
		15-16

	Fourth Semester	
Principles of Accounting II	ACC 102*(7)	3
Introduction to Macroeconomics	ECO 101	3
Humanities or Foreign Language Elective*(7)		3-4
Transferable Elective or BUS 206*(9)		3
Transferable Elective or CSC 160*(10)		3
		15-16

Notes:

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

*(2) 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.)

*(3) 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).

*(4) 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 advisable. Both MTH 130 and MTH 150 may be used as transferable electives. (See notes 9 and 10.)

*(5) 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 admited 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.

*(6) For reading requirement see page 26.

*(7) Core Courses: D grades do not fulfill graduation requirement.

*(8) 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.

*(9) Choose one of the following options:

A. Students following catalogs prior to this one as well as students who intend to major in Business Economics, Finance and Marketing are required to take Statistical Methods II (BUS 206).
B. Business Law I may be elected. It is a requirement for juniors at the University but may be taken at Pima.
C. Students electing to take the humanities option may use this for their third humanities course.
D. Use any non-business electives that are transferable. (This may include MTH 130 or MTH 150.)

*(10) Choose one of the following options:

A. Students who intend to major in Accounting, Management Information Systems, or Operations Management must enroll in COBOL Programming (CSC 160).
B. Business Law I may be elected. It is a requirement for juniors at the University but may be taken at Pima.
C. Students electing to take the humanities option may use this for their third humanities course.
D. Use any non-business electives that are transferable. (This may include MTH 130 or 150.)

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.

Business Administration
Associate of Applied Science Degree
For Direct Employment

Required Courses (64)	**First Semester**	**Cr. Hrs.**
Writing I	WRT 101	3
Introduction to Business	BUS 100	3
Human Relations in Business	MAN 110*(1)	3
Business Math	BUS 051	3
General Education Elective*(2)		3
Reading Requirement*(3)		
		15
	Second Semester	
Business & Professional Communication	SPE 120	3
Marketing	MKT 111*(1)	3
Business Communications	OED 251	3
Option A or B*(4)		6
		15
	Third Semester	
Principles of Accounting I	ACC 101*(1)	3
Supervision	MAN 122*(1)	3
Business Law I	BUS 200	3
Seminar I	BUS 295	1
Option A or B*(4)		3
Co-op Related Class in MAN/MKT	MAN or MKT 199*(6)	1
Co-op Work in MAN/MKT	MAN or MKT 199C*(6)	3
		17
	Fourth Semester	
Principles of Accounting II	ACC 102*(1)	3
General Education Elective*(2)		3
Business Elective*(6)		3
Seminar II	BUS 296	1
Option A or B*(4)		3
Co-op Related Class in MAN/MKT	MAN or MKT 299*(6)	1
Co-op Work in MAN/MKT	MAN or MKT 299C*(6)	3
		17

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) General Education Elective: One general elective must be used for Humanities elective (3-4 hours) [see page 26]. Other 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.

*(3) For reading requirement see page 26.

*(4) 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
Physical Distribution Management	MKT 150
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

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

*(6) Co-op courses are optional.

Business Administration
Advance Certificate
For Direct Employment

Required Courses (30)

Students will receive a Advance Certificate in Business Administration upon completion of first and second semesters of the associate of applied science degree program.

Chemistry

Chemistry
Associate of Science Degree
For Transfer

Suggested Courses (66-70)*(1)	**First Semester**	**Cr. Hrs.**
Writing I	WRT 101*(2)	3
General Chemistry I	CHM 120*(2)	5
College Algebra & Trigonometry	MTH 160*(2)	5
Social Science Elective*(3)		3
Physical Education	PED	1
Reading Requirement*(4)		
		17
	Second Semester	
Writing II	WRT 102*(2)	3
General Chemistry II	CHM 121*(2)	5
Anal. Geometry & Calculus I	MTH 180*(2)	3
Introductory Physics I	PHY 121*(2) or 131*(2)	5
Fortran IV Programming or Social Science Elective*(3)	CSC 140	3-4
		19-20
	Third Semester	
Organic Chemistry I	CHM 240*(2)	4
Anal. Geometry & Calculus II	MTH 185*(2)	3
Introductory Physics II	PHY 122*(2) or 132*(2)	5
Humanities Elective*(3)		3-4
Physical Education	PED	1
		16-17
	Fourth Semester	
Organic Chemistry II	CHM 241*(2)	4
Anal. Geometry & Calculus III	MTH 215*(2)	4
Humanities Elective*(3)		3-4
Elementary German I or Social Science Elective*(3)	GER 110	3-4
		14-16

Notes:
*(1) The courses suggested meet University of Arizona requirements for the first two years of a bachelor of science degree.
*(2) Core Courses: D grades do not fulfill graduation requirement.
*(3) For course electives in Humanities and Social Sciences consult the catalog of the college or university you plan to enter.
*(4) For reading requirement see page 26.

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 and Procedures	CSC 110*(1)	3
Practical Accounting Procedures	ACC 050	3
Reading	REA 100	4
Advanced Data Entry	CSC 115*(1)	3
Mathematics of Business or Mathematics (based on placement exam if higher degree is being pursued)	BUS 051 MTH	3
		16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Computer Science continued next page

Data Entry Operator
Technical Certificate
For Direct Employment

Required Courses (30)	First Semester	Cr. Hrs.
Basic Certificate Requirements		16
	Second Semester	
Data Entry Problems	CSC 120*(1)	2
Introduction to Computers	CSC 100	3
Practical Communications	WRT 150	3
Writing (based on placement exam if higher degree is being pursued)	WRT	
Calculating Machines	OED 121	2
Co-op Related Class in CSC	CSC 199	1
Co-op Work in CSC	CSC 199C	3
		30

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Computer Operator
Technical Certificate
For Direct Employment

Required Courses (35-37)	First Semester	Cr. Hrs.
Introduction to Computers	CSC 100*(1)	3
Computer Operations	CSC 150*(1)	3
Algebra II or Mathematics of Business	MTH 130 BUS 051	3
Reading	REA 100 series	4
Introduction to Business	BUS 100	3
Edit Language for Programmers & Operators	CSC 197*(1)	1
Job Entry Procedures	CSC 195	1
		18
	Second Semester	
Principles of Accounting I	ACC 101	3
Advanced Computer Operations	CSC 155*(1)	3
Writing I	WRT 101	3
Reading (if required) or Elective		3-4
Computer Science Elective	CSC	3
Work Standards/Job Attitudes	CSC 196	1
Data Processing Projects I	CSC 198*(1)	2
		18-19

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

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

Required Courses (62-64)	First Semester	Cr. Hrs.
Introduction to Computers	CSC 100*(1)	3
Principles of Accounting I	ACC 101	3
Writing I	WRT 101	3
Humanities Elective*(2)		3-4
Algebra II or College Algebra	MTH 130 MTH 150*(1)	3
Edit Language for Programmers & Operators	CSC 197	1
Reading Requirement*(3)		
		16-17
	Second Semester	
COBOL Programming	CSC 160*(1)	3
Principles of Accounting II	ACC 102	3
Writing II	WRT 102	3
Social Science Elective*(2)		3
College Algebra or CSC Elective*(4)	MTH 150	3
		15
	Third Semester	
Microprocessor Fundamentals	CSC 250*(1)	3
Systems Analysis	CSC 280*(1)	3
Advanced COBOL/File Management	CSC 260*(1)	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 Related Class in CSC	CSC 199	1
Co-op Work in CSC	CSC 199B	2
D Introduction to Microeconomics	ECO 100	(3)
E Cost Accounting	ACC 203	(3)
F CSC 200 level elective		(3)
		16

	Fourth Semester	
Job Entry Procedures	CSC 195	1
Work Standards/Job Attitudes	CSC 196	1
Systems Design	CSC 281*(1)	3
MACRO-10 Assembly Language or	CSC 274*(1)	
IBM/370-Assembly Language	CSC 270*(1)	4
Select two courses following sequence of third semester		6-7
A Statistical Methods II	BUS 206	(3)
B Topics in Calculus	MTH 175	(3)
C Co-op Related Class in CSC	CSC 299	1
Co-op Work in CSC	CSC 299B	2
D Introduction to Macroeconomics	ECO 101	(3)
E Elective		(3-4)
F CSC 200 level elective		(3)
		15-16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for Social Science and Humanities electives.
*(3) For reading requirement see page 26.
*(4) CSC courses nubmering 140 and higher.

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 (63-65)	**First Semester**	**Cr. Hrs.**
Introduction to Computers	CSC 100*(1)	3
Writing I or	WRT 101	
Practical Communications	WRT 150	3
Algebra II or	MTH 130	
College Algebra	MTH 150	3
Intro. to Computer Operations	CSC 150*(1)	3
Social Science Elective*(2)		3
Edit Language for Programmers & Operators	CSC 197	1
Reading Requirement*(3)		
		16
	Second Semester	
COBOL Programming	CSC 160*(1)	3
Writing II or	WRT 102	
Technical Communications	WRT 154	3
Humanities Elective*(2)		3-4
Advanced Computer Operations	CSC 155*(1)	3
Programming in BASIC	CSC 180*(1)	3
Job Entry Procedures	CSC 195	1
Work Standards/Job Attitudes	CSC 196	1
		17-18
	Third Semester	
Microprocessor Fundamentals	CSC 250*(1)	3
RPG Programming	CSC 170	3
Principles of Accounting I	ACC 101	3
Systems Analysis	CSC 280*(1)	3
Elective*(4)		3-4
		15-16

Computer Specialist for Small Business continued next page

	Fourth Semester	
Principles of Accounting II	ACC 102	3
Systems Design	CSC 281*(1)	3
Programming in PASCAL or Elective*(4)	CSC 190	3
Data Processing Projects II or Current Topics in Computer Science	CSC 298*(1) CSC 294*(1)	3
Microprocessor Applications	CSC 255*(1)	3
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for Humanities, Social Science and Math/Science.
*(3) For reading requirement see page 26.
*(4) Select from: MAN 122, MAN 124, ACC 203, CSC 140, CSC 274, ETR 001, ETR 100, CED 198, CED 199.

Systems Programmer*(1)*(2)
Advanced Certificate
For Direct Employment

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

Notes:
*(1) Prerequisite for program is AAS degree in Computer Science or equivalent.
*(2) Students majoring in Computer Science with non-business emphasis may substitute courses with approval of the department coordinator.
*(3) Core Courses: D grades do not fulfill graduation requirement.

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 336 hours of clinical procedures in an affiliated dental clinic and/or private dental office. Students who complete this program will graduate with an advanced certificate from Pima Community College and will be eligible to take the National Certification Examination and state oral radiography licensure examination.

Acceptance Into Program:
- Completion of college and 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: 38 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, 9 credit hours.
- Extension study: maximum, 6 credit hours (including correspondence study).

Minimal Grade Achievement:
All DAT courses in the certificate program must be completed with a "C" grade or better.

Dental Assisting Technology
Advanced Certificate
For Direct Employment

	First Semester	Lec	Lab	Clk Hrs.	Cr. Hrs.
Introduction to Health Care	HCA 154	3	0	3	3
Orientation to Dental Care	DAT 060*(1)	1	0	1	1
Biomedical Dental Science	DAT 061*(1)	3	0	3	3
Dental Assisting I	DAT 062*(1)	2	3	5	3
Oral Radiography	DAT 063*(1)	2	3	5	3
Dental Materials	DAT 064*(1)	2	3	5	3
Pre-Clinical Procedures	DAT 065*(1)	1	4	5	2
		14	13	27	18
	Second Semester				
Prac. Communicatons	WRT 150	3	0	3	3
Dental Assisting II	DAT 066*(1)	3	0	3	3
Dental Assisting III	DAT 067*(1)	3	0	3	3
Clinical Procedures	DAT 068*(1)	0	24	24	8
		9	24	33	17
Required General Education Science/Math Elective*(2)					3

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) In order to receive the Advanced Certificate in Dental Assisting, the student must complete an additional 3 credits in math or science elective.

Dental Laboratory Technology

The total program is made up of four semesters of classes. It includes 1,492 clock hours of laboratory practice. Graduates will receive an associate of applied science degree with a major in Dental Laboratory Technology. 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 and the Reading Department.

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 seats 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.

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

Dental Laboratory Technology continued next page

Dental Laboratory Technology
Associate of Applied Science Degree
For Direct Employment

Required Courses (72-73)	First Semester	Lec		Lab	Cr. Hrs.
Fundamentals of Chemistry I	CHM 110	3	+	3	4
Introductory Physics I	PHY 122	4	+	3	5
Dental Morphology	DLT 101*(1)	2	+	3	3
Non-Metallic Dental Materials	DLT 102*(1)	3	+	0	3
Complete Dentures	DLT 103*(1)	0	+	12	4
Reading Requirement*(2)					
					19
	Second Semester				
Writing I	WRT 101	3	+	0	3
Fundamentals of Chemistry II	CHM 111	3	+	3	4
Introductory Physics II	PHY 122	4	+	3	5
Dental Laboratory I	DLT 104*(1)	2	+	3	3
Partial Denture Reconstruction	DLT 105*(1)	0	+	12	4
					19
	Third Semester				
Writing II	WRT 102	3	+	0	3
Small Business Management	MAN 124	3	+	0	3
Dental Laboratory II	DLT 201*(1)	2	+	3	3
Dental Metallurgy I	DLT 202*(1)	3	+	0	3
Fixed Bridgework	DLT 203*(1)	0	+	12	4
					16
	Fourth Semester				
Human Relations in Business & Industry	MAN 110	3	+	0	3
Humanities Elective*(3)		3-4	+	0	3-4
Dental Laboratory III	DLT 204*(1)	2	+	3	3
Dental Metallurgy II	DLT 205*(1)	2	+	6	4
Ceramics	DLT 206*(1)	0	+	6	2
Communicable Diseases	LSC 117	3	+	0	3
					18-19

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for Humanities electives.

Drafting Technology

Construction Drafting

Students can select from a basic certificate program, a technical certificate program or a two-year associate of applied science degree program. The degree program offers courses in drafting techniques, building construction systems and materials. This training may lead to work in the construction industry and related fields.

Construction Drafting
Basic Certificate
For Direct Employment

Required Courses (17)		Cr. Hrs.
Construction Drafting I-II	DFT 110*(1), 120*(1)	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 in Drafting	DFT 149	(1-3)
Technical Drafting I	DFT 150	(4)
Construction Surveying	ENG 110	(3)
Blueprint Reading	GTC 099	(3)
		17

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Construction Drafting
Technical Certificate
For Direct Employment

Required Courses (32)	First Semester	Cr. Hrs.
Construction Drafting I	DFT 110*(1)	4
Elective Skill Course*(2)		3
Math Elective*(3)	MTH	3
Writing I or Practical Communications	WRT 101 or WRT 150	3
Elective		3
		16

	Second Semester	
Construction Drafting II	DFT 120*(1)	4
Elective Skill Courses*(2)		6
Math Elective*(3)	MTH	3
Writing II or	WRT 102	
Technical Communications	WRT 154	3
		16

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) 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 in Drafting	DFT 149	(3)
Construction Surveying	ENG 110	(3)
Technical Drafting I	DFT 150	(4)

*(3) See page 26 for Math electives.

Construction Drafting
Associate of Applied Science Degree
For Direct Employment

Required Courses	First Semester	Cr. Hrs.
Construction Drafting I	DFT 110	4
Construction Determinants I	DFT 114*(1)	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
Reading Requirement*(3)		
		17
	Second Semester	
Construction Drafting II	DFT 120*(1)	4
Construction Determinants II	DFT 115*(1)	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
		17
	Third Semester	
Construction Drafting III	DFT 130*(1)	4
Building Utilities and Site Work	DFT 123*(1)	3
Construction Surveying or	ENG 110	
Elementary Surveying	ENG 130	3
Math Elective *(2)	MTH	3
Electives		3
		16
	Fourth Semester	
Construction Drafting IV	DFT 140*(1)	4
Humanities Elective*(4)		3
Business and		
Professional Communications	SPE 120	3
Social Science Elective*(4)		3
Electives		2
		15

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

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

*(3) For reading requirement see page 26.

*(4) See page 26 for Social Science and Humanities electives.

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

Required Courses	First Semester	Cr. Hrs.
Technical Drafting I	DFT 150*(1)	4
Intro. Math (or equivalent)	MTH 060	3
Manufacturing Processes I	MAC 240	3
Introduction to Electronics	ETR 001	4
Writing I or	WRT 101	
Practical Communications	WRT 150	3
		17

Electro-Mechanical Drafting continued next page

	Second Semester	
Technical Drafting II	DFT 151*(1)	4
Manufacturing Processes II	MAC 245	3
Electronic Drafting	DFT 154*(1)	4
Technical Math II	MTH 110	3
Writing II	WRT 102	
or Technical Communications	WRT 154	3
		17

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Electro-Mechanical Drafting
Associate of Applied Science Degree

Required Courses	**First Semester**	**Cr. Hrs.**
Technical Drafting I	DFT 150*(1)	4
Manufacturing Processes I	MAC 240	3
Intro. Math (or equivalent)	MTH 060	3
Writing I	WRT 101	
or Practical Communications	WRT 150	3
Introduction to Electronics	ETR 001	4
Reading Requirement*(2)		
		17
	Second Semester	
Technical Drafting II	DFT 151*(1)	4
Manufacturing Processes II	MAC 245	3
Technical Math I	MTH 110	3
Writing II	WRT 102	
or Technical Communications	WRT 154	3
Electronic Drafting	DFT 154	4
		17
	Third Semester	
Electro-Mechanical Design I	DFT 155*(1)	4
Technical Physics I	PHY 101	3
Industrial Graphics	DES 111	3
Human Relations in Business	MAN 110	3
Social Science Elective*(3)		3
		16
	Fourth Semester	
Engineering Graphics	ENG 120	3
Intro. Computers	CSC 100	3
Elective*(4)		3-4
Humanities Elective*(3)		3
Microelectronic Drafting	DFT 170	4
		16-17

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for Social Science and Humanities electives.
*(4) Suggested Electives:

Technical Drafting II	DFT 152
Machine Shop for Technicians I	MAC 110
Functional Design	DES 150 or 250
Combination Welding	WLD 110
Technical Math II	MTH 120
Tool Design	DFT 153
Construction Drafting I	DFT 110
Humanities	HUM 110-111
Geometric Dimensioning	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 Drafting I	DFT 150*(1)	4
Developmental Writing	WRT 070	
or Writing I	WRT 101	3
Technical Math I*(2)	MTH 110	3
Manufacturing Processes I	MAC 240*(1)	3
Human Relations in Business	MAN 110	3
		16
	Second Semester	
Technical Drafting II	DFT 151*(1)	4
Practical Communications	WRT 150	
or Writing II	WRT 102	3
Technical Math II*(2)	MTH 120	3
Manufacturing Processes II	MAC 245*(1)	3
Functional Design I	DES 150	3
		16

Notes:

*(1) Courses: D grades do not fulfill graduation requirement.

*(2) 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)

Mechanical Drafting
Associate of Applied Science Degree

Required Courses*(1)	**First Semester**	**Cr. Hrs.**
Technical Drafting I	DFT 150*(2)	4
Developmental Writing or Writing I	WRT 070 WRT 101	3
Technical Math I*(3)	MTH 110	3
Manufacturing Processes I	MAC 240*(2)	3
Human Relations in Business	MAN 110	3
Reading Requirement*(4)		
		16
	Second Semester	
Technical Drafting II	DFT 151*(2)	4
Practical Communications or Writing II	WRT 150 WRT 102	3
Technical Math II*(3)	MTH 120	3
Manufacturing Processes II	MAC 245*(2)	3
Introduction to Electronics	ETR 001	4
		17
	Third Semester	
Technical Drafting III	DFT 152*(2)	4
Technical Physics I	PHY 101	3
Electronic Drafting	DFT 154	4
Functional Design	DES 150	3
Humanities Electives*(6)		3
		17
	Fourth Semester	
Tool Design	DFT 153*(2)	4
Engineering Graphics	ENG 120*(2)	3
Industrial Graphics	DES 111	3
Introduction to Computers	CSC 100	3
Geometric Dimensioning	DFT 160*(2)	3
		16

Notes:

*(1) Additional Suggested Electives:

Machine Shop	MAC 110	3
Functional Design	DES 150	3
Construction Drafting	DFT 120	4
Humanities I or II	HUM 110, 111	4
Co-op Work in DFT*(5)	DFT 299C	3

*(2) Core Courses: D grades do not fulfill graduation requirement.

*(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)

*(4) For reading requirement see page 26.

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

*(6) See page 26 for Humanities electives.

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.

Applied Drama
Associate of Arts Degree
For Transfer

Required Courses (62-67)	**First Semester**	**Cr. Hrs.**
Introduction to Acting I	DRA 105*(1)	3
Stagecraft and Production I	DRA 120*(1)	3
Writing I	WRT 101	3
Voice & Articulation	SPE 115*(1)	2
Social Science Elective*(2)		6
Reading Requirement*(3)		
		17
	Second Semester	
Introduction to Acting II	DRA 106*(1)	3
Stagecraft and Production II	DRA 121*(1)	3
Writing II	WRT 102	3
Social Science Elective*(2)		3
Oral Interpretation of Literature	SPE 136*(1)	3
Electives*(4)		0-2
		15-17
	Third Semester	
Make-up	DRA 115*(1)	1
Theater History I	DRA 240*(1)	3
Humanities I*(5)	HUM 110	4
Intermediate Acting I	DRA 248*(1)	3
Math/Science Elective*(2)		3-5
		14-16
	Fourth Semester	
Intermediate Acting II	DRA 249*(1)	3
Theater Practice	DRA 051	3
Theater History II	DRA 241	3
Humanities II*(5)	HUM 111	4
Math/Science Elective*(2)		3-4
		16-17

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for social science and math/science electives.
*(3) For reading requirement see page 26.
*(4) Suggested Electives: DRA 109, 201, Speech, Music, Art, Dance, Fencing, LIT 131, Drafting, Welding, or Electronics.
*(5) The humanities requirement may also be met by a minimum of 9 credit hours from among ART 130-131, MUS 151, LIT 241-242, or PHI 101-102.

Drama Education Option
Associate of Arts Degree
For Transfer

Required Courses (66-67)	**First Semester**	**Cr. Hrs.**
Introduction to Acting I	DRA 105*(1)	3
Stagecraft and Production I	DRA 120*(1)	3
Writing I	WRT 101	3
Social Science Elective*(2)		6
Reading Requirement*(3)		15
	Second Semester	
Teaching Minor		3
Electives*(4)		1-2
Introduction to Acting II	DRA 106*(1)	3
Stagecraft and Production II	DRA 121*(1)	3
Writing II	WRT 102	3
Social Science Elective*(2)		3
		16-17

	Third Semester	
Intermediate Acting I	DRA 248*(1)	3
Lab Science or Science for Teachers		4
Teaching Minor		3
Make-up	DRA 115*(1)	1
Theater History I	DRA 240*(1)	3
Humanities I*(5)	HUM 110	4
		18
	Fourth Semester	
Intermediate Acting II	DRA 249*(1)	3
Lab Science or Science for Teachers		4
Teaching Minor		3
Theater History II	DRA 241*(1)	3
Humanities II*(5)	HUM 111	4
		17

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for social science and math/science electives.
*(3) For reading requirement see page 26.
*(4) Suggested Electives: DRA 109, 201, Speech, Music, Art, Dance, Fencing, LIT 131.
*(5) The humanities requirement may also be met by a minimum of 9 credit hours from among ART 130-131, MUS 151, LIT 241-242, or PHI 101-102.

Drama Production Option
Associate of Arts Degree
For Transfer

Required Courses (62-63)	**First Semester**	**Cr. Hrs.**
Voice and Articulation	SPE 115*(1)	2
Social Science Elective*(2)		6
Introduction to Acting I	DRA 105*(1)	3
Stagecraft and Production I	DRA 120*(1)	3
Writing I	WRT 101	3
Reading Requirement*(3)		
		17
	Second Semester	
Oral Interpretation of Literature	SPE 136*(1)	3
Electives*(4)		1-2
Introduction to Acting II	DRA 106*(1)	3
Stagecraft and Production II	DRA 121*(1)	3
Writing II	WRT 102	3
Social Science Elective*(2)		3
		16-17

	Third Semester	
Intermediate Acting I	DRA 248*(1)	3
Laboratory Science		4
Make-up	DRA 115*(1)	1
Theater History I	DRA 240*(1)	3
Humanities I*(5)	HUM 110	4
		15
	Fourth Semester	
Intermediate Acting II	DRA 249*(1)	3
Laboratory Science		4
Theater History II	DRA 241*(1)	3
Humanities II*(5)	HUM 111	4
		14

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for social science and math/science electives.
*(3) For reading requirement see page 26.
*(4) Suggested Electives: DRA 109, 201, Speech, Music, Art, Dance, Fencing, LIT 131.
*(5) The humanities requirement may also be met by a minimum of 9 credit hours from among ART 130-131, MUS 151, LIT 241-242, or PHI 101-102.

Drama Theory Option
Associate of Arts Degree
For Transfer

Required Courses (66)	**First Semester**	**Cr. Hrs.**
Introduction to Acting I	DRA 105*(1)	3
Stagecraft and Production I	DRA 120*(1)	3
Writing I	WRT 101	3
Social Science Elective*(2)		3
Foreign Language		4
Reading Requirement*(3)		
		16
	Second Semester	
Foreign Language		4
Introduction to Acting II	DRA 106*(1)	3
Stagecraft and Production II	DRA 121	3
Writing II	WRT 102	3
Social Science Elective*(2)		6
		19

Drama continued next page

	Third Semester	
Make-up	DRA 115	1
Theater History I	DRA 240*(1)	3
Humanities I*(5)	HUM 110	4
Foreign Language		4
Lab Science		4
		16
	Fourth Semester	
Theater History II	DRA 241*(1)	3
Humanities II*(5)	HUM 111	4
Foreign Language		4
Lab Science		4
		15

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for social science and math/science electives.
*(3) For reading requirement see page 26.
*(4) Suggested Electives: DRA 109, 201, Speech, Music, Art, Dance, Fencing, LIT 131.
*(5) The humanities requirement may also be met by a minimum of 9 credit hours from among ART 130-131, MUS 151, LIT 241-242, or PHI 101-102.

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.

Certificates are awarded to those successfully completing the teacher aide/assistant program. The other program leads to an associate of applied science 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/Assistant (Pre-Service Program)
Certificate For Direct Employment

Required Courses (30-31)	First Semester	Cr. Hrs.
Introduction to Education	ECE 118*(1)	3
Teaching Techniques	ECE 126*(1)	3
Literature/Social Studies for Children	ECE 108*(1)	3
Understanding Children	ECE 116*(1)	3
Writing I or	WRT 101	
Reading	REA 100	3-4
		15-16
	Second Semester	
Child Care Programs I	ECE 128*(1)	3
Music/Art for Children	ECE 112*(1)	3
Communication Skills for Children	ECE 110*(1)	3
Co-op Related Class in ECE	ECE 199*(1)	1
Co-op Work in ECE	ECE 199B*(1)	2
Math/Sciences for Children	ECE 124*(1)	3
		15

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

Teacher-Director (Pre-Service Program)
Associate of Applied Science Degree
For Direct Employment

Required Courses (60)	First Semester	Cr. Hrs.
Introduction to Education	ECE 118*(1)	3
Teaching Techniques	ECE 126*(1)	3
Literature/Social Studies for Children	ECE 108*(1)	3
Understanding Children	ECE 116*(1)	3
Writing I	WRT 101	3
Reading Requirement*(2)		
		15
	Second Semester	
Child Care Programs I	ECE 128*(1)	3
Math/Sciences for Children	ECE 124*(1)	3
Music/Art for Children	ECE 112*(1)	3
Communication Skills for Children	ECE 110*(1)	3
Co-op Related Class in ECE	ECE 199*(1)	1
Co-op Work in ECE	ECE 199B*(1)	2
		15

	Third Semester	
The Growing Years OR	ECE 106*(1)	
Child Development OR	ECE 117*(1)	3
Human Development	ECE 107*(1)	
Techniques for the Special Child	ECE 111*(1)	3
Child Care Programs II	ECE 130*(1)	3
Communication Elective*(3)		3
Electives		3
		15
	Fourth Semester	
Foods for Children	FSN 124	3
Effective Parenthood	ECE 114*(1)	3
Co-op Related Class in ECE	ECE 299*(1)	1
Co-op Work in ECE	ECE 299B*(1)	2
Supervision & Administration	ECE 120*(1)	3
Math/Science Elective*(3)		3
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for Communication and Math/Science electives.

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*(1). Students should meet with their advisor for correct course selection.

Students must plan courses to meet the general education requirements as listed on page 26 for the Associate of Arts Degree at Pima Community College.

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
Reading Requirement*(2)

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement. Core courses are those courses which transfer to the universities as listed in the college transfer curriculum guide.
*(2) For reading requirement see page 26.

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 student's 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.

Electronics Technology continued next page

General Electronics
Basic Certificate
For Direct Employment

Suggested Course Sequence		Cr. Hrs.
Electronics Mathematics I	MTH 115*(1)	3
Basic DC Electronic Circuit Analysis	ETR 101*(1)	2
Basic AC Electronic Circuit Analysis	ETR 102*(1)	2
Active Devices	ETR 103*(1)	2
Electronics Mathematics II	MTH 125*(1)	3
Electronics Circuits and Systems I	ETR 105*(1)	6
Digital Electronics	ETR 110*(1)	3
Practical Communications	WRT 150	3
		24

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Television Repair
Basic Certificate
For Direct Employment

Suggested Course Sequence		Cr. Hrs.
Electronics Mathematics I	MTH 115*(1)	3
Basic DC Electronic Circuit Analysis	ETR 101*(1)	2
Basic AC Electronic Circuit Analysis	ETR 102*(1)	2
Active Devices	ETR 103*(1)	2
Electronics Mathematics II	MTH 125*(1)	3
Electronics Circuits and Systems I	ETR 105*(1)	6
Television Theory and Servicing	ETR 143*(1)	6
Human Rel. in Business and Industry or Small Business Management	MAN 110 or MAN 124	3
Practical Communications	WRT 150	3
		30

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Consumer Electronics
Basic Certificate
For Direct Employment

Suggested Course Sequence		Cr. Hrs.
Electronics Mathematics I	MTH 115*(1)	3
Basic DC Electronic Circuit Analysis	ETR 101*(1)	2
Basic AC Electronic Circuit Analysis	ETR 102*(1)	2
Active Devices	ETR 103*(1)	2
Electronics Mathematics II	MTH 125*(1)	3
Electronics Circuits and Systems I	ETR 105*(1)	6
Digital Electronics	ETR 110*(1)	3
Television Theory and Servicing	ETR 143*(1)	6
Home Entertainment Equipment Repair	ETR 150*(1)	6
Practical Communications	WRT 150	3
		36

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

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

Suggested Course Sequence (46)*(1)	First Semester	Cr. Hrs.
Electronics Mathematics I	MTH 115*(2)	3
Basic DC Electronic Circuit Analysis	ETR 101*(2)	2
Basic AC Electronic Circuit Analysis	ETR 102*(2)	2
Active Devices	ETR 103*(2)	2
		9
	Second Semester	
Electronics Mathematics II	MTH 125*(2)	3
Electronics Circuits and Systems I	ETR 105*(2)	6
Digital Electronics	ETR 110*(2)	3
Practical Communications	WRT 150	3
		15
	Third Semester	
Technical Communications	WRT 154*(2)	3
Option 1*(3)	ETR	6
		9

	Fourth Semester	
Electronic Drafting	DFT 154	4
Human Relations in Business & Industry or	MAN 110 or	
Small Business Management	MAN 124	3
Option 2*(3)	ETR	6
		13

Notes:

*(1) The following are electronics elective courses:

Introduction to Electronics	ETR 001	(6)
FCC Amateur License Preparation	ETR 050	(3)
Second Class FCC License	ETR 290	(4)
Co-op Related Class in ETR	ETR 199	(1)
Co-op Work in ETR	ETR 199B	(2)
Co-op Related Class in ETR	ETR 299	(1)
Co-op Work in ETR	ETR 299D	(6)

*(2) Core Courses: D grades do not fulfill graduation requirement.

*(3) Students should choose appropriate courses from the three specialized options given.
Communications Electronics
Option 1 ETR 230*(2) (6)
Option 2 ETR 235*(2) (6)
Consumer Electronics
Option 1 ETR 143*(2) (6)
Option 2 ETR 150*(2) (6)
Industrial Electronics
Option 1 ETR 274*(2) (6)
Option 2 ETR 276*(2) (6)

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

Suggested Course Sequence (68-71)	First Semester	Cr. Hrs.
Electronics Mathematics I	MTH 115*(1)	3
Basic DC Electronic Circuit Analysis	ETR 101*(1)	2
Basic AC Electronic Circuit Analysis	ETR 102*(1)	2
Active Devices	ETR 103*(1)	2
Practical Communications	WRT 150	3
Humanities Elective*(2)		3-4
Reading Requirement*(3)		
		15-16

	Second Semester	
Electronics Mathematics II	MTH 125*(1)	3
Electronics Circuits and Systems I	ETR 105*(1)	6
Digital Electronics	ETR 110*(1)	3
Technical Communications	WRT 154	3
Social Science Elective*(3)		3
		18
	Third Semester	
Human Relations in Business and Industry or	MAN 110 or	
Small Business Management	MAN 124	3
Introductory Physics I	PHY 121	5
Option 1*(4)	ETR	6
Social Science or Humanities Elective*(3)		3-4
		17-18
	Fourth Semester	
Electronic Drafting	DFT 154*(1)	4
Introductory Physics II	PHY 122	5
Option 2*(4)	ETR	6
Social Science or Humanities Elective*(3)		3-4
		18-19

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) See page 26 for Social Science and Humanities electives.

*(3) For reading requirement see page 26.

*(4) Students should choose appropriate course options from the three specializations given:
Communications Electronics
Option 1 ETR 230 (6)*(1)
Option 2 ETR 235 (6)*(1)
Consumer Electronics*(1)
Option 1 ETR 143 (6)*(1)
Option 2 ETR 150 (6)*(1)
Industrial Electronics
Option 1 ETR 274 (6)*(1)
Option 2 ETR 276 (6)*(1)

Electronics Technology continued next page

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

Suggested Course Sequence (64-66)	First Semester	Cr. Hrs.
College Algebra	MTH 150*(1)	3
Basic DC Electronic Circuit Analysis	ETR 101*(1)	2
Basic AC Electronic Circuit Analysis	ETR 102*(1)	2
Active Devices	ETR 103*(1)	2
Writing I	WRT 101	3
Social Science Elective*(2)		3
Reading Requirement*(3)		
		15
	Second Semester	
Trigonometry	MTH 155*(1)	3
Electronics Circuits and Systems I	ETR 105*(1)	6
Digital Electronics	ETR 110*(1)	3
Writing II	WRT 102	3
Social Science Elective*(2)		3
		18
	Third Semester	
Analytic Geometry & Calculus I	MTH 180*(1)	3
Electronic Drafting	DFT 154*(1)	4
Option 1*(4)	ETR	6
Humanities Elective*(2)		3-4
		16-17
	Fourth Semester	
Analytic Geometry & Calculus II	MTH 185*(1)	3
Elementary Circuit Theory*(5)	ENG 245*(1)	3
Option 2*(4)	ETR	6
Humanities Elective*(2)		3-4
		15-16

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) See page 26 for Humanities and Social Science electives.

*(3) For reading requirement see page 26.

*(4) Students should choose appropriate course options from the three specializations given.
Communications Electronics
Option 1 ETR 230 (6)*(1)
Option 2 ETR 235 (6)*(1)
Consumer Electronics
Option 1 ETR 143 (6)*(1)
Option 2 ETR 150 (6)*(1)
Industrial Electronics
Option 1 ETR 274 (6)*(1)
Option 2 ETR 276 (6)*(1)

*(5) Prerequisites for ENG 245 for Electronics Technology students only are changed to ETR 101, ETR 102, ETR 103, ETR 110, MTH 180, and concurrent enrollment in MTH 185.

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.

Electronics Digital Technology
Associate of Applied Science Degree

Suggested Course Sequence (75-76) First Year	First Semester	Cr. Hrs.
Electronics Mathematics I	MTH 115*(1)	3
Basic DC Electronic Circuit Analysis	ETR 101*(1)	2
Basic AC Electronic Circuit Analysis	ETR 102*(1)	2
Active Devices	ETR 103*(1)	2
Writing I*(2) (see catalog)	WRT 101	3
Introduction to Computers	CSC 100	3
Social Science Elective*(3)		3
Reading Requirement*(4)		
		18

	Second Semester	
Electronics Mathematics II	MTH 125*(1)	3
Electronics Circuits and Systems I	ETR 105*(1)	6
Digital Electronics	ETR 110*(1)	3
Electronics Construction and Assembly	ETR 122*(1)	2
Programming in BASIC	CSC 180	3
Humanities Elective*(3)		3-4
		20-21

Second Year	First Semester	Cr. Hrs.
Advanced Circuits	ETR 230*(1)	6
Digital Devices	ETR 250*(1)	4
Electronic Measurements	ETR 124*(1)	2
Digital Systems	ETR 255*(1)	6
		18
	Second Semester	
Digital Devices II	ETR 251*(1)	6
Microprocessors	ETR 256*(1)	6
Computer Peripherals	ETR 257*(1)	4
Writing II*(2) (see catalog)	WRT 102	3
		19

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) Writing 150, 154 may be substituted for Writing 101, 102. Students who may transfer to a four-year college or university should take the Math sequence MTH 130, MTH 150, MTH 155, and up.

*(3) See page 26 for Humanities and Social Science electives.

*(4) For reading requirement see page 26.

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 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 concurrently enrolling in EMT 100.

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 science, 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.

Minimum Grade Achievement:

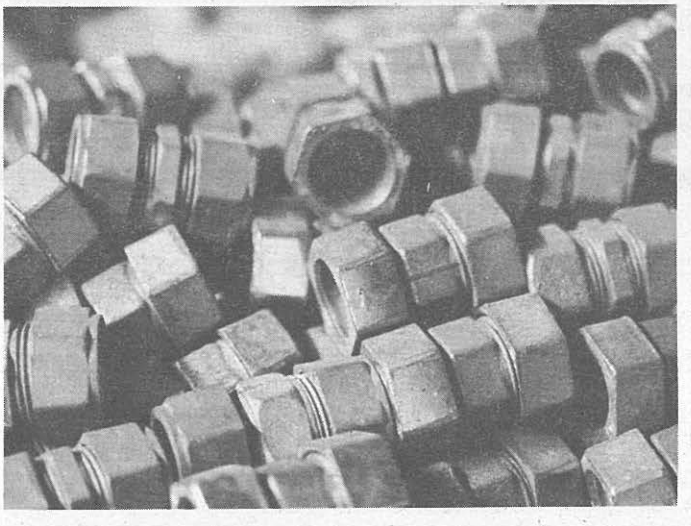
"C" level.

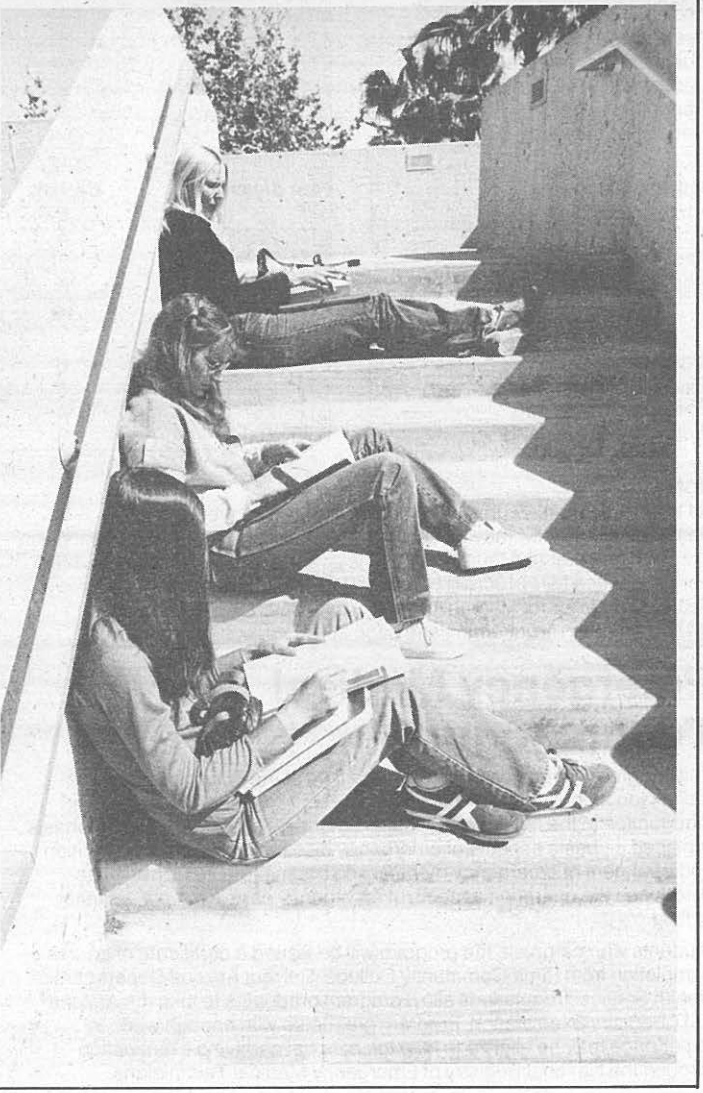
Emergency Medical Technology
Certificate
For Direct Employment

		Lec		Lab	Cr. Hrs.
Emergency Medical Tech.	EMT 051*(1)	4	+	2	5

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.





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.

Engineering
Associate of Science Degree#
For Transfer

Suggested Courses (68-70)	**First Semester**	**Cr. Hrs.**
Writing I, II	WRT 101, 102	6
Anal. Geometry & Calculus I, II, III	MTH 180, 185, 215*(1)	10
Differential Equations*(2)	MTH 219*(1)	3
General Chemistry I	CHM 120*(1)	4
General Chemistry II*(3)	CHM 121*(1)*(3)	3
Introductory Physics I, II	PHY 131, 132*(1) or	10
Introductory Mechanics	PHY 210 and	
Introductory Electricity & Magnetism*(4)	PHY 216*(1)	
Fortran IV Programming	CSC 140	3
Eng. Mechanics-Statics	ENG 210*(1)	3
Humanities Electives*(5)		6
Social Science Electives*(6)		6
Technical Electives*(7)		14
Physical Educational Elective (Optional)		(2)
Reading Requirement*(8)		
		68 (70)

Notes:

*(1) Core Courses: D grades to not fulfilll graduation requirement.

*(2) As a technical elective some students will take the 4 credit MTH 220 instead of MTH 219.

*(3) As a technical elective some students will take the 4 credit CHM 121 including 1 credit of lab.

*(4) Students taking the PHY 210, 216 alternative will also take PHY 221 as a technical elective.

*(5) Humanities electives must be selected from the following list:
ART 130, 131, 132, 135
DRA 240, 241
LIT 131, 166, 265, 270, 272
HUM 110, 111
MUS 151
PHI 101, 120, 130
REL 120, 121
SPE 136

*(6) Social Science Electives must be selected from the following list:
ANT 100, 110, 121, 141, 150, 210, 215, 220, 225
ECO 100, 101, 210
ESC 103
HIS 101, 102, 113, 114, 127, 141, 142, 147, 150
POL 110, 110, 111, 112, 120, 130, 250
PSY 100, 101
SOC 100, 101, 105, 210

*(7) Technical electives must be selected from the following list and ***must have prior approval by an engineering advisor or they will not count toward graduation.*** Selection of technical electives will depend upon the specific engineering discipline that the student intends to study at a 4-year college or university.

Courses	**Cr.**
MTH 220 instead of MTH 219	1
CHM 121 with lab	1
PHY 221*(1)	4
ENG 120	3
ENG 130	3
ENG 220*(1)	3
ENG 230*(1)	3
ENG 240*(1)	3
ENG 245*(1)	3
ENG 250*(1)	3
CHM 240*(1), 241*(1)	8
LSC 205	4
ETR 101, 102, 103	6

The student should be aware that the suggested 14 hours of technical elective required to obtain an associate of science degree from Pima Community College is not an adequate preparation for entering upper division coursework at a 4-year college or university. It will probably be to the student's advantage to take fewer humanities and social science electives during his/her first two years at Pima Community Colllege and transfer to a 4-year school without obtaining the A.S. degree. Students must consult an engineering advisor to explore these alternatives.

*(8) For reading requirement see page 26.

Engineering Construction Technology

The Engineering Construction Technology Program is an occupational program leading to an Advanced Certificate (one year) and/or Associate of Applied Science Degree (two years). The career ladder concept of the certificate and the degree curriculum prepares the student for direct employment in the engineering construction industry at one of two levels of competence.

The certificated students will have a fundamental knowledge of the construction industry, principles of drafting, blueprint reading, building materials, electricity and piping systems, as well as general competencies in mathematics and management.

The degree student will have gained the knowledge listed above. In addition, they will have specific knowledge of soil mechanics, cost estimating, masonry, construction surveying, construction mangement and general competencies in communication and reading skills.

Both the certificate and degree students will have spent considerable time in laboratory experience. The program prepares the student to assume a position at the mid-management level in the construction industry.

Engineering Construction Technology
Advanced Certificate

Required Courses (32)	**First Semester**	**Cr. Hrs.**
Principles of Construction	ECT 100*(1)	4
Mathematics*(2)		3
Construction Drafting I	DFT 110	4
Construction: Piping Systems	ECT 130*(1)	3
Blueprint Reading	GTC 099	3
		17
	Second Semester	
Building Materials	ECT 120*(1)	3
Mathematics*(2)		3
Business and Professional Communication	SPE 120	3
Construction Drafting II	DFT 120	4
Construction: Electricity	ECT 140*(1)	2
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Six (6) hours of Math with proficiency at the MTH 120 or MTH 155 level.

Engineering Construction Technology
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 (63)	**Third Semester**	**Cr. Hrs.**
Soil Mechanics	ECT 200*(1)	3
Building & Material Cost Estimating	ECT 210*(1)	3
Construction: Masonry	ECT 150*(1)	3
Construction: Surveying	ENG 110	3
Practical Communications or Writing I	WRT 150 WRT 101	3
Reading Requirement*(2)		
		15
	Fourth Semester	
Construction: Management	ECT 220*(1)	3
Humanities Elective*(3)		3
Introduction to Computers	CSC 100	3
Human Relations in Business and Industry	MAN 110	3
Reading	REA 100	4
		16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for reading requirement.
*(3) For Humanities elective see page 26.

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 placement test. The student will learn basic skills in listening, speaking, and reading and writing American English in this series of courses.

Courses		Cr. Hrs.
Elementary Grammatical Patterns I	ESL 050a	3
Elementary Grammatical Patterns II	ESL 050b	3
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 Writing	ESL 054	3
Gaining Independence in Reading	ESL 055	3
Composition I	ESL 057	3
American English Pronunciation	ESL 060	3

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 speciality 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 and 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*(1)	3
Introduction to Macroeconomics	ECO 101	3
Math (based on placement exam)	MTH	3
Humanities Elective*(2)		3
Banking Elective*(3)		3
Reading Requirement*(4)		
		15

	Second Semester	
Principles of Accounting I	ACC 101*(1)	3
Human Relations in Business	MAN 110	3
Writing (based on placement exam, 100 level or above)	WRT	3
Writing or SPE 120		3
Banking Elective*(3)		3
		15
	Third Semester	
Money and Banking	ECO 210*(1)	3
Principles of Accounting II	ACC 102	3
Supervision	MAN 122	3
Business Law I	BUS 200	3
Elective*(5)		3
		15
	Fourth Semester	
Bank Management	FIN 203*(1)	3
Electives*(5)		6
Banking Electives*(3)		6
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for Humanities electives.
*(3) Banking electives may be selected from FIN prefix courses and other courses which relate to the banking industry.
*(4) For reading requirement see page 26.
*(5) Electives selected from humanities, psychology, sociology, philosophy, anthropology or history.

Credit Union
Basic Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Principles of Credit Union	FIN 131*(1)	3
Credit Union Accounting	FIN 139*(1)	3
Installment Credit	FIN 208*(1)	3
Elective (select any course from two-year program)		3
		12

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Finance continued next page

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 Financial Management	FIN 239*(1)	3
Electives*(2)		3
Communication Elective*(3)		3
		27

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Select any courses from Credit Union Associate of Applied Science degree program.
*(3) See page 26 for Communication electives.

Credit Union
Associate of Applied Science Degree
For Direct Employment

Required Courses (60)	First Semester	Cr. Hrs.
Principles of Credit Union	FIN 131*(1)	3
Installment Credit	FIN 208*(1)	3
Human Relations in Business	MAN 110	3
Math (based on placement exam)	MTH	3
Writing (based on placement exam, 100 level or above)	WRT	3
Reading Requirement*(2)		
		15
	Second Semester	
Credit Union Accounting	FIN 139*(1)	3
Supervision	MAN 122	3
Introduction to Macroeconomics	ECO 101	3
Humanities Elective*(3)		3
Elective*(4)		3
		15
	Third Semester	
Credit Union Financial Management	FIN 239*(1)	3
Principles of Accounting I	ACC 101	3
Introduction to Microeconomics	ECO 100	3
Business Law I	BUS 200	3
Communication Elective*(3)		3
		15
	Fourth Semester	
Investment & Family Financial Management	FIN 136*(1)	3
Advertising	MKT 125	3
Principles of Accounting II*(5)	ACC 102	3
Elective*(6)		3
Elective*(4)		3
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for Humanities and Communication electives.
*(4) Select from FIN prefix courses and other courses which relate to the credit union industry.
*(5) May select a 200 level RLS or FIN course as an option.
*(6) Select from history, psychology, sociology, philosophy, political science or anthropology.

Savings and Loan
Basic Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Savings and Loan Business Operations	FIN 101*(1)	3
Insurance of Savings Accounts	FIN 104*(1)	3
Teller Operations	FIN 106*(1)	3
Human Relations in Business	MAN 110	3
		12

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Savings and Loan
Advanced Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Basic Certificate Requirements		12
Financial Institutions	FIN 212*(1)	3
Supervision	MAN 122	3
Real Estate Principles	RLS 101	3
Business & Professional Communication	SPE 120	3
Elective*(2)		3
Math (based on placement exam)	MTH	3
		30

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Select from history, humanities, anthropology, psychology, sociology, philosophy or political science.

Savings and Loan
Associate of Applied Science Degree
For Direct Employment

Required Courses (60-61)	**First Semester**	**Cr. Hrs.**
Savings & Loan Business Operations	FIN 101*(1)	3
Insurance of Savings Accounts	FIN 104*(1)	3
Human Relations in Business	MAN 110	3
Business & Professional Communication	SPE 120	3
Math (based on placement exam)	MTH	3
Reading Requirement*(2)		
		15
	Second Semester	
Principles of Accounting I	ACC 101*(1)	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
		15
	Third Semester	
Principles of Accounting II	ACC 102*(1)	3
Introduction to Macroeconomics	ECO 101	3
Humanities Elective*(3)		3-4
Elective*(4)		3
Elective*(5)		3
		15-16
	Fourth Semester	
Financial Institutions	FIN 212*(1)	3
Electives*(5)		6
Electives*(4)		6
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for Humanities electives.
*(4) Select from FIN prefix courses and other courses which relate to the savings and loan industry.
*(5) Select from history, psychology, sociology, philosophy, political science or anthropology.

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 general studies degree will be granted when 60 credit hours of study are completed with 3 hours in Communication and 3 hours in Math/Science. 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.

Reading Requirement*(1)

Notes:
*(1) For reading requirement see page 26.

Geology

Associate of Science Degree
For Transfer

Suggested Courses (65-67)*(1)	**First Semester**	**Cr. Hrs.**
Writing I	WRT 101*(2)	3
Introductory Geology I	ESC 120	4
College Algebra	MTH 150	3
Social Science Elective*(3)		3
Physical Education	PED	1
Reading Requirement*(4)		
		14
	Second Semester	
Writing II	WRT 102*(2)	3
Introductory Geology II	ESC 121*(2)	4
Trigonometry	MTH 155	3
General Chemistry I	CHM 120	4
Social Science Elective*(3)		3
		17
	Third Semester	
Engineering Graphics	ENG 120*(2)	3
General Chemistry II	CHM 121*(2)	4
Introductory Physics I	PHY 121	5
Humanities Elective*(3)		3-4
Physical Education	PED	1
		16-17

Geology continued next page

	Fourth Semester	
Elementary Surveying	ENG 130*(2)	3
Introductory Physics II	PHY 122*(2)	5
Fortran IV Programming	CSC 140	3
Humanities Elective*(3)		3-4
Earth Science	ESC	4
		18-19

Notes:

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

*(2) Core Courses: D grades to do not fulfill graduation requirement.

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

*(4) For reading requirement see page 26.

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.

Graphic Technology
Basic Certificate
For Direct Employment

Required Courses		
Introduction to Business	BUS 100	3
Graphic Technology I-II	GRA 101*(1), 102*(1)	6
Offset Photography—Stripping & Platemaking	GRA 104*(1)	3
Binding & Finishing Processes	GRA 103*(1)	3
Offset Presswork	GRA 202*(1)	3
Advanced Offset Presswork	GRA 222*(1)	3
Math (based on placement exam)		3
		24

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

Graphic Technology
Associate of Applied Science Degree
For Direct Employment

Required Courses (60)	**First Semester**	**Cr. Hrs.**
Practical Communications	WRT 150	3
Graphic Technology I	GRA 101*(1)	3
Production Techniques & Processes I	ADA 111	3
Binding and Finishing Processes	GRA 103*(1)	3
Humanities Elective*(2)		3
Reading Requirement*(3)		
		15
	Second Semester	
Math (based on placement test)	MTH	3
Business & Professional Communication	SPE 120	3
Graphic Technology II	GRA 102*(1)	3
Production Techniques & Processes II	ADA 211	3
Offset Photography—Stripping & Platemaking	GRA 104*(1)	3
		15
	Third Semester	
Color Theory & Practice	GRA 201*(1)	3
Offset Presswork	GRA 202*(1)	3
Estimating Printing & Materials	GRA 203*(1)	3
Math (second course in sequence)	MTH	3
Co-op Related Class in GRA	GRA 199	1
Co-op Work in GRA	GRA 199B	2
		15
	Fourth Semester	
Advanced Offset Presswork	GRA 222*(1)	3
Advanced Stripping and Platemaking	GRA 221*(1)	3
Human Relations in Business	MAN 110	3
Offset Operations & Maintenance	GRA 232*(1)	3
Co-op Related Class in GRA	GRA 299	1
Co-op Work in GRA	GRA 299B	2
		15

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) See page 26 for Humanities elective.

*(3) For reading requirement, see page 26.

Graphic Arts
Graphic Artist Option
Associate of Applied Science Degree
For Direct Employment

Required Courses	First Semester	Cr. Hrs.
Practical Communications	WRT 150	3
Graphic Technology I	GRA 101*(1)	3
Advertising Art I	ADA 101*(1)	3
Advertising Design I	ADA 110*(1)	3
Math (based on placement exam)	MTH	3
Reading Requirement*(2)		
		15
	Second Semester	
Advertising Drawing I	ADA 103*(1)	3
Math (second course in sequence)	MTH	3
Business & Professional Communication	SPE 120	3
Graphic Technology II	GRA 102*(1)	3
Production Techniques & Processes I	ADA 111*(1)	3
		15
	Third Semester	
Production Techniques & Processes II	ADA 211*(1)	3
Advertising Drawing II	ADA 105*(1)	3
Advertising Design II	ADA 120*(1)	3
Color Theory and Practice	GRA 201*(1)	3
Humanities I	HUM 110	4
		16
	Fourth Semester	
Offset Photography	GRA 104*(1)	3
Offset Presswork	GRA 202*(1)	3
Advanced Stripping & Platemaking for Color	GRA 221*(1)	3
Human Relations in Business	MAN 110	3
Co-op Related Class in ADA	ADA 199	1
Co-op Work in ADA	ADA 199B	2
		15

Notes:
*(1) Core courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.

Home Economics

Home Economics offers students coursework toward the following objectives:

- 2 year transfer program toward B.S. degree at universities
- career preparation for direct employment
- service courses for nurses and psychology and other disciplines
- personal development for home and family living

Home Economic Transfer Programs

Students can fulfill the first two year requirements at Pima College and complete the last two years of a bachelor's degree at the university of their choice. The major fields of study at the U of A's School of Home Economics are listed below. Pima College offers all courses required (first two years) of the options listed under each program.

A. Child Development & Family Relations
   - Child Development Option
   - Family Studies Option
   - Early Childhood Education

B. Clothing & Textiles
   - Fashion Merchandising
   - Clothing & Textiles

C. Food, Human Nutrition & Dietetics
   - Human Nutrition & Dietetics
   - Food Service Management
   - Consumer Service in Food

D. General Home Economics
   - Home Economics Education
   - General Home Economics

Students can plan for a wide range of careers in Home Economics:

- 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

Home Economics continued next page

Alteration Specialist
Advanced Certificate
For Direct Employment

Required Courses (30)	**First Semester**	**Cr. Hrs.**
Clothing Construction I	FDC 111*(1)	3
Alteration & Designing	FDC 112*(1)	3
History of Fashion	FDC 122	3
Business English or	OED 151	
Business Communications	OED 251	3
Elective*(2)		3
		15
	Second Semester	
Clothing Selection	FDC 131*(1)	3
Alteration & Repair	FDC 142*(1)	3
Textiles	FDC 126*(1)	3
Math/Science Elective*(3)		3
Elective*(2)		3
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirements.
*(2) Suggested Electives:

Human Relations in Business and Industry	MAN 110
Small Business Management	MAN 124
Basic Design	ART 100
Color and Design	ART 115

*(3) See page 26 for Math/Science electives.

Professional Seamstress
Associate of Applied Science Degree
For Direct Employment

Required Courses (60-61)	**First Semester**	**Cr. Hrs.**
Clothing Construction I	FDC 111*(1)	3
Alteration & Designing	FDC 112*(1)	3
History of Fashion	FDC 122	3
Business English or	OED 151	
Business Communications	OED 251	3
Elective*(2)		3
Reading Requirement*(3)		
		15
	Second Semester	
Clothing Selection	FDC 131*(1)	3
Alteration & Repair	FDC 142*(1)	3
Textiles	FDC 126*(1)	3
Math/Science Elective*(4)		3
Elective*(2)		3
		15
	Third Semester	
Clothing Construction II	FDC 211*(1)	3
Applied Dress Design	FDC 121*(1)	3
Art & Culture I or	ART 130	
Art & Culture II	ART 131	3
Human Development & Relations or	ECE 117	
Introduction to Psychology I	PSY 100	3
Communication Elective*(4)		3-4
		15-16
	Fourth Semester	
Clothing Construction III	FDC 212	3
Psychology of Dress	FDC 132	3
Today's World	HEC 137	3
Math/Science Elective*(4)		3
Elective*(2)		3
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Suggested Electives (or see advisor)

Human Relations in Business & Industry	MAN 110
Small Business Management	MAN 124
Basic Design	ART 100
Color & Design	ART 115

*(3) For reading requirement see page 26.
*(4) See page 26 for Communication and Math/Science electives.

Fashion Design
Associate Degree in Applied Science
For Direct Employment

Required Courses (60-61)	First Semester	Cr. Hrs.
Clothing Construction I	FDC 111*(1)	3
Art & Culture I or II	ART 130 or 131	3
Textiles	FDC 126*(1)	3
Clothing Selection	FDC 131	3
Elective*(2)		3-4
Reading Requirement*(3)		
		15-16
	Second Semester	
Clothing Construction II	FDC 211*(1)	3
Introduction to Math	MTH 060	3
Basic Design or	ART 100	
Color and Design	ART 115	3
History of Fashion	FDC 122*(1)	3
Introduction to Writing	WRT 101	3
		15
	Third Semester	
Fashion Design I	FDC 141*(1)	3
Professional Communication or	WRT 150	
Communication Elective		3
Psychology of Dress	FDC 132*(1)	3
Alteration & Design	FDC 112	3
Math/Science Elective*(4)		3
		15
	Fourth Semester	
Applied Dress Design	FDC 121*(1)	3
Fashion Design II	FDC 241*(1)	3
Human Relations in		
Business & Industry or	MAN 110	
Advertising	MKT 125	3
Clothing & Textile Elective		3
Elective*(2)		3
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Suggested Electives (or see advisor)

Clothing Construction-Tailoring III	FDC 212	3
Alteration and Repair	FDC 142	3
Drawing I	ART 110	3
Fundamentals of Chemistry I	CHM 110	4
Introduction to Psychology I	PSY 100	3
Human Development & Relations	ECE 107	3
Advertising Drawing II	ADA 203	3
Stagecraft/Production I	DRA 120	3

*(3) For reading requirement see page 26.
*(4) See page 26 for Math/Science electives.

Hospitality Education Program

This program prepares students for public service in the broad-based hospitality industry. Tucson's rapid growth affords many opportunities within this industry, which encompasses hotels, motels, clubs, food and beverage establishments and tourist services.

The thrust of the program is two-fold: developing introductory skills for beginners and updating the knowledge of those already in the field. The Southern Arizona hospitality industry, which sought the program options through the college, continues to be concerned with subject development and supplies many instructors. Courses provide theory and practice; they cover management and profits; and customer satisfaction is stressed.

Hospitality Education Program continued next page

Hotel-Motel Operations Options:

Food and Beverage Service
Basic Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Introduction to Hotel-Motel Management	HMM 100*(1)	3
Food and Beverage Management	HMM 104*(1)	3
Food Study	FSN 113	3
Food Service Specialties I/ Culinary Preparation	RCF 102	3
Co-op Related Class in HMM	HMM 199	1
Co-op Work in HMM	HMM 199C	3
		16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirements.

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*(1)	3
Hotel-Motel Accounting	HMM 102*(1)	3
Supervisory Housekeeping	HMM 103*(1)	3
Co-op Related Class in HMM	HMM 299	1
Co-op Work in HMM	HMM 299C	3
		16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

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

Required Courses (67)	First Semester	Cr. Hrs.
Introduction to Hotel-Motel Management	HMM 100*(1)	3
Front Office Procedures	HMM 101*(1)	3
Writing Fundamentals or Writing I or Practical Communications	WRT 100 or WRT 101 or WRT 150	3
Math (determined by placement test)	MTH	3
Co-op Related Class in HMM	HMM 199	1
Co-op Work in HMM	HMM 199C	3
Reading Requirement*(2)		
		16
	Second Semester	
Hotel-Motel Accounting	HMM 102*(1)	3
Supervisory Housekeeping	HMM 103*(1)	3
Food and Beverage Management	HMM 104*(1)	3
Human Relations in Business and Industry	MAN 110	3
Hotel-Motel Operations	HMM 110*(1)	3
Co-op Related Class in HMM	HMM 199	1
Co-op Work in HMM	HMM 199C	3
		19
	Third Semester	
Advanced Hotel-Motel Accounting or Principles of Accounting II	HMM 202*(1) or ACC 102*(1)	3
Food Service Specialties I/ Culinary Preparation	RCF 102	3
Marketing of Hospitality Services	HMM 203*(1)	3
Humanities Elective*(3)		3
Co-op Related Class in HMM	HMM 299	1
Co-op Work in HMM	HMM 299C	3
		16

	Fourth Semester	
Hotel-Motel Financial Management	HMM 204*(1)	3
Labor-Management Relations	MAN 278	3
Math/Science Elective*(3)		3
Co-op Related Class in HMM	HMM 299	1
Co-op Work in HMM	HMM 299C	3
Business and Professional Communication	SPE 120	3
		16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirements.
*(2) For reading requirement, see page 26.
*(3) See page 26 for Humanities and Math/Science electives.

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
Human Relations in Business and Industry	MAN 110	3
Introduction to Restaurant and Food Service	RCF 101	3
Co-op Related Class in RCF	RCF 199	1
Co-op Work in RCF	RCF 199C	3
		16

Culinary and Food Management
Basic Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Supervision	MAN 122	3
Introduction to Restaurant and Food Service	RCF 101	3
Food Service Specialities I/ Culinary Preparation	RCF 102*(1)	3
Food Service Specialties II/ Baking	RCF 103*(1)	3
Co-op Related Class in RCF	RCF 199	1
Co-op Work in RCF	RCF 199C	3
		16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

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

Required Courses (65)	First Semester	Cr. Hrs.
Restaurant Sanitation and Operations	FFI 101*(1)	3
Restaurant Cash Register Operations and Inventory Control	FFI 102*(1)	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
Co-op Related Class in RCF	RCF 199	1
Co-op Work in RCF	RCF 199C	3
Reading Requirement*(2)		
		16
	Second Semester	
Hotel-Motel Accounting	HMM 102	3
Hospitality Management-Law	HMM 111	3
Human Relations in Business and Industry	MAN 110	3
Food Service Specialties I/ Culinary Preparation	RCF 102*(1)	3
Co-op Related Class in RCF	RCF 199	1
Co-op Work in RCF	RCF 199C	3
		16

Hospitality Education Program continued next page

Third Semester		
Mathematics of Business	BUS 051	3
Supervision	MAN 122	3
Food Service Specialities II/ Baking	RCF 103*(1)	3
Humanities Elective*(3)		3
Co-op Related Class in RCF	RCF 299	1
Co-op Work in RCF	RCF 299C	3
		16
Fourth Semester		
General Biology I	LSC 103	4
Food Service Specialties III/ Garde-Manger	RCF 104*(1)	3
Business & Prof. Communication	SPE 120	3
Electives*(4)		3
Co-op Related Class in RCF	RCF 299	1
Co-op Work in RCF	RCF 299C	3
		17

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirements.

*(2) For reading requirement see page 26.

*(3) See page 26 for Humanities electives.

*(4) Choose one 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

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*(1)	3
Restaurant Cash Register Operations and Inventory Control	FFI 102*(1)	3
Co-op Related Class in FFI	FFI 199	1
Co-op Work in FFI	FFI 199C	3
		16

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirements.

Travel-Tourism Operations Options:

Travel Agent
Basic Certificate
For Direct Employment

Required Courses		**Cr. Hrs.**
Math (based on placement exam)	MTH	3
Principles of Travel-Tourism Industry	TVL 101*(1)	3
Travel Agent Methods and Procedures	TVL 102*(1)	3
Cultural Geography	ESC 103	4
Co-op Related Class in TVL	TVL 199	1
Co-op Work in TVL	TVL 199C	3
		17

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirements.

Travel-Tour Agency Manager
Advanced Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Basic Certificate Requirements		17
Hotel-Motel Accounting	HMM 102*(1)	3
Marketing of Hospitality Services	HMM 203*(1)	3
Travel-Tour Agency Management	TVL 201	3
Current Issues and Problems in Travel-Tourism	TVL 202	3
Writing Course	WRT 100 or 101 or 150	3
Co-op Related Class in TVL	TVL 299	1
Co-op Work in TVL	TVL 299C	3
		36

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Housekeeping Departments/Hospitality Industry Options:

Housekeeping-Executive
Basic Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Executive Housekeeping I	HSK 150*(1)	3
Executive Housekeeping II	HSK 151*(1)	3
Practical Communication	WRT 150	3
Co-op Related Class in HSK	HSK 199	1
Co-op Work in HSK	HSK 199C	3
		13

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Housekeeping-Executive
Advanced Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Basic Certificate Requirements		13
Introduction to Microeconomics	ECO 100	3
Supervision	MAN 122	3
Human Relations in Business and Industry	MAN 110	3
Electives*(1)		3
Math (based on placement exam)		3
Co-op Related Class in HSK	HSK 299	1
Co-op Work in HSK	HSK 299C	3
		32

Notes:
*(1) Electives to be chosen from PSY 100, MAN 280.

Institutional Food Service

The institutional food services certificate programs have been designed in cooperation with the institutional food services industries in the Tucson area. A curriculum has been established to develop skills for new entrants into the food industry and to enhance skills of those persons currently involved in institutional food preparation. The program certificate options utilize the career-ladder concept which means that a student may smoothly progess from the basic certificate requiring 20 credit hours to the advanced certificate requiring 18 additional hours for a program total of 38 credit hours. Program flexibility allows for a cooperative education specialty course to meet specific educational demands for career advancement and contains a course sequence that provides graduates a suitable background for further study in the institutional food industry. Specific skills in the curriculum include a study of the basic principles of nutrition, safety, sanitary conditions, the principles of menu preparation and quantity food production techniques, special techniques as they relate to nutrition and food related areas, analysis of purchasing and production methods in the expanded areas of the food service industry.

Institutional Food Service continued next page

Institutional Food Service
Basic Certificate
For Direct Employment

Required Courses (20)	**First Semester**		**Cr. Hrs.**
Restaurant Operations & Sanitation	FFI	101*(1)	3
Institutional Record Keeping	IFS	105	2
Basic Nutrition for Food Service Personnel	IFS	110*(1)	2
Quantity Food Production	IFS	115	2
Menu Planning I	IFS	120*(1)	2
Human Relations in Business & Industry	MAN	110*(1)	3
Business & Professional Communication	SPE	120	3
Math/Science Elective*(2)			3
			20

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for Math/Science electives.

Institutional Food Service
Advanced Certificate
For Direct Employment

Required Courses (38)
Persons planning to apply for the advanced certificate must have completed the first semester, Basic Certificate Program (20 credit hours).

	Second Semester		
Menu Planning II	IFS	121*(1)	2
Special Nutritional Needs	IFS	125*(1)	3
Nutritional Educational Techniques	IFS	130*(1)	2
Techniques for Food Service Employees Training	IFS	140	2
Food Analysis	IFS	150	2
Food Purchasing	IFS	160*(1)	2
Food Production Management	IFS	170*(1)	2
Co-op Related Class in IFS	IFS	199*(1)	1
Co-op Work in IFS	IFS	199B*(1)	2
			18

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

International Business Communication Studies

The International Business Communication Studies program awards a Basic Certificate for Direct Employment to meet the needs of business and industry by providing intensive training

- to prepare the student for a foreign or U.S. assignment/visit, or
- to prepare the student for employment in an international department, or
- to upgrade the skills of the student currently employed in a company with international operations.

Specifically, the program is designed to maximize the student's success in the job assignment by

1. providing language training
2. providing cross cultural training in a business and/or social environment
3. providing training on living in the foreign country
4. providing culture shock and reverse culture shock training
5. providing training to develop skills in handling everyday transactions in moving goods and services from one country to another
6. providing training for hosting foreign business personnel.

The program is structured to accommodate content on any country or geographic region.

The acculturation training portion of this program may be made available to family members of the employee.

Option I trains U.S. employees for a foreign assignment or visitation, Option II trains or upgrades industry personnel in skills required for employment in an international department while Option III trains foreign personnel for a U.S. assignment or visitation.

For transcript purposes, each IBC course will show the actual foreign country/region studied.

Option I
International Business Communication Studies
Basic Certificate
Orientation for Foreign Assignment or Visitation

Required Courses			Cr. Hrs.
Foreign Language I	IBC	100*(1)	4
Foreign Language II	IBC	110*(1)	4
Cultural Similarities and Differences between the United States and the Foreign Country	IBC	120*(1)	3
Living in the Foreign Country	IBC	130*(1)	3
Cultural Shock Management	IBC	150	
Cultural Shock Management—Entry	IBC	150A*(1)	1
Cultural Shock Management—Re-entry (optional)	IBC	150B*(1)	(1)
			15-16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirements.

Option II
International Business Communication Studies
Basic Certificate
Direct Employment in the International Department

Required Courses			Cr. Hrs.
Foreign Language I	IBC	100*(1)	4
Foreign Language II	IBC	110*(1)	4
Cultural Similarities and Differences between the United States and the Foreign Ccuntry	IBC	120*(1)	3
Basic Techniques of International Trade	IBC	140*(1)	3
Hosting the Foreign Business Personnel	IBC	160*(1)	1
			15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Option III
International Business Communication Studies
Basic Certificate
Orientation to the United States

Required Courses			Cr. Hrs.
Foreign Langauge I	IBC	100*(1)	4
Foreign Langauge II	IBC	110*(1)	4
Cultural Similarities and Differences between the United States and the Foreign Country	IBC	120*(1)	3
Living in the Foreign Country	IBC	130*(1)	3
Cultural Shock Management—Entry	IBC	150A*(1)	1
			15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Interpreter Training Program

Sign Language Certificate

The 24-Hour Basic Sign Language Certificate is designed to offer a rudimentary introduction in American Sign Language and classes involving deafness. Students completing this certificate will gain an overview of a communication mode utilized by many deaf individuals. The coursework also provides information relating history, education and community aspects of deafness and American Sign Language.

The primary focus of this certificate is for individuals preparing for and already employed in industry, business and public service who have daily contact with the general public. While this coursework will not qualify an individual as an interpreter it will enhance his/her ability to provide services to many deaf individuals through basic communication skills.

Interpreter Training Program continued next page

Sign Language
Basic Certificate

Required Courses (24)	First Semester	Cr. Hrs.
American Sign Language I	SLG 101*(1)	4
Community and the Exceptional Person	SLG 100*(1)	3
Fingerspelling	SLG 105*(1)	2
The Nature of Language	ANT 215	3
		12
	Second Semester	
American Sign Language II	SLG 102*(1)	4
History of Deafness	SLG 120*(1)	3
Reading 100 Series	REA 100	4
Spelling	REA 071	1
		12
	Total	24

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Interpreter Training Program

The curriculum provides both theoretical and practical preparation for graduates to provide quality interpreting services for deaf consumers and hiring agencies.

The total program consists of four semesters of classes totaling a minimum of 60 credit hours to complete the associate of Applied Arts Degree in Interpreting. The program includes a minimum of 53 credit hours of campus lecture, 4 credit hours of laboratory study and 3 credit hours of practicum study in the community. Students graduating from this program will be eligible to meet the requirements of the Arizona Registry of Interpreters for the Deaf, State Rating Board.

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

1. Complete an Interpreter Training Program Application packet.
2. Reading Competency:
   a. Program entry—demonstrate a minimum reading competency at the 10th grade level.
   b. Program exit—demonstrate reading competency at REA 112 level or above.
3. Successfully complete or show an equivalency of:
   a. SLG 102 - Intermediate American Sign Language course
   b. SLG 105 - Fingerspelling
   c. REA 071 - Spelling
4. Receive approval by the Interpreter Training Program Selection Committee.

General Requirements:
Minimum of 60 credit hours.
Work in residence: 31 hours in major coursework.
Restrictions: Students will be allowed to transfer in 8 hours of Sign Language credit towards completion of the program.

Interpreter Training Program
Associate of Applied Arts degree
For Direct Employment

Required Courses (60-64)	First Semester	Cr. Hrs.
American Sign Language III	SLG 201*(1)	4
Stress Management	HDE 130	2
Introduction to Oral Communication	SPE 102	3
Community & the Exceptional Person	SLG 100*(1)	3
Humanities (electives)*(1)		3-4
Reading Requirement*(2)		
		15-16
	Second Semester	
American Sign Language IV	SLG 202*(1)	4
Interpreting I	SLG 220*(1)	3
Practicum	SLG 240*(1)	3
History of Deafness	SLG 120	3
Humanities (electives)*(3)		3-4
		16-17
	Third Semester	
American Sign Language V	SLG 203*(1)	3
Principles of Etiology and Audiology	SLG 150*(1)	3
Interpreting II	SLG 250*(1)	3
Introduction to Psychology	PSY 100	3
Math/Science elective*(4)		3-4
		15-16

	Fourth Semester	
Psycho-Social Aspects of Deafness	SLG 180*(1)	3
Oral Interpreting	SLG 260*(1)	3
Reverse "Sign to Voice"	SLG 270*(1)	3
Interpreting III	SLG 280*(1)	3
Math/Science elective*(4)		3-4
		15-16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) Humanities electives: Art History; Humanities I, II, Literature, Music, Philosophy

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 057. 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.

Journalism
Associate of Arts Degree
For Transfer

Required Courses (71)	**First Semester**	**Cr. Hrs.**
Exploring Mass Media	JRN 110*(4)	3
Writing I	WRT 101	3
Foreign Language		4
Social Science Elective*(1)		3
Elective*(2)		3
Reading Requirement*(3)		
		16
	Second Semester	
Basic Reporting	JRN 101*(4)	3
Writing II	WRT 102	3
Foreign Language		4
Humanities I	HUM 110	4
Social Science Elective*(1)		3
		17
	Third Semester	
Advanced Reporting	JRN 201*(4)	3
Foreign Language		4
Science or Math Elective*(1)		4
Social Science Elective*(1)		3
Elective*(5)		3
		17
	Fourth Semester	
Copy Editing and Design	JRN 215*(4)	3
Social Science Elective*(1)		3
Foreign Language		4
Science or Math Elective		4
Humanities II	HUM 111	4
Elective*(5)		3
		21

Notes:
*(1) See page 26 for general education electives.
*(2) Journalism majors are expected to be able to type and OED 111 is suggested.
*(3) For reading requirement see page 26.
*(4) Core Courses: D grades do not fulfill graduation requirement.
*(5) Suggested electives:

Advertising	MKT 125	3
Photography I	ART 140	3
Public Relations	GEB 084	3
Photojournalism	JRN 140	3
Journalism Workshop	JRN 057	3
Broadcast News Writing	JRN 220	3

Landscape Technician Program

The Landscape Technician program is a new occupational program leading to an Advanced Certificate or to an Associate of Applied Science Degree. The career ladder concept built into the certificate and degree curriculum prepares the student for direct employment in the landscape industry at one of two levels of competence. The certificate student will have a fundamental knowledge of the landscape industry, as well as specific competencies in plant identification, plant pathology, and the effect of soils on plants. The degree student will have gained the knowledge listed above, and in addition, will learn landscape maintenance and design, irrigation design and installation, and landscape management systems. Both the certificate and degree students will also have fulfilled general education requirements, have spent some time in cooperative education, and will have selected certain additional landscape electives to fulfill his/her specific interests.

Landscape Technician Program
Advanced Certificate

Required Courses (39)	**First Semester**	**Cr. Hrs.**
Fundamentals of Chemistry I	CHM 110	4
Technical Math I	MTH 110*(1)	3
Botany I	LSC 220*(1)	4
Landscape Contracting: Today & Tomorrow	LTP 100*(1)	3
Reading	REA 100	4
		18
	Second Semester	
Soils: Plant Fertility	LTP 130*(1)	4
Technical Math II	MTH 120	3
Plant Pathology, Pests & Controls	LTP 120*(1)	4
Practical Communications	WRT 150*(1)	3
Plant Usage and Identification	LTP 160*(1)	3
		17
	Summer	
Co-op Related Class in LTP	LTP 199*(1)	1
Co-op Work in LTP	LTP 199C*(1)	3

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Landscape Technician Program
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 (70)	**Third Semester**	**Cr. Hrs.**
Humanities I	HUM 110	4
Landscape Maintenance	LTP 230*(1)	3
Introduction to Psychology I	PSY 100	3
Basic Landscape Design	LTP 260	3
Social Science Elective *(2)		3
Reading Requirement*(3)		
		16
	Fourth Semester	
Landscape Management Systems	LTP 200*(1)	3
Irrigation Installation	LTP 210*(1)	3
Business & Professional Communication	SPE 120*(1)	3
Electives*(4)		6
		15
Total Credits		
General Education		23
Core		34
Co-op		4
Electives		9
		70

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirements
*(2) See page 26 for Social Science elective.
*(3) For reading requirement see page 26.
*(4) Electives:
Landscape Equipment Repair and Maintenance, LTP 150*(1)
Interior Plantscape Design/Maintenance, LTP 215*(1)
Nursery Operations and Maintenance, LTP 240*(1)
Irrigation Design, LTP 250*(1)

Legal Assistant

The Legal Assistant Program will offer to the student, upon successful completion of all coursework, an Associate of Applied Science degree. The coursework will include general education and law related courses, legal assistant core courses, and 9 credit hours in one of the four legal specialty areas.

The core and legal specialty courses are designed around practical work experience in order for a student to have entry level skills as a legal assistant upon completion of the program. The program will also prepare a student to write the Certified Legal Assistant Certification Examination.

The National Association of Legal Assistants adopted the following definition of a legal assistant:

"Under the supervision of a lawyer, the legal assistant shall apply knowledge of law and legal procedures in rendering direct assistance to lawyers and cllients, design, develop and modify procedures, techniques, services and processes; prepare and interpret legal documents; detail procedures for practicing in certain fields of law; research, select, assess, compile and use information from the law library and other references; and analyze and handle procedural problems that involve independent decisions."

Although the list of legal assistant duties is endless, the positions are included in numerous businesses, corporations and agencies. Some of these include:

- Law firms
- Public and private corporations
- Financial institutions
- Title and escrow companies
- All levels of government agencies

It is generally accepted that a legal assistant may perform any task delegated and supervised by a lawyer. A legal assistant cannot accept a case, set a fee, give legal advice, or appear in court.

Legal Assistant
Associate of Applied Science Degree
For Direct Entry

Required Courses		**Cr. Hrs.**
Writing I	WRT 101	3
Human Relations	MAN 110	3
Business Law I & II	BUS 200 & 201	6
Accounting I & II	ACC 101 & 102	6
American National Government & Politics	POL 110	3
Business and Professional Communications	SPE 120	3
Math or Science*(1) or Logic Elective		6
Humanities Elective*(1)		3
General Elective (select from list)		3
Introduction to Legal Assistant Careers	LAS 101*(2)	3
Legal Systems & Procedures	LAS 102*(2)	3
Legal Research	LAS 103*(2)	3
Judgment/Analysis/Ethics	LAS 104*(2)	3
Electives-Specialty Area		9
Corporate Law Procedures	LAS 105*(2)	3
Rules of Evidence	AJS 201	3
Legal Elective - To be selected from any of the specialty areas		
Reading Requirement*(3)		
		66

Notes:
*(1) See page 26 for Math/Science and Humanities electives.
*(2) Core Courses: D grades do not fulfill graduation requirement.
*(3) For reading requirement see page 26.

Legal Assistant continued next page

Electives—Specialty Area

Course Title		Cr. Hrs.
Criminal		
Criminal Law	AJS 109	3
Criminal Procedures	AJS 115	3
Criminal Investigation & Report Preparation	AJS 204	3
Litigation		
Commercial Litigation	LAS 201	3
Discovery and Trial Preparation	LAS 202	3
Personal Injury, Malpractice, Products Liability, Complex Litigation	LAS 203	3
Probate		
Estate Planning & Taxation	FIN 238	3
Probate Procedures: Wills, Trusts and Estates	LAS 204	3
Asset Analysis, Collection, Management & Distribution	LAS 205	3
Real Estate		
Real Estate Law	RLS 201	3
Real Estate Legal Procedures	RLS 103	3
Real Estate Elective	RLS	3
General Electives		
Labor Management Relations	MAN 278	3
Money and Banking	ECO 210	3
Business Organization and Management	MAN 280	3
Spanish (any course)	SPA	4
Medical Law and Ethics	HCE 140	3
Introducion to Civil Rights Practices	SOC 202	3
Political & Legal Aspects of Drug Use	SSE 127	3
Immigration Law & Practices	POL 050	3
Minority Groups and the Political Process	POL 140	3
Real Estate Law	RLS 201	3
Financial Institutions	FIN 212	3
Child Abuse Intervention and Protection	AJS 146	3
Organized Crime Investigation	AJS 220	3
Mortgage Loan Servicing	FIN 221	3
State & Local Government	POL 111	3
Psychology (any course)	PSY	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*(1), 102*(1)	6
Humanities Electives*(1)*(2)		8-10
Foreign Language*(1)*(3)		16
Social Sciences*(1)*(4)*(8)		9
Sciences*(1)*(5)		8-9
College Algebra	MTH 150*(1)	
Transferable Electives*(1)		11-13
Physical Education Activity Courses*(1)*(6)		2
Reading Requirement*(7)		
		60-65

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirements.

*(2) 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
   2. PHI 101, 130
   3. ART 130, 131, MUS 151

*(3) Fulfilled by 4 semesters (2 years) of any one foreign language or equivalent. Bilingual or international students should consult an advisor concerning this requirement.

*(4) Fulfilled by 9 uits 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.

*(5) Choose one of the following options:

a. Two semesters(8 units) of a single lab science.

b. Combination of 9 units of which at least 3 units must be in Life Science and 3 units must be in Physical Science (AST, CHM, ESC, PHY).

*(6) Students should consult the catalog of the institution to which they plan to transfer for possible exemptions.

*(7) For reading requirements see page 26.

*(8) Students must also complete one of the following course: ANT-100,110,210,141,121; HIS-113,114,127. This course may be also be included as one of the social science requirement.

Life Sciences

Life Sciences offers an associate of science degree for transfer in these areas:

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

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 coursework 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.

Life Sciences continued next page

Biology
Pre-Dental
Pre-Medical
Pre-Veterinary

Associate of Science Degree
For Transfer

Suggested Courses (66-69)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Analytic Geometry & Calculus I*(1) or	MTH 180	
Topics in Calculus	MTH 175	3
Humanities Elective*(2)		3-4
General Chemistry I	CHM 120	5
Human Origins and Prehistory	ANT 100	3
Reading Requirement*(4)		
		17-18
	Second Semester	
Writing II	WRT 102*(5)	3
Analytic Geometry & Calculus II or	MTH 185*(5)	
Introductory Statistics*(1)	MTH 210*(5)	3
General Chemistry II	CHM 121	5
Organismic Biology I	LSC 205	4
Social Sciences Elective*(3)		3
		18
	Third Semester	
Humanities Elective*(2)		3-4
Analytic Geometry & Calculus III*(1) or	MTH 215*(5)	
Physics*(6) or		
Foreign Language		4-5
Organismic Biology I	LSC 206*(5)	4
Organic Chemistry I	CHM 240	5
		16-18
	Fourth Semester	
General Genetics	LSC 210*(5)	4
Organic Chemistry II	CHM 241*(5)	5
Physics*(6) or		
Foreign Language		4-5
Transfer Elective*(7)		3
		16-17

Notes:

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

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

*(3) See page 26 for Social Science elctives.

*(4) For reading requirement see page 26.

*(5) Core Courses: D grades do not fulfill graduation requirement.

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

*(7) 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 of 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.

Pre-Agriculture
Associate of Science Degree
For Transfer

Suggested Courses (69-71)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
College Algebra	MTH 150	3
General Chemistry I	CHM 120	5
Introductory Geology I	ESC 120*(1)	4
Transfer Elective		3
Reading Requirement*(2)		
		18
	Second Semester	
Writing II	WRT 102	3
General Chemistry II	CHM 121*(1)	5
Introduction to Oral Communication	SPE 102	3
Trigonometry	MTH 155*(1)	3
Transfer Elective		3
		17
	Third Semester	
Organismic Biology II	LSC 206*(1)	4
Introductory Physics I	PHY 121*(1)	5
Technical Communications	WRT 254*(1)	3
Humanities Elective*(3)		3-4
Human Origins and Prehistory	ANT 100	3
		18-19
	Fourth Semester	
Organismic Biology I or Botany I	LSC 205 LSC 220*(1)	4
Humanities Elective*(3)		
Social Sciences Elective*(4)		
Introduction to Microeconomics	ECO 100*(1)	3
Transfer Elective		3
		16-17

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) The baccalaureate requirement is 8 units in humanities field; i.e., philosophy, humanities, or literature. See page 26 for humanities electives.
*(4) See page 26 for social sciences electives.

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 schoold to which they plan to transfer. A background of high school algebra, biology, and chemistry is recommended.

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

Suggested Courses (67-69)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
College Algebra	MTH 150	3
General Chemistry I	CHM 120	5
Social Science Elective*(1)		3
Microbiology I	LSC 207*(2)	4
Reading Requirement*(3)		
		18
	Second Semester	
Writing II	WRT 102*(2)	3
Trigonometry	MTH 155	3
General Chemistry II	CHM 121	5
Human Anatomy/Physiology I*(4)	LSC 120	4
Humanities Elective*(1)		3-4
		18-19
	Third Semester	
Introductory Statistics	MTH 210*(2)	3
Organic Chemistry I	CHM 240	4
Introductory Physics I	PHY 121	5
Human Anatomy/Physiology II*(4)	LSC 121*(2)	4
		16
	Fourth Semester	
Organic Chemistry II	CHM 241*(2)	4
Introductory Physics II	PHY 122*(2)	5
Social Science Elective*(1)		
Humanities Elective*(1)		
		15-16

Notes:
*(1) See page 26 for Social Science and Humanities electives.
*(2) Core Courses: D grades do not fulfill graduation requirements.
*(3) For reading requirement see page 26.
*(4) Not required for microbiology majors. Micro majors might substitute a foreign language for LSC 120, 121.

Life Sciences continued next page

Pre-Pharmacy

As one of the basic health careers, pharmacy offers a wide range of choices to the student. Career choices include community pharmacy (retail, independent, and chain pharmacies) 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.

Pre-Pharmacy
Associate of Science Degree
For Transfer

Suggested Courses (70-76)	**First Semester**	**Cr. Hrs.**
Writing I	WRT 101	3
Mathematics*(1)		3
General Chemistry I	CHM 120	5
Social Science Elective*(2)		3
Introduction to Microeconomics	ECO 100	3
Reading Requirement*(3)		
		17
	Second Semester	
Writing II	WRT 102*(4)	3
Topics in Calculus	MTH 175	3
General Chemistry II	CHM 121	5
Human Anatomy/Physiology I*(5)	LSC 120*(4)	4
Humanities Elective*(6)		3-6
		18-21
	Third Semester	
Organic Chemistry I	CHM 240	4
Introductory Physics I	PHY 121	5
Introductory Statistics	MTH 210	3
Microbiology I*(7)	LSC 207	4
Humanities Elective*(6)		3-6
		19-22
	Fourth Semester*(7)	
Organic Chemistry II	CHM 241	4
Introductory Physics II	PHY 122	5
Microbiology II*(4)	LSC 208	4
Social Science Elective*(2)		3
		16

Notes:

*(1) MTH 150 (College Algebra) and MTH 155 (Trigonometry) are recommended for those who do not have credit for them already.
*(2) Six units from introductory courses in the social sciences such as psychology, sociology, anthropology, speech, and political science.
*(3) For reading requirement see page 26.
*(4) Core Courses: D grades do not fulfill graduation requirement.
*(5) Transfer students may substitute two semesters of General Biology (LSC 103-104) for Human Anatomy and Physiology I.
*(6) HUM 110 or two of the following courses: ART 130, ART 131, MUS 151, PHI 101, and PHI 130.
*(7) Micr. 110 (1 semester, 5 cr. hrs.) at the University of Arizona will substitute for both semesters of LSC 207 and LSC 208.
*(8) Chem. 322 and 323 (3 cr. hrs.) should be taken at the University of Arizona during the fourth semester.

Machine Tool Technology

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 for Technicians I-II	MAC 110*(1), 120*(1)	8
Technical Math I-II	MTH 110, 120	6
Blueprint Reading & Sketching	DFT 101	4
Basic Metallurgy	MAC 130*(1)	3
		21

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

Machinist's Standard Certificate
Technical Certificate
For Direct Employment

Required Courses	First Semester	Cr. Hrs.
Machine Shop for Technicians I-II	MAC 110*(1), 120*(1)	8
Jig & Fixture Designing I-II	MAC 210*(1), 220*(1)	8
Technical Math I-II	MTH 110, 120	6
Basic Metallurgy	MAC 130*(1)	3
Physical Metallurgy	MAC 135*(1)	3
Technical Communications	WRT 154	3
Human Relations in Business	MAN 110	3
Technical Drafting I-II	DFT 150	4
		38

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Machine Tool Technology
Associate of Applied Science Degree
For Direct Employment

Required Courses (67)	First Semester	Cr. Hrs.
Machine Shop for Technicians I	MAC 110*(1)	4
Technical Math I	MTH 110	3
Practical Communications	WRT 150	3
Basic Metallurgy	MAC 130*(1)	3
Blueprint Reading & Sketching	DFT 101	4
Reading Requirement*(2)		
		17
	Second Semester	
Machine Shop for Technicians II	MAC 120*(1)	4
Technical Math II	MTH 120	3
Technical Communications	WRT 154	3
Physical Metallurgy	MAC 135*(1)	3
Technical Drafting I	DFT 150	4
		17
	Third Semester	
Jig & Fixture Designing I	MAC 210*(1)	4
Human Relations in Business	MAN 110	3
Technical Physics I	PHY 101	3
Technical Drafting II	DFT 151	4
Humanities, Elective*(3)		3
		17
	Fourth Semester	
Jig & Fixture Designing II	MAC 220*(1)	4
Introduction to Numerical Control	MAC 250*(1)	3
Combination Welding	WLD 110	3
Technical Physics II	PHY 102	3
Manufacturing Concepts	MAC 225*(1)	3
		16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirements.
*(2) For reading requirement see page 26.
*(3) See page 26 for humanities elective.

Mathematics

Mathematics
Associate of Arts Degree
For Transfer

Suggested Courses (65)	First Semester	Cr. Hrs.
Writing I	WRT 101*(1)	3
Anal. Geometry & Calculus I	MTH 180*(1)	3
Finite Mathematics	MTH 170*(1)	3
Elementary French I	FRE 110*(1)	
(or German)	GER 110*(1)	4
Social Science Elective*(2)		3
Reading Requirement*(3)		
		16
	Second Semester	
Writing II	WRT 102*(1)	3
Anal. Geometry & Calculus II	MTH 185*(1)	3
Fortran IV Programming	CSC 140*(1)	3
Elementary French II	FRE 111*(1)	
(or German)	GER 111*(1)	4
Social Science Elective*(2)		3
		16
	Third Semester	
Anal. Geometry & Calculus III	MTH 215*(1)	4
Introductory Physics with Calculus I	PHY 131*(1)	5
Intermediate French I	FRE 210*(1)	
(or German)	GER 210*(1)	4
Humanities Elective*(2)		4
		17

Mathematics continued next page

	Fourth Semester	
Linear Algebra & Diff. Equations	MTH 220*(1)	4
Introductory Physics with Calculus II	PHY 132*(1)	5
Intermediate French II (or German)	FRE 211*(1) GER 211*(1)	4
Social Science Elective*(2)		3
		16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirements.
*(2) See page 26 for humanities and social science electives.
*(3) For reading requirement see page 26.

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. The basic certificate program requires 22 credit hours. An associate of applied science degree program requires 62 credit hours.

Media Technology
Basic Certificate
For Direct Employment

Suggested Semester Sequence (22)	**First Semester**	**Cr. Hrs.**
Television Production	MET 090*(1)	3
Communigraphics I	MET 050*(1)	3
Instructional Media Technology I	MET 081*(1)	3
		9
	Second Semester	
Cinematography I	MET 053*(1)	3
Equipment Repair and Maintenance	MET 070*(1)	3
Implications of Media Technology	MET 084*(1)	3
Telecomm-Television Workshop	MET 091*(1)	4
		13

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Media Technology
Associate of Applied Science Degree
For Direct Employment

Suggested Semester Sequence (65)	**First Semester**	**Cr. Hrs.**
Communigraphics I	MET 050	3
Instructional Media Technology I	MET 081*(1)	3
Writing I	WRT 101	3
Television Production	MET 090	3
Math/Science Elective*(1)		3
Reading Requirement*(2)		
		16
	Second Semester	
Cinematography I	MET 053	3
Instructional Media Technology II	MET 082*(1)	3
Writing II	WRT 102	3
Humanities I	HUM 110	4
Social Science Elective*(1)		3
		16
	Third Semester	
Equipment Repair and Maintenance	MET 070*(1)	3
Telecomm-Television Workshop	MET 091*(1)	4
Introduction to Computers	CSC 100	3
Math/Science Elective*(1)		3
Co-op Related Class in MET	MET 199	1
Co-op Work in MET	MET 199B	2
		15
	Fourth Semester	
Implications of Media Technology	MET 084*(1)	3
Co-op Related Class in MET	MET 299	1
Co-op Work in MET	MET 299B	2
Art	ART	3
Electives		7
		16

Notes:
*(1) See page 26 for Math/Science and Social Science electives.
*(2) For reading requirement see page 26.

Microelectronic Technician Program

The Microelectronic Technician Program is an occupational program leading to a Basic Certificate (one semester), an Advanced Certificate (one year) and/or an Associate of Applied Science Degree (two years). The career ladder concept of the certificates and the degree curriculum prepares the student for direct employment in the microelectronic industry at one of three levels of competence. The certificated student will have a fundamental knowledge of the microelectronics industry, as well as general competency in writing, chemistry, mathematics, drafting, and electrical circuits. The degree student will have gained the knowledge listed above and in addition, will have specific knowledge of photolithographic processes, physics, computer programming, management, thick and thin film processing, quality control and reliability, and microelectronic packaging. Both the certificate and degree students will have spent considerable time in laboratory experiences and will have selected certain microelectronic electives to fulfill his/her specific interests.

Microelectronic Technician
Basic Certificate

Required Courses (15)	First Semester	Cr. Hrs.
Writing I or	WRT 101 or	
Practical Communications	WRT 150	3
Electronics Math I or	MTH 115*(1) or	
Algebra II	MTH 130*(1)	3
Fundamentals of Chemistry or	CHM 110*(1) or	
General Chemistry I	CHM 120*(1)	4
Introduction to Microelectronics	MRE 100*(1)	3
Basic DC Circuit Analysis	ETR 101*(1)	2
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Microelectronic Technician
Advanced Certificate

Required Courses (32-34)	Second Semester	Cr. Hrs.
Microelectronic Drafting	DFT 170*(1)	4
Electronics Math I or	MTH 125*(1) or	
College Algebra & Trig.	MTH 160*(1)	3-5
Business & Prof Communications	SPE 120	3
Intro. to Microelectronic Materials	MRE 150*(1)	3
Intro. to Microelectronic		
Processing Equipment	MRE 160*(1)	4
		17-19

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Microelectronic Technician
Associate of Applied Science Degree

Required Courses (65-68)	Third Semester	Cr. Hrs.
Writing II or	WRT 102 or	
Technical Communications	WRT 154	3
Photolithographic Process	MRE 200*(1)	3
Microelectronics Packaging	MRE 220*(1)	3
Introductory Physics I or	PHY 121*(1)	
Electronic Industrial Physics	PHY 150*(1)	4-5
Electronic Industrial Chemistry	CHM 150*(1)	4
Reading Requirement*(2)		
		17-18
	Fourth Semester	
Human Relations in		
Business and Industry	MAN 110	3
Electronic Quality Control		
and Reliability	MRE 210*(1)	3
Microelectronics Circuit		
Fabrication	MRE 230*(1)	4
Humanities Elective*(3)		3
Fortran IV Programming or	CSC 140*(1) or	
Programming in Basic	CSC 180*(1)	3
		16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for Humanities electives.

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.

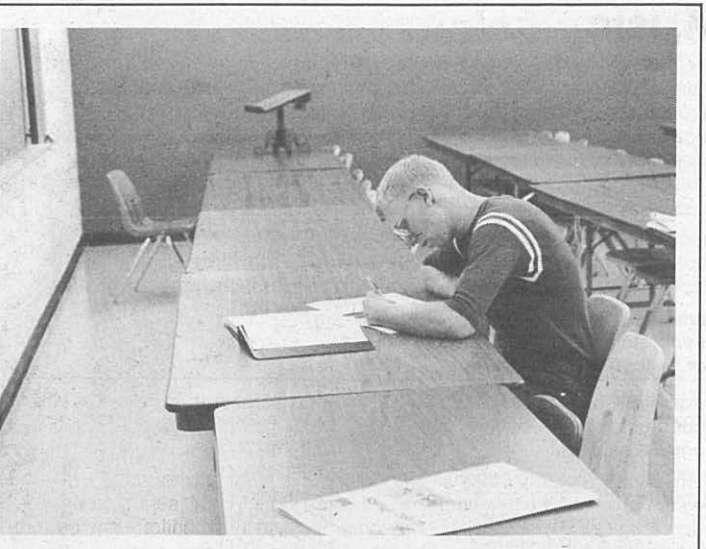
Students who complete the first two years of the program and continue their ROTC training receive a tax-free subsistence pay of $100 per month during their junior and senior years at four year colleges.

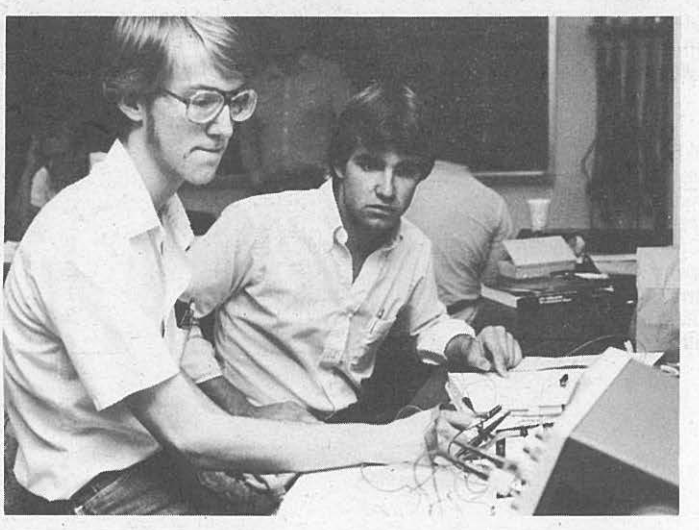
Air Force ROTC

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
		8

Army ROTC

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





Music

The 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.

Music
Associate of Arts Degree
For Transfer

Required Courses (69)	**First Semester**	**Cr. Hrs.**
The Structure of Music I	MUS 125*(1)	3
Aural Perception I	MUS 127*(1)	1
Band or	MUS 120*(1)	
Chorale or	MUS 130*(1)	
College Singers (SATB)	MUS 131*(1)	2
Applied Music/Private Inst.	MUS 145*(1)	2
Piano Class I	MUS 141*(1)	1
Writing I	WRT 101	3
Math/Science Elective*(2)		4
Reading Requirement*(3)		
		16
	Second Semester	
The Structure of Music II	MUS 126*(1)	3
Aural Perception II	MUS 128*(1)	1
Band or	MUS 120*(1)	
Chorale or	MUS 130*(1)	
College Singers (SATB)	MUS 131*(1)	2
Applied Music/Private Inst.	MUS 146*(1)	2
Piano Class II	MUS 142*(1)	1
Writing II	WRT 102	3
Math/Science Elective*(2)		4
		16

	Third Semester	
The Structure of Music III	MUS 225*(1)	3
Aural Perception III	MUS 227*(1)	1
History and Lit. of Music I	MUS 201*(1)	3
Band or	MUS 120*(1)	
Chorale or	MUS 130*(1)	
College Singers (SATB)	MUS 131*(1)	2
Applied Music/Private Inst.	MUS 247*(1)	2
Piano Class III	MUS 143*(1)	1
Social Science Elective*(2)		7
		19
	Fourth Semester	
The Structure of Music IV	MUS 226*(1)	3
Aural Perception IV	MUS 228*(1)	1
History and Lit. of Music II	MUS 202*(1)	3
Band or	MUS 120*(1)	
Chorale or	MUS 130*(1)	
College Singers (SATB)	MUS 131*(1)	2
Applied Music/Private Inst.	MUS 248*(1)	2
Piano Class IV	MUS 144*(1)	1
Social Science Elective*(2)		3
Elective		2
Humanities Elective*(2)		2
		19

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) See page 26 for Math/Science, Social Science and Humanities electives.

*(3) For reading requirement see page 26.

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 person nel. 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.

Nursing Assistant
Basic Certificate*(1)
For Direct Employment

Required Courses		Lec.		Lab	Cr. Hrs.
Principles of Anatomy & Physiology	LSC 102*(2)	3	+	3	4
Introduction to Health Care	HCA 154*(2)	3	+	0	3
Skills for Allied Health Services	HCA 150*(2)	2	+	9	5
					12

Notes:

*(1) Nursing assistant graduates interested in preparing for the practical nurse or associate degree nursing programs should consult with their nursing advisor.

*(2) Core Courses: D grades do not fulfill graduation requirement.

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. Graduates of the program will be eligible to take the National Council Licensure Examination (NCLEX)for licensure as a Registered Nurse.

Acceptance into Program:

- Completion of associate degree nursing application packet.
- Completion of Chemistry 111 or equivalent within the past five years.
- Completion of Reading 112 or the Proficiency Reading Examination to meet course reading requirements
- Completion of Math 065 or equivalent.
- Completion of Writing 101.
- Approval by selections committee.
- Approval of transfer credit according to college policy.

General Requirements:

- Total credit: 69 credit hours.
- Nursing Major: 38 credit hours.
- General Education Courses: 31 credit hours.

Minimal Grade Achievement:

Students must complete each nursing course "C" or better letter grade to progress to the next nursing course.

Associate Degree Nursing
Associate of Applied Science Degree*(1)
For Direct Employment

Required Courses (69)	First Sem.	Lec.		Lab	Cr. Hrs.
Anatomy/Physiology I	LSC 120*(2)	3	+	3	4
Nutrition	FSN 114*(2)	3	+	0	3
Writing II	WRT 102*(2)	3	+	0	3
Fundamentals of Nursing*(3)	NRS 170*(2)	4	+	12	4
Intro to Medical-Surgical Nursing	NRS 171*(2)	4	+	12	4
Reading Requirement*(4)					
					18

Nursing continued next page

	Second Sem.				
Anatomy/Physiology II	LSC 121*(2)	3	+	3	4
Intro. to Psychology I	PSY 100*(2)	3	+	0	3
Medical-Surgical Nursing*(3)	NRS 172*(2)	5	+	15	5
Intermediate Medical-Surgical Nursing*(3)	NRS 173*(2)	5	+	15	5
					17
	Third Sem.				
Microbiology I	LSC 207*(2)	3	+	4	4
Humanities I	HUM 110	4	+	0	4
Pediatric Nursing	NRS 280*(2)	5	+	15	5
Obstetrical Nursing	NRS 281*(2)	5	+	15	5
					18
	Fourth Sem.				
Intro to Sociology	SOC 100	3	+	0	3
Intro. to Cultural Anthropology	ANT 110	3	+	0	3
Advanced Medical-Surgical Nursing	NRS 282*(2)	5	+	15	5
Psychiatric Nursing	NRS 283*(2)	5	+	15	5
					16

Notes:

*(1) All courses listed in each semester must be completed prior to progressing to the following semester.

*(2) Core Courses: D grades do not fulfill graduation requirements.

*(3) Advanced placement is contingent upon successfully passing a placement examination(s).

*(4) For reading requirement see page 26.

Practical Nursing

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 (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 into program.
- The student must complete with success all program requirements in theory, skills and clinicals.

Practical Nursing
Advanced Certificate
For Direct Employment

Required Courses (37)	**First Sem.**	**Lec.**	**Lab**	**Cr. Hrs.**
Principle Anatomy/ Physiology	LSC 102*(1)	3	3	4
Introduction to Health Care	HCA 154*(1)	3	0	3
Introduction to Pharmacology	HCA 155*(1)	3	0	3
Practical Nursing I	NRS 070*(1)	4	12	8
		13	15	18
			28	

	Second Sem.			
Survey of Human Diseases	LSC 106*(1)	3	3	4
Writing I or Practical Communications	WRT 101 WRT 150	3 (3)	0 0	3
Introduction to Psychology I or	PSY 100	3	0	
Intro to Sociology	SOC 100	(3)	0	3
Practical Nursing II	NRS 072*(1)	4	15	9
		13	18	19
		31		

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Office Education

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

The office occupations curriculum 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
Practical Accounting Procedures	ACC 050	3
Business English	OED 151*(1)	3
Human Relations in Business	MAN 110	3
		15

	Second Semester	
Calculating Machines	OED 121*(1)	2
Word Processing	OED 221*(1)	4
Office Procedures	OED 271*(1)	4
Business Communications	OED 251*(1)	3
Typing III	OED 211*(1)	3
Records Management: Filing Systems	OED 132*(1)	3
		19

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

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

Required Courses (31)	First Semester	Cr. Hrs.
Business English	OED 151*(1)	3
Typing II	OED 112*(1)	3
Mathematics of Business	BUS 051	3
Records Management: Filing Systems	OED 132*(1)	3
Elective*(2)		3
		15

	Second Semester	
Practical Accounting Procedures or Business Communications	ACC 050 OED 251*(1)	3
Word Processing	OED 221*(1)	4
Calculating Machines	OED 121*(1)	2
Human Relations in Business	MAN 110	3
Office Procedures	OED 271	4
		16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For medical receptionist, the elective should be Medical Office Procedures (OED 161). For legal receptionist, the elective should be Legal Terms (OED 141).

Office Education continued next page

Administrative Assistant
Associate of Applied Science Degree
For Direct Employment

Required Courses (65-66)	First Semester	Cr. Hrs.
Business English	OED 151*(1)	3
Typing II	OED 112	3
Mathematics of Business	BUS 051	3
Business & Professional Communication	SPE 120	3
Reading Requirement*(2) or Elective		3-4
		15-16
	Second Semester	
Typing III	OED 211*(1)	3
Records Management: Filing Systems	OED 132*(1)	3
Human Relations in Business	MAN 110	3
Introduction to Computers	CSC 100	3
Business Communications	OED 251*(1)	3
		15
	Third Semester	
Business Law I	BUS 200	3
Calculating Machines	OED 121*(1)	2
Supervision	MAN 122	3
Principles of Accounting I	ACC 101*(1)	3
Office Procedures	OED 271*(1)	4
Introduction to Microeconomics	ECO 100	3
		18
	Fourth Semester	
Business Law II	BUS 201	3
Principles of Accounting II	ACC 102	3
Word Processing	OED 221*(1)	4
Business Organization & Management	MAN 280*(1)	3
Humanities Elective*(3)		4
		17

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirements.
*(2) For reading requirement see page 26.
*(3) See page 26 for Humanities electives.

Records Management
Associate of Applied Science Degree
For Direct Employment

Required Courses (60)	First Semester	Cr. Hrs.
American Government	POL 110	3
Principles of Accounting I	ACC 101*(1)	3
Introduction to Business	BUS 100	3
Introduction to Computers	CSC 100*(1)	3
Records Management: Development of a Program	OED 131*(1)	3
Reading Requirement*(2)		
		15
	Second Semester	
Introduction to Microeconomics	ECO 100	3
Human Relations in Business and Industry	MAN 110	3
Business English	OED 151*(1)	3
Records Management: Filing Systems	OED 132*(1)	3
Math, Mathematics of Business or Accounting II	MTH or BUS 051 or ACC 102	3
		15
	Third Semester	
Business Communications	OED 251*(1)	3
Business Law I	BUS 200	3
COBOL Programming	CSC 160	3
Personnel Management	MAN 276	3
Records Management: Forms Management	OED 231*(1)	3
Business Seminar I	BUS 295	1
		16
	Fourth Semester	
Business Law II	BUS 201	3
Co-op Related Class in OED	OED 199	1
Co-op Work in OED	OED 199C	3
Records Management: Supervision	OED 232*(1)	3
Humanities Elective*(3)		4
		14

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for Humanities electives.

Records Management
Certificate
For Direct Employment

Required Courses (30 units)
One year certificate program would consist of semesters one and two of the two-year program for direct employment.

General Secretary
Associate of Applied Science Degree
For Direct Employment

Required Courses (65)	**First Semester**	**Cr. Hrs.**
Business English	OED 151*(1)	3
Shorthand I	OED 101	3
Typing I	OED 111	3
Mathematics of Business	BUS 051	3
Elective*(2)		3
Reading Requirement*(3)		
		15
	Second Semester	
Shorthand II	OED 102*(1)	3
Typing II	OED 112	3
Calculating Machines	OED 121*(1)	2
Records Management: Filing Systems	OED 132*(1)	3
Word Processing	OED 221*(1)	4
		15
	Third Semester	
Typing III	OED 211*(1)	3
Shorthand III	OED 201	3
Office Procedures	OED 271*(1)	4
Practical Accounting Procedures or Principles of Accounting I	ACC 050 or ACC 101	3
Introduction to Computers or Introduction to Business	CSC 100 or BUS 100	3
Human Relations in Business	MAN 110	3
		19
	Fourth Semester	
Business Law I	BUS 200	3
Business Communications	OED 251*(1)	3
Elective*(2)		6
Humanities Elective*(4)		3-4
		15-16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Electives should be selected with the assistance of an OED advisor from the following courses:

Shorthand IV	OED 202	(3)
Co-op Related Class in OED	OED 199A	(1)
Co-op Work in OED	OED 199C	(2)
Records Management: Development of a Program	OED 131	(3)
Records Management: Supervision	OED 232	(3)

*(3) For reading requirement see page 26.
*(4) See page 26 for Humanities electives.

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

Required Courses (60-62)	**First Semester**	**Cr. Hrs.**
Business English	OED 151*(1)	3
Shorthand II	OED 102*(1)	3
Typing II	OED 112	3
Mathematics of Business	BUS 051	3
Elective		3
Reading Requirement*(2)		
		15
	Second Semester	
Business Communications	OED 251*(1)	3
Shorthand III	OED 201	3
Typing III	OED 211*(1)	3
Human Relations in Business	MAN 110	3
Practical Accounting Procedures or Principles of Accounting I	ACC 050 or ACC 101	3
		15
	Third Semester	
Word Processing	OED 221*(1)	4
Calculating Machines	OED 121*(1)	2
Business Law I	BUS 200	3
Option 1*(3)		3-4
Option 2*(3)		3
		15-16

Office Education continued next page

Fourth Semester

Records Management:		
Filing Systems	OED 132*(1)	3
Humanities Elective*(4)		3-4
Option 3*(3)		3
Option 4*(3)		3
Option 5*(3)		3
		15-16

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) For reading requirement see page 26.

*(3) 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*(1)	(4)
2	Introduction to Business or	BUS 100	
	Introduction to Computers	CSC 100	(3)
3	Shorthand IV or	OED 202	
	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 or	BUS 201	
	Criminal Law	AJS 109	(3)
5	Shorthand IV or	OED 202	
	Office Procedures	OED 271	(3-4)
	Medical Secretary		
Option			
1	Medical Office Proc.	OED 161	(3)
2	Medical Terms I	OED 162	(3)
3	Medical Transcription	OED 263	(3)
4	Medical Terms II	OED 262	(3)
5	Electives		(3)

*(4) See page 26 for Humanities electives.

Bilingual Secretary
Basic Certificate
For Direct Employment

Required Courses*(1)		**Cr. Hrs.**
Typing II	OED 112*(2)	3
Español Comercial*(3)	OED 252*(2)	2
Prácticas de Oficina*(3)	OED 271*(2)	4
Business English	OED 151*(2)	3
Spanish for		
Native Speakers I*(3) or	SPA 101	
Intermediate Spanish I*(3)	SPA 210	4
		16

Notes:

*(1) Spanish II is a prerequisite to Spanish 210. Typing I or equivalent is a prerequisite to Typing II. Fluency in reading and writing Spanish and English is a prerequisite to Commercial Spanish and Prácticas de Oficina. Consult instructor for placement.

*(2) Core Courses: D grades do not fulfill graduation requirement.

*(3) Taught in Spanish and English.

Bilingual Secretary
Advanced Certificate
For Direct Employment

Required Courses (35)*(1)		**Cr. Hrs.**
Typing II	OED 112	3
Español Comercial*(2)	OED 252*(3)	2
Prácticas de Oficina*(2)	OED 271*(3)	4
Business English	OED 151*(3)	3
Español inten. para estud.		
de habla Hispana I*(2)	SPA 201	
or Intermediate Spanish I*(2)	SPA 210	4
		16
Plus the following:		
Mathematics of Business	BUS 051	3
Shorthand II	OED 102*(3)	3
Business Communications	OED 251*(3)	3
Typing III	OED 211*(3)	3
Literatura Creativa I*(2)	SPA 205	3
Español inten. para estud.		
de habla Hispana II*(2)	SPA 202	
or Intermediate Spanish II*(2)	SPA 211	4
		19

Notes:

*(1) Shorthand I is a prerequisite for Shorthand II. A certain proficiency in reading and writing Spanish and English is a prerequisite for OED 252, Español Comercial (Commercial Spanish) and OED 271, Prácticas de Oficina (Office Procedures). Consult instructor for placement.

*(2) Taught in Spanish and English.

*(3) Core Courses: D grades do not fulfill graduation requirement.

Bilingual Secretary
Associate in Applied Science Degree
For Direct Employment

Required Courses (63)*(1)	**First Semester**	**Cr. Hrs.**
Typing II	OED 112*(2)	3
Shorthand I	OED 101	3
Business English	OED 151*(2)	3
Español inten. para estud. de Habla Hispana I*(3)	SPA 201	4
Math of Business	BUS 051	3
Reading Requirement*(4)		
		16
	Second Semester	
Calculating Machines	OED 121*(2)	2
Shorthand II	OED 102*(2)	3
Business Communications	OED 251*(2)	3
Practical Accounting Procedures or Principles of Accounting I	ACC 050 or ACC 101	3
Intermediate Spanish II*(3) or Español inten. para estud. de habla Hispana II*(3)	SPA 202*(2)	4
		16
	Third Semester	
Human Relations in Business	MAN 110	3
Record Management: Filing Systems	OED 132*(2)	2
Español Commercial*(3)	OED 252*(2)	2
Shorthand III	OED 201	3
Literatura Creativa I	SPA 205	3
Humanities Elective*(5)		4
		16
	Fourth Semester	
Word Processing	OED 221	4
Prácticas de Oficina or Office Procedures	OED 271*(2) OED 271*(2)	4
Introducción a Negocios or Introduction to Business	BUS 100 BUS 100	3
Spanish Elective*(6)		3
Elective*(7)		3
		15

Notes:

*(1) Prerequisites for the program are Typing I or equivalent skill and Spanish III or equivalent Spanish proficiency.

*(2) Core Courses: D grades do not fulfill graduation requirement.

*(3) Taught in Spanish and English.

*(4) For reading requirement see page 26.

*(5) See page 26 for Humanities electives.

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

*(7) Electives should be selected with the assistance of an OED advisor from the following courses:

Typing III	OED 211	(3)
Shorthand IV	OED 202	(3)
Co-op Related Class in OED	OED 199	(1)
Co-op Work in OED	OED 199B	(2)
Records Management: Development of a Program	OED 131	(3)
Records Management: Supervision	OED 232	(3)

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 applied 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: 63-64 credit hours for ophthalmic dispensing.
- Work in residence: ophthalmic dispensing—minimum 38 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:

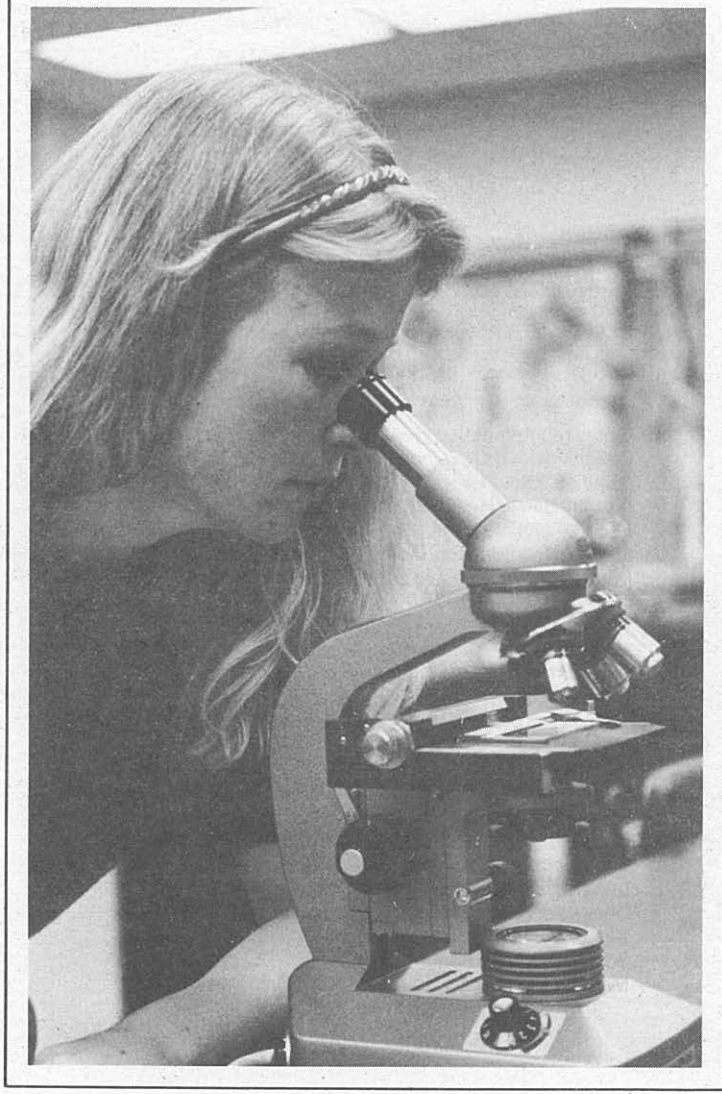
- "C" level

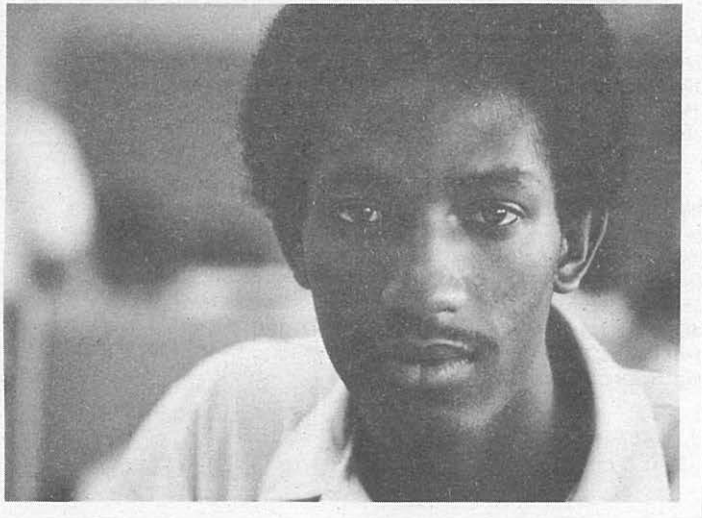
Ophthalmic Dispensing Technology
Associate of Applied Science Degree
For Direct Employment

Required Courses (64-65)	First Sem.	Lec.		Lab	Cr. Hrs.
Writing I or Practical Communications	WRT 101 WRT 150	3	+	0	3
Algebra I or Algebra II or Fundamental Physics	MTH 070or MTH 130 or PHY 105*(1)	3	+	0	3
Optical Orientation I	ODT 051*(1)	3	+	3	4
Reading Requirement*(2)		5	+	3	6
					16
	Second Sem.				
Writing II or Technical Communications	WRT 102 WRT 154	3	+	0	3
Human Relations in Business & Industry	MAN 110	3	+	0	3
Humanities Elective*(3)		3-4	+	0	3-4
Optical Orientation II	ODT 052*(1)	3	+		4
Optical Laboratory	ODT 053*(1)	1	+	6	3
					16-17
	Third Sem.				
Optical Dispensing I	ODT 054*(1)	4	+	6	6
Contact Lenses I	ODT 055*(1)	4	+	3	5
Ophthalmic Assistant	ODT 056*(1)	2	+	3	3
Small Bus. Management	MAN 124	3	+	0	3
					17
	Fourth Sem.				
Contact Lenses II	ODT 057*(1)	4	+	3	5
Optical Dispensing II	ODT 058*(1)	4	+	0	4
Senior Seminar	ODT 059*(1)	2	+	0	2
Co-op Related Class in ODT	ODT 299*(1)	1	+	0	1
Co-op Work in ODT	ODT 299C*(1)	0	+	15	3
					15

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for humanities elective.





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 department 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.

Physical Education
Associate of Arts Degree
For Transfer

Required Courses (63)	**First Semester**	**Cr. Hrs.**
Writing	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*(3)	2
Facilities for Physical Education & Recreation *(1)	PED 120	2
Reading Requirement*(4)		
		15-17
	Second Semester	
Writing II	WRT 102	3
First Aid	REC 121*(3)	2
History of Physical Education	PED 149*(3)	2
Practicum I	PED 001	1
Elementary School Physical Education *(1)	PED 130	3
Pro-Activities *(2)		2-4
Social Science Elective *(5)		3
		16-18
	Third Semester	
Humanities I	HUM 110	4
Math*(6)		3
U.S. History I or	HIS 141	
U.S. History II	HIS 142	3
Human Anatomy & Physiology I	LSC 120	4
Practicum II	PED 002	1
Pro-Activities *(2)		2-4
		17-19
	Fourth Semester	
Humanities II	HUM 111	4
National & State Constitutions	POL 112	3
Sports Officiating	PED 145*(3)	2
Designed Exercise	PED 146*(3)	2
Human Anatomy & Physiology II	LSC 121*(3)	4
Pro-Activities*(2)		2-4
		17-19

Notes:

*(1) Highly recommended elective. Additional recommended electives:
Child Growth & Development, ECE 117
Nutrition, FSN 114
Introduction to Health Science, HED 136
Foundations of Athletic Training, PED 125

(2) All of the following Pro-Activity classes(3) are required. Each Physical Education major should enroll in 4 sections each semester (PED 101-109, 112-116).

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) Core Courses: D grades do not fulfill graduation requirement.

*(4) For reading requirement see page 26.

*(5) Choose one Social Science elective from the following:
Introduction to Sociology, SOC 100
Introduction to Cultural Anthropology, ANT 110

*(6) Choose one of the following Math courses:
Algebra II, MTH 130
Survey of Math Thought, MTH 135
Math for Elementary Education Majors, MTH 140

Physics

Physics
Associate of Science Degree
For Transfer

Suggested Courses (63-65)*(1)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Anal. Geometry & Calculus I	MTH 180*(2)	3
Introductory Mechanics	PHY 210*(2)	5
Fortran IV Programming	CSC 140	3
Social Science Elective*(3)		3
Reading Requirement*(4)		
		17
	Second Semester	
Writing II	WRT 102	3
Anal. Geometry & Calculus II	MTH 185*(2)	3
Introduction to Waves & Heat*(5)	PHY 221*(2)	4
General Chemistry I	CHM 120*(2)	4
Social Science Elective*(3)		3
		17
	Third Semester	
Anal. Geometry & Calculus III	MTH 215*(2)	4
Introductory Electricity & Magnetism*(5)	PHY 216*(2)	5
General Chemistry II	CHM 121*(2)	4
Humanities Elective*(3)		3-4
Physical Education	PED	1
		17-18
	Fourth Semester	
Linear Algebra & Diff. Equations	MTH 220*(2)	4
Introduction to Modern Physics	PHY 230*(2)	4
Elementary German I	GER 110*(2)	4
Humanities Elective*(3)		3-4
Physical Education	PED	1
		16-17

Notes:
*(1) The courses suggested meet University of Arizona requirements for the first two years of a bachelor of science degree.
*(2) Core Courses: D grades do not fulfill graduation requirement.
*(3) For course electives in humanities and social sciences consult the catalog of the college or university you plan to enter.
*(4) For reading requirement, see page 26.
*(5) Students may take PHY 216 before PHY 221 if they have completed MTH 185.

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 33 hours for a program total of 67 credit hours. Program courses include a study of the Postal Service history and organization, labor management relations, employee services, mail processing, finance, delivery and collection, customer service and postal problem analysis.

Postal Service Management
Basic Certificate
For Direct Employment

Required Courses (16)	First Semester	Cr. Hrs.
Writing I or Practical Communications	WRT 101*(1) or WRT 150*(1)	3
Principles of Accounting I	ACC 101	3
Postal History & Organization	PSM 100	3
Reading	REA 100	4
Mathematics of Business*(2)	BUS 051*(1)	3
		16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Prerequisite: MTH 060

Postal Service Management continued next page

Postal Service Management
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 II or Technical Communications	WRT 102*(1) or WRT 154*(1)	3
Principles of Accounting II*(2)	ACC 102	3
Human Relations in Business and Industry	MAN 110*(1)	3
Postal Service Labor-Management	PSM 120*(1)	3
Postal Employee Services	PSM 130	3
Mail Processing I	PSM 140*(1)	3
		18

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Prerequisite: ACC 101

Postal Service Management
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 (67)	Third Semester	Cr. Hrs.
Introduction to Macro-economics	ECO 101	3
Business & Professional Communication	SPE 120*(1)	3
Supervision	MAN 122*(1)	3
Postal Service Finance	PSM 200*(1)	3
Mail Processing II*(2)	PSM 240*(1)	3
Humanities Elective*(3)		3
Reading Requirement*(4)		
		18

	Fourth Semester	
Introduction to Computers	CSC 100	3
Business Organization and Management	MAN 280*(1)	3
Postal Service Delivery & Collection or Management of Small Post Offices	PSM 250*(1) PSM 280*(1)	3
Postal Problems Analysis	PSM 260*(1)	3
Postal Customer Services or Mailroom Practices and Techniques	PSM 270*(1) PSM 210	3
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Prerequisite: PSM 140
*(3) See page 26 for humanities elective.
*(4) For reading requirement see page 26.

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 science degree in Public Administration.

Students who want to get an associate of science 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.

Public Administration
Associate of Science Degree
For Transfer

Required Courses (64-65)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Math/Science Elective*(1)		3-4
American National Government	POL 110*(2)	3
Social Science Elective or Math*(3)		3
Business & Professional Communication	SPE 120	3
Physical Education Elective*(7)	PED	1
Reading Requirement*(4)		
		16-17

	Second Semester	
Writing II	WRT 102	3
Math/Science Elective*(1)		4
Finite Mathematics	MTH 170	3
American State & Local Governments	POL 111*(2)	3
Social Science Elective*(5)		3
Physical Education Elective*(7)	PED	1
		17
	Third Semester	
Introduction to Public Administration	PAD 105*(2)	3
Introduction to Microeconomics	ECO 100	3
Statistical Methods in Economics & Business I or Introductory Statistics	BUS 205*(2) MTH 210	3
Humanities or Foreign Language*(6)		4
Introduction to Computers	CSC 100	3
		16
	Fourth Semester	
Accounting for Government Agencies	ACC 173*(2)	3
Environment & Management in Public Organizations	PAD 201*(2)	3
Introduction to Macroeconomics	ECO 101	3
Elective (see advisor)		3
Humanities or Foreign Language*(6)		4
		15-16

Notes:

*(1) Fulfilled 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, or CHM 111, 112; 110, 111; ESC 101, 102; and LSC 103, 104. In the case of the following courses, labs are required: ESC 120, 121; LSC 207, 208; and PHY 121, 122.

*(2) Core Courses: D grades do not fulfill graduation requirement.

*(3) For reading requirement see page 26.

*(4) 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.

*(5) 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.

*(6) 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.

*(7) Students should consult the catalog of the institution to which they plan to transfer for possible exemptions from Physical Education requirement.

Public Transportation Maintenance Technology

The program will provide training in diagnostics, troubleshooting, and rebuiding in eight (8) areas of maintenance on public transportation vehicles. Areas included are electrical systems, air conditioning systems, diesel engine basics and overhaul, automatic transmissions, rear ends and differentials, brake systems, air systems, and front end alignment.

Cooperative education has been incorporated as an integral portion of the program for students currently employed in public transportation. Such students will be able to use their on-the-job experience to meet the laboratory requirement for cooperative education credit.

Public Transportation Maintenance
Basic Certificate

Required Courses	**First Semester**	**Cr. Hrs.**
Applied Electrical Systems	PTM 101*(1)	4
Brake Systems	PTM 102*(1)	3
Air Systems	PTM 103*(1)	3
Diesel Engine Basics	PTM 104*(1)	3
Human Relations in Business & Industry	MAN 110	3
		16

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

Public Transportation Maintenance Technology continued next page

Public Transportation Maintenance
Technical Certificate

Required Courses		Cr. Hrs.
Basic Certificate Requirements		16
	Second Semester	
Air Conditioning Systems	PTM 105*(1)	4
Automatic Transmissions VH & VS	PTM 106*(1)	4
Rear Ends & Differentials	PTM 203*(1)	3
Co-op Related Class in PTM	PTM 199	1
Co-op Work in PTM	PTM 199B	2
Practical Communications	WRT 150	3
Mathematics (Based on Placement Exam)	MTH	3
		36

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Public Transportation Maintenance
Associate of Applied Science Degree

Required Courses		Cr. Hrs.
Technical Certificate Requirements		36
	Third & Fourth Semesters	
Automatic Transmissions V-730	PTM 201*(1)	4
Diesel Engine Overhaul	PTM 202*(1)	3
Front End Alignment and Steering Gears	PTM 204*(1)	3
Technical Physics I	PHY 101	3
Co-op Related Class in PTM	PTM 299	1
Co-op Work in PTM	PTM 299B	2
Technical Communication	WRT 154	3
Humanities and Fine Arts Elective*(2)		3-4
Social and Behavioral Science Elective*(2)		3
Reading Requirement*(3)		
		61-62

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for Humanities, Fine Arts, Social Science, and Behavioral Science electives.
*(3) For reading requirement see page 26.

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 an affiliating 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 applied science degree in Radiologic Technology and will be able to apply for certification 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.
- Reading competency at the level of REA 112 or higher.
- 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: 92 semester hours

Minimal Grade Achievement:

Students must receive a "C" grade or better in all core courses each semester in order to progress to the next semester.

Radiologic Technology
Associate of Applied Science Degree
For Direct Employment

Required Courses (73)	First Sem.	Lec		Lab	Cr. Hrs.
Writing I	WRT 101	3	+	0	3
Humanities I or II	HUM 110or111	4	+	0	4
Algebra II	MTH 130	3	+	0	3
Human Anatomy & Physiology I	LSC 120*(1)	3	+	3	4
Radiologic Fundamentals	RAD 071*(1)	3	+	3	4
Reading Requirement*(2)					
					18
	Second Sem.				
Survey of Human Diseases	LSC 106	3	+	3	4
Human Anatomy & Physiology II	LSC 121*(1)	3	+	3	4
Rad. Processing & Technology	RAD 072*(1)	3	+	3	4
Rad. Positioning I	RAD 073*(1)	3	+	3	4
					16
	Third Sem.				
Writing II	WRT 102	3	+	0	3
Rad. Positioning II	RAD 081*(1)	3	+	3	4
Radiologic Physics	RAD 082*(1)	3	+	3	4
Clinical Procedures I	RAD 083*(1)	0	+	6	2
Radiation Biology and Therapy	RAD 084*(1)	3	+	0	3
					16
	Fourth Sem.				
Introduction to Psychology I	PSY 100	3	+	0	3
Rad. Positioning III	RAD 085*(1)	3	+	3	4
Clinical Procedures II	RAD 086*(1)	0	+	6	2
Imaging Systems	RAD 088*(1)	3	+	3	4
Introduction to Computers	CSC 100	3	+	0	3
					16
	Fifth Sem. (Summer)				
Co-op Related Class in RAD	RAD 199*(1)	1	+	0	1
Co-op Work in RAD	RAD 199E*(1)	0	+	40	8
	Sixth Sem.				
Co-op Related Class in RAD	RAD 299*(1)	1	+	0	1
Co-op Work in RAD	RAD 299E*(1)	0	+	40	8
	Seventh Sem.				
Co-op Related Class in RAD	RAD 299	1	+	0	1
Co-op Work in RAD	RAD 299E	0	+	40	8

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.

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 a 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.

Real Estate continued next page

Real Estate Sales/Brokerage
Basic Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Principles of Accounting I	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*(1)	3
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Real Estate Sales/Brokerage
Advanced Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Basic Certificate Requirements		15
Real Estate Finance	FIN 205*(1)	3
Salesmanship	MKT 113	3
Real Estate Practices	RLS 102	3
Real Estate Law	RLS 201*(1)	3
Business & Professional		
Communication	SPE 120	3
		30

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Real Estate Sales/Brokerage
Associate of Applied Science Degree
For Direct Employment

Required Courses (60)	First Semester	Cr. Hrs.
Principles of Accounting I	ACC 101*(1)	3
Real Estate Principles	RLS 101*(1)	3
Math (based on placement test)	MTH	3
Writing I or	WRT 101	
Practical Communications	WRT 150	3
Elective*(2)		3
Reading Requirement*(3)		
		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*(1)	3
		15
	Third Semester	
Introduction to Macroeconomics	ECO 101	3
Real Estate Finance	FIN 205*(1)	3
Human Relations in Business	MAN 110	3
Humanities Elective*(4)		3
Elective*(2)		3
		15
	Fourth Semester	
Small Business Management or	MAN 124	
Principles of Accounting II	ACC 102	3
Real Estate Law	RLS 201*(1)	3
Real Estate Appraisals	RLS 202*(1)	3
Elective*(5)		3
Elective*(2)		3
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Electives should be chosen from courses above the 100 level which are related to real estate industry.
*(3) For reading requirement, see page 26.
*(4) See page 26 for Humanities electives.
*(5) Electives should be selected from history, humanities, psychology, sociology, philosophy, political science or anthropology.

Real Estate Escrow

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

Real Estate Escrow
Basic Certificate for
Direct Employment

		Cr. Hrs.
Escrow Principles	RLS 120*(1)	3
Escrow Practices	RLS 121*(1)	3
Real Estate Principles	RLS 101*(1)	3
Principles of Accounting I or Mathematics of Business	ACC 101 BUS 051	3
Elective*(2)		3
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirements.
*(2) Recommended by advisor to satisfy individual student requirements.

Real Estate Escrow
Advanced Certificate
For Direct Employment

		Cr. Hrs.
Basic Certificate Requirements		15
Escrow Problems	RLS 210*(1)	3
Real Estate Law	RLS 201	3
Real Estate Finance	FIN 205	3
Electives*(2)		3
Writing (based on placement exam)		3
		30

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) 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) recreation leader
2) natural 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.

Recreation Leader
Associate of Applied Science Degree
For Direct Employment

Required Courses (62-72)*(1)	**First Semester**	**Cr. Hrs.**
Writing I	WRT 101	3
Mathematics of Business	BUS 051	3
Introduction to Parks & Recreation	REC 101*(2)	3
Group Leadership	REC 102*(2)	2
Recreational Games	REC 119*(2)	2
Math/Science Elective*(3)		3
Reading Requirement*(4)		
		16
	Second Semester	
Writing II or Technical Communications	WRT 102 WRT 154	3
Outdoor Recreation-Education	REC 115*(2)	3
Survival	REC 118*(2)	2
Ecology	LSC 150	3
Recreational Arts & Crafts	REC 051*(2)	3
Social Science Elective*(3)		3
		18

Recreation continued next page

	Third Semester	
Recreation Administration & Finance	REC 103*(2)	3
Program Planning & Organization	REC 114*(2)	3
Facilities for Physical Education and Recreation	PED 120	2
First Aid	REC 121*(2)	2
Sports Officiating	PED 145	2
Business & Professional Communications	SPE 120	3
		15
	Fourth Semester	
Recreation for Special Groups	REC 116*(2)	3
Folk and Square Dance	PED 144	2
Child Development	ECE 117	3
Public Relations & Communigraphics	REC 074	3
Conservation of Natural Resources	LSC 170	3
Humanities Elective*(3)		3
		17

Notes:

*(1) Total units needed to graduate - 63

*(2) Core Courses: D grades do not fulfill graduation requirement.

*(3) See page 26 for Humanities, Social Science & Math/Science Electives.

*(4) For reading requirement see page 26.

Natural Resource Recreation Technician
Associate of Applied Science Degree
For Direct Employment

Required Courses (61-63)	**First Semester**	**Cr. Hrs.**
Writing I	WRT 101	3
Mathematics of Business	BUS 051	3
Introduction to Parks & Recreation	REC 101*(1)	3
Ecology I	LSC 150	4
Math/Science elective*(3)		3
Reading Requirement*(2)		
		16
	Second Semester	
Writing II or Technical Communications	WRT 102 or WRT 154	3
Human Relations	MAN 110	3
Business & Professional Communications	SPE 120	3
Outdoor Recreation-Education	REC 115*(1)	3
Survival	REC 118*(1)	2
Humanities Electivies*(3)		3
		17
	Third Semester	
Recreation Administration & Finance	REC 103*(1)	3
First Aid	REC 121*(1)	2
Survey of Western Flora	LSC 171	3
Geology of Western U.S.	ESC 110	3
Group Leadership	REC 102*(1)	2
Program Planning & Organization	REC 114*(1)	3
		15
	Fourth Semester	
Public Relations & Communigraphics	REC 074*(1)	3
Conservation of Natural Resources	LSC 170	3
Western Vertebrates	LSC 172	3
Co-op Related Class in REC	REC 199	1
Co-op Work in REC	REC 199B	2
Electives		1-3
		13-15

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) For reading requirement see page 26.

*(3) See page 26 for Humanities, Social Science & Math/Science Electives

Recreation Education
Associate of Arts Degree
For Transfer* (1)

Required Courses (62-72)	First Semester	Cr. Hrs.
Writing I	WRT 101	3
Algebra II	MTH 130	3
Social Science Elective*(2)		3
Science elective*(2)		4
Intro. to Parks & Recreation	REC 101*(3)	3
PE Activity	PED	1
Reading Requirement*(4)		
		17
	Second Semester	
Writing II	WRT 102	3
Science Elective*(2)		4
Social Science Elective*(2)		3
Group Leadership	REC 102*(3)	2
First Aid	REC 121*(3)	2
PE Activity	PED	1
		15
	Third Semester	
Humanities I	HUM 110	4
Social Science Elective*(2)		3
Writing Elective		3
Survival	REC 118*(3)	2
Elective		3
		15
	Fourth Semester	
Humanities II	HUM 111	4
Social Science Elective*(2)		3
Business & Professional Communication	SPE 120	3
Recreational Games	REC 119*(3)	2
Elective		3
		15

Notes:
*(1) Total units needed to graduate -62-64
*(2) See page 26 for Humanities, Social Science & Math/Science Electives.
*(3) Core Courses: D grades do not fulfill graduation requirement.
*(4) For reading requirement see page 26.

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 coursework followed by a summer session and one year of major coursework. 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 either an associate of applied science degree or an advanced certificate in Respiratory Therapy.

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 faculty
- Approval by selections committee

Respiratory Therapy continued next page

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

- Completion of Pima College and Respiratory Therapy program applications
- Students 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, LSC 120 and 121, including labs
  d. LSC 117 or 3 cr. hrs. of micro
  e. PSY 100
  f. WRT 101 and 102 or 150
- Receipt of high school and college transcripts
- Personal pre-admission conference with program faculty
- Approval by selections committee

Academic Requirements:
Certificate program—44 credit hours of Respiratory Therapy coursework.
Associate Degree program—77-78 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
*Applicants must demonstrate reading comprehension at the level of REA 112 or higher for program acceptance.

Respiratory Therapy
Associate of Applied Science Degree
For Direct Employment*(1)

Required Courses (77-78)	First Sem.	Lec	Lab	Cr. Hrs.
Introduction to Health Care	HCA 154	3	0	3
Human Anatomy & Physiology I	LSC 120*(2)	3	3	4
Algebra I	MTH 070*(2)	3		3
Fund. Chemistry II	CHM 111*(2)	3	3	4
Writing I	WRT 101	3	0	3
Reading Requirement*(3)				
				17
	Second Sem.			
Writing II	WRT 102	3	0	3
Human Anatomy & Physiology II	LSC 121*(2)	3	3	4
Communicable Diseases	LSC 117*(2)	3	0	3
Introduction to Psychology I	PSY 100	3	0	3
Humanities Elective*(4)		3	0	3-4
				16-17
	Third Sem.			
Intro. to Respiratory Therapy	RTH 071*(2)	3	6	5
Respiratory Physiology	RTH 082*(2)	5	0	5
				10
	Fourth Sem.			
Diseases I	RTH 086*(2)	4	0	4
Clinical Medicine	RTH 073*(2)	3	0	3
Respiratory Care I	RTH 083*(2)	4	3	5
Clinical Procedures I	RTH 091*(2)	0	15	5
				17
	Fifth Sem.			
Diseases II	RTH 089*(2)	4	0	4
Respiratory Care II	RTH 084*(2)	4	3	5
Clinical Procedures II	RTH 092*(2)	0	24	8
				17

Notes:

*(1) Students who have received an associate of applied science 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.
*(2) Core Courses: D grades do not fulfill graduation requirement.
*(3) For reading requirement see page 26.
*(4) See page 26 for Humanities electives.

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.

R$LA 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*(1), 120*(1)	8
Sheet Metal Pattern Layout I	SML 130*(1)	3
Technical Math I-II	MTH 110, 120	6
Technical Drafting I	DFT 150	4
Human Relations in Business	MAN 110	3
		24

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Sheet Metal Layout and Fabrication
Technical Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Sheet Metal I-II	SML 110*(1), 120*(1)	8
Architectural Sheet Metal	SML 220*(1)	3
Sheet Metal Pattern Layout I-III	SML 130*(1), 135*(1) SML 210*(1)	9
Technical Math I-II	MTH 110, 120	6
Technical Drafting I	DFT 150	4
Practical Communications	WRT 150	3
Technical Communications	WRT 154	3
Human Relations in Business	MAN 110	3
Air Conditioning Fundamentals	ACD 101	3
Combination Welding	WLD 110	3
		45

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

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

Required Courses (76)	First Semester	r. Hrs.
Air Conditioning Fundamentals	ACD 101*(1)	3
Air Conditioning Phase I	ACD 120*(1)	4
Technical Math I	MTH 110	3
Sheet Metal I	SML 110*(1)	4
Technical Drafting I	DFT 150	4
Reading Requirement*(2)		
		18
	Second Semester	
Sheet Metal Pattern Layout I	SML 130*(1)	3
Air Conditioning Phase II	ACD 125*(1)	4
Technical Math II	MTH 120	3
Sheet Metal II	SML 120*(1)	4
Practical Communications	WRT 150	3
Combination Welding	WLD 110	3
		20
	Third Semester	
Air Conditioning Phase III	ACD 210*(1)	4
Human Relations in Business	MAN 110	3
Technical Physics I	PHY 101	3
Sheet Metal Pattern Layout II	SML 135*(1)	3
Technical Communications	WRT 154	3
Air Conditioning Estimating I	ACD 250	3
		19
	Fourth Semester	
Air Conditioning Phase IV	ACD 220*(1)	4
Sheet Metal Pattern Layout III	SML 210*(1)	3
Architectural Sheet Metal	SML 220*(1)	3
Air Conditioning Estimating II	ACD 260	3
Technical Physics II	PHY 102	3
Humanities Elective*(3)		3
		19

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for Humanities electives.

Social Services

The Social Services program prepares students for jobs in many community service agencies and lays a foundation for continuing education in the helping professions. This skill and knowledge base will qualify the student for entry-level employment in areas that 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. There is a strong effort by members of this team to approach social problems on a more human and individual basis on the local and national levels.

The social services skill and knowledge base includes 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.

Social Services offers a variety of study programs to meet the vocational and educational needs of students. Both a one-year certificate program and a two-year Associate of Applied Science program are available. Students who plan to transfer to four-year schools can meet the first and second year requirements at Pima Comunity College but must check the first two-year requirements of the school they plan to attend. A sub-specialty in Substance Abuse 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 and alcohol, 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 eight units of field experience in a social service agency as part of the study process during the second year. Remember, it is suggested that you take courses in sequence.

Social Services
Basic Certificate
For Direct Employment

Required Courses (30)	**First Semester**	**Cr. Hrs.**
Introduction to Social Welfare	SSE 133*(1)	3
Introduction to Psychology I	PSY 100	3
Writing I	WRT 101	3
Casework Methods I	SSE 134*(1)	3
Electives		3
		15
	Second Semester	
Group Work	SSE 235*(1)	3
Community Organization & Development	SSE 216*(1)	3
Casework Methods II	SSE 234*(1)	3
Writing II	WRT 102	3
Elective		3
		15

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Social Services (Substance Abuse Subspecialty)
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
Introduction to Alcohol Abuse	SSE 116	3
Math/Science elective*(1)		3
		15

Notes:
*(1) See page 26 for Math/Science electives.

Social Services
Associate of Applied Science Degree
For Direct Employment

Required Courses (61)	**First Semester**	**Cr. Hrs.**
Introduction to Social Welfare	SSE 133*(1)	3
Writing I	WRT 101	3
Introduction to Psychology I	PSY 100	3
Electives*(2)		6
Reading Requirement*(3)		
		15
	Second Semester	
Casework Methods I*(4)	SSE 134*(1)	3
Writing II	WRT 102	3
Introduction to Sociology	SOC 100	3
Electives*(2)		6
		15
	Third Semester	
Casework Methods II*(4)	SSE 234*(1)	3
Group Work	SSE 235*(1)	3
Oral Communication	SPE 102	3
Electives*(2)		6
		15
	Fourth Semester	
Community Organization and Development	SSE 216*(1)	3
Electives*(2)		6
Social Service Elective*(6)		3
Co-op Related Class in SSE*(5)	SSE 199	1
Co-op Work in SSE*(5)	SSE 199C	3
		16

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) To meet General Education requirements using the 24 hours of electives, a student must take 3 hours of humanities and 6 hours of math/science electives. See page 26.

*(3) For reading requirement see page 26.

*(4) SSE 134 is prerequisite for SSE 234.

*(5) SSE 199 and 199C are required for students seeking the Associate of Applied Science Degree for direct employment. It is recommended for transfer students. It is not required or recommended for the basic certificate for direct employment.

*(6) A course must have the SSE prefix in order to be considered for a Social Services elective.

Social Services
Associate of Arts Degree
For Transfer

Required Courses (61)	**First Semester**	**Cr. Hrs.**
Introduction to Social Welfare	SSE 133*(1)	3
Writing I	WRT 101	3
Introduction to Psychology I	PSY 100	3
Electives*(2)		6
Reading Requirement*(3)		
		15
	Second Semester	
Casework Methods I*(4)	SSE 134*(1)	3
Writing II	WRT 102	3
Introduction to Sociology	SOC 100	3
Electives*(2)		6
		15
	Third Semester	
Group Work	SSE 235*(1)	3
Oral Communication	SPE 102	3
Casework Methods II*(4)	SSE 234*(1)	3
Electives*(2)		6
		15
	Fourth Semester	
Community Organization and Development	SSE 216*(1)	3
Electives*(2)		6
Social Service Elective*(5)		3
Co-op Related in SSE*(6)	SSE 199	1
Co-op Work in SSE*(6)	SSE 199C	3
		16

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) Within the 24 hours of electives, you must take 8 hours of humanities and fine arts, 3 additional hours of social and behavioral sciences and 8 hours of science and/or mathematics. Please talk to an advisor to insure you are taking the correct courses for the university of your choice. (See page 26 for general education requirements.)

*(3) For reading requirement see page 26.

*(4) SSE 134 is prerequisite to SSE 234.

*(5) A course must have the SSE prefix in order to be considered a Social Services elective.

*(6) SSE 199 and 199C are required for students seeking the Associate of Applied Science 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 continued next page

Social Services (Substance Abuse Subspecialty)
Associate of Applied Science Degree
For Direct Employment

Required Courses (73)*(1)	**First Semester**	**Cr. Hrs.**
Introduction to Social Welfare	SSE 133*(2)	3
Writing I	WRT 101	3
Introduction to Psychology I	PSY 100	3
Electives*(3)		6
Drugs in American Society	SSE 115*(2)	3
Reading Requirement*(4)		
		18
	Second Semester	
Casework Methods I*(5)	SSE 134*(2)	3
Writing II	WRT 102	3
Introduction to Sociology	SOC 100	3
Electives*(3)		6
Political and Legal Aspects of Drug Use	SSE 127*(2)	3
		18
	Third Semester	
Group Work	SSE 235*(2)	3
Oral Communication	SPE 102	3
Casework Methods II*(5)	SSE 234*(2)	3
Electives*(3)		6
Treatment of the Drug Abuse	SSE 218*(2)	3
		18
	Fourth Semester	
Community Organization and Development	SSE 216*(2)	3
Electives*(3)		6
Social Service Elective*(6)		3
Introduction to Alcohol Abuse	SSE 116*(2)	3
Co-op Related in SSE*(7)	SSE 199	1
Co-op Work in SSE*(7)	SSE 199C	3
		29

Notes:

*(1) Some of the Substance Abuse Subspecialty courses and the Social Services electives may be offered only one semester a year.

*(2) Core Courses: D grades do not fulfill graduation requirement.

*(3) To meet General Education requirements use the 24 hours of elective to include: 3 hours of humanities/fine arts, 6 hours of math/science. See page 26. 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
Topics in Community Involvement	SOC 298	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 127	3
Introduction to Public Admin.	PAD 105	3
American National Government & Politics	POL 110	3
American State & Local Government & Politics	POL 111	3
Introduction to Cultural Anthropology	ANT 110	3
Crime & Delinquency	AJS 225	3
Juvenile Justice Procedures	AJS 212	3
Current U.S. Social Problems	SOC 101	3
Drugs in American Society	SSE 115	3
Introduction to Social Psychology	PSY 102	3
Police Community & Human Relations	AJS 210	3
Intro. to Administration of Justice Systems	AJS 101	3
Understanding Children	ECE 116	3

*(4) For reading requirement see page 26.

*(5) SSE 134 is prerequisite to SSE 234.

*(6) A course must have the SSE prefix in order to be considered a Social Services elective.

*(7) SSE 199 and 199C are required for students seeking the Associate of Applied Science 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 (Substance Abuse Subspecialty)
Associate of Arts Degree
For Transfer*(1)

Required Courses (73)*(2)	**First Semester**	**Cr. Hrs.**
Introduction to Social Welfare	SSE 133*(3)	3
Writing I	WRT 101	3
Introduction to Psychology I	PSY 100	3
Electives*(4)		6
Drugs in American Society	SSE 115	3
Reading Requirement*(5)		
		18
	Second Semester	
Casework Methods I*(6)	SSE 134*(3)	3
Writing II	WRT 102	3
Introduction to Sociology	SOC 100	3
Electives*(4)		6
Political and Legal Aspects of Drug Use	SSE 127	3
		18
	Third Semester	
Group Work	SSE 235*(3)	3
Oral Communication	SPE 102	3
Casework Methods II*(6)	SSE 234*(3)	3
Electives*(4)		6
Treatment of the Drug Abuser	SSE 218	3
		18
	Fourth Semester	
Community Organization and Development	SSE 216*(3)	3
Electives*(4)		6
Social Service Elective*(7)		3
Introduction to Alcohol Abuse	SSE 116	3
Co-op Related in SSE*(8)	SSE 199	1
Co-op Work in SSE*(8)	SSE 199C	3
		19

Notes:

*(1) 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 or psychology;
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.

*(2) Some of the Substance Abuse Subspecialty courses and the Social Services electives may be offered only one semester a year.

*(3) Core Courses: D grades do not fulfill graduation requirement.

*(4) To meet General Education requirements, use the 24 hours of electives to include: 3 more credit hours of social and behavioral science; 8 hours of humanities/fine arts; 8 hours of math/science. See page 26.

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
Topics in Community Involvement	SOC 298	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 127	3
Introduction to Public Admin.	PAD 105	3
American National Government & Politics	POL 110	3
American State & Local Government & Politics	POL 111	3
Introduction to Cultural Anthropology	ANT 110	3
Crime & Delinquency	AJS 225	3

Social Services continued next page

Juvenile Justice Procedures	AJS	212	3
Current U.S. Social Problems	SOC	101	3
Drugs in American Society	SSE	115	3
Introduction to Social Psychology	PSY	102	3
Police Community & Human Relations	AJS	210	3
Intro. to Administration of Justice Systems	AJS	101	3
Understanding Children	ECE	116	3

*(5) For reading requirement see page 26.
*(6) SSE 134 is prerequisite to SSE 234.
*(7) A course must have the SSE prefix in order to be considered a Social Services elective.
*(8) SSE 199 and 199C are 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.

Solar Technician Program

Energy and Conservation
Basic Certificate
For Direct Employment

Required Courses (18-19)			**Cr. Hrs.**
The Sun and Solar Energy	SET	100*(1)	3
Solar Energy Fundamentals	SET	101*(1)	3
Energy Conservation	SET	201*(1)	3
Solar and Energy Assessment	SET	202*(1)	3
Air Conditioning Fundamentals	ACD	101	3
Elective*(2)			3-4
			18-19

*(1) Core Courses: D grades to not fulfill graduation requirement.
*(2) Choose the elective from one of the following: SML-110, DFT-112, CSC-100, ETR-112

Energy and Conservation
Installer Option
Advanced Certificate
For Direct Employment

Required Courses (33)			**Cr. Hrs.**
The Sun and Solar Energy	SET	100*(1)	3
Solar Energy Fundamentals	SET	101*(1)	3
Solar Design and Installation	SET	102*(1)	4
Solar Maintenance and Repair	SET	103*(1)	4
Uniform Plumbing Code & Application	SET	105*(1)	3
Sheet Metal I	SML	110	4
Air Conditioning Fundamentals	ACD	101	3
Applied Career Mathematics	MAC	103	3
Practical Communications or Writing (based on placement exam)	WRT	150	3
Fund. of Elect-Mech Blueprint	DFT	112	3
			33

*(1) Core Courses: D grades to not fulfill graduation requirement.

Energy And Conservation
Solar Technician Option
Associate of Applied Science Degree
For Direct Emplomeni

Required Courses (67-69)			**Cr. Hrs.**
The Sun and Solar Energy	SET	100*(1)	3
Solar Energy Fundamentals	SET	101*(1)	3
Solar Design and Installation	SET	102*(1)	4
Solar Maintenance and Repair	SET	103*(1)	4
Uniform Solar, Build & Elec Code	SET	104*(1)	3
Uniform Plumbing Code & Application	SET	105*(1)	3
Energy Conservation	SET	201*(1)	3
Solar and Energy Assessment	SET	202*(1)	3
Electronics for Technical Careers	ETR	112	3
Fund. of Elect-Mech Blueprint	DFT	112	3
Air Conditioning Fundamentals	ACD	101	3
Applied Career Mathematics	MAC	103	3
Sheet Metal I	SML	110	4
Air Conditioning Phase I	ACD	120	4
Technical Physics	PHY	101	3
Elective*(2)			3-4

Practical Communications or Writing (based on placement exam)	WRT 150	3
Technical Communication or Second Writing course in sequence	WRT 154	3
Mathematics*(3)	MTH	3
Humanities Elective*(3)		3-4
Social Science Elective*(3)		3
Reading Requirement*(4)		
		67-69

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Choose the elective from the following: CSC-100, ACD course, SML course, WLD-110.
*(3) See page 26 for Math/Science, Social Science and Humanities electives.
*(4) For reading requirement see page 26.

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.

Speech
Associate of Arts Degree
For Transfer

Suggested Semester Sequence (70)	**First Semester**	**Cr. Hrs.**
Introduction to Oral Communication	SPE 102*(1)	3
Forensics	SPE 125*(1)	1
Writing I	WRT 101	3
Foreign Language		4
Science/Math Elective*(2)		4
Elective		3
Reading Requirement*(3)		
		18

	Second Semester	
Public Speaking	SPE 110*(1)	3
Writing II	WRT 102	3
Foreign Language		4
Science/Math Elective*(2)		4
Introduction to Logic as a suggested elective	PHI 120	3

	Third Semester	
Voice and Diction	SPE 105*(1)	2
Humanities Elective*(4)		3-4
Introduction to Psychology I	PSY 100	3
Foreign Language		4
Introduction to Cultural Anthropology	ANT 110	3
		15-16

	Fourth Semester	
Oral Interpretation of Literature	SPE 136*(1)	3
Humanities Elective*(4)		3-4
Introduction to Psychology II	PSY 101	3
Foreign Language		4
Elective		3
		16-17

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) See page 26 for Science/Math electives.
*(3) For reading requirement see page 26.
*(4) 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.

Training for Special Education
Basic Certificate
For Direct Employment

Required Courses (16)	First Semester	Cr. Hrs.
Writing*(1)		3
Teaching Techniques	ECE 126*(2)	3
Behavior Modification Techniques for Special Education I	TSE 132	3
Introduction to Psychology I	PSY 100*(2)	3
American Sign Language I	SLG 101	4
		16

Notes:
*(1) Minimum writing competency level, WRT 101.
*(2) Core Courses: D grades to not fulfill graduation requirement.

Training for Special Education
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.
Understanding Children	ECE 116	3
Special Speech & Language Techniques*(2)	TSE 142*(1)	3
Techniques for Teaching Multiple Handicapped	TSE 130*(1)	3
Practicum	TSE 190*(1)	3
Math/Science Elective*(3)		3
Behavior Modification Techniques for Special Education II	TSE 150	3
		18

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Selected in consultation with a program advisor.
*(3) See page 26 for Math/Science elective.

Training for Special Education
Associate of Applied Science Degree

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 (64-65)	Third Semester	Cr. Hrs.
Communication Skills for Children	ECE 110*(1)	3
Math*(1)		3
Assessment, Instructional & Motivational Techniques	TSE 236*(2)	3
Characteristics of Learning Disabilities I	TSE 238*(2)	3
Humanities Elective*(3)		3-4
Reading Requirement*(4)		
		15-16

	Fourth Semester	
Writing*(5)		3
Characteristics of Learning Disabilities II	TSE 239*(2)	3
Techniques for Teaching Mentally Handicapped	TSE 240*(2)	3
Classroom Communication Skills	TSE 250*(2)	3
Practicum	TSE 290*(2)	3
		15

Notes:
*(1) Minimum math competency level, MTH 070.
*(2) Core Courses: D grades do not fulfill graduation requirement.
*(3) See page 26 for Math/Science and Humanities electives.
*(4) For reading requirement see page 26.
(5) Writing competency level, WRT 102(1).
*(6) 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 and specialty 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.

Transportation and Traffic Management
Basic Certificate
For Direct Employment

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

Transportation and Traffic Management
Advanced Certificate
For Direct Employment

Required Courses (36-37)	Second Semester	Cr. Hrs.
History of Regulation *(4)	TTM 103*(1)	3
Rates and Tariffs *(4)	TTM 104*(1)	3
Introduction to Business	BUS 100*(1)	3
Writing I or	WRT 101*(1)	
Practical Communications	WRT 150*(1)	3
Elective *(5)		3
Principles of Accounting	ACC 101	3
		18

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) Prerequisite: MTH 060
*(3) MKT 111, cooperative training, or 3 credit hours of transportation courses numbered 100 or less (if offered).
*(4) Prerequisites: TTM 101 and TTM 102 or consent of the instructor.
*(5) MAN 122, cooperative training, or 3 credit hours of transportation courses.

Transportation and Traffic Management continued next page

Transportation and Traffic Management
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
Communication Elective*(1)		3
Principles of Air Transportation	TTM 201	3
Reading Requirement*(3)		
		19
	Fourth Semester	
Humanities II	HUM 111	4
Business Finance	FIN 213	3
Social Science Elective *(1)		3
Principles of Motor Transportation	TTM 202*(2)	3
Physical Distribution Management	TTM 204*(2)	3
		16

Notes:
*(1) See page 26 for Communication and Social Science electives.
*(2) Core Courses: D grades do not fulfill graduation requirement.
*(3) For reading requirement see page 26.

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.

Wastewater Technology
Basic Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Introduction to Water & Wastewater Technology	WWT 101*(1)	3
Small Treatment Plants	WWT 103*(1)	1
Quality Monitoring	WWT 105*(1)	1
Hydraulics of Water	WWT 107*(1)	2
Technical Mathematics I	MTH 110*(1)	3
Practical Communications	WRT 150	3
Co-op Related Class in WWT	WWT 199*(1)	1
Co-op Work in WWT	WWT 199B*(1)	2
		16

Notes:
*(1) Core Course: D grades do not fulfill graduation requirement.

Wastewater Technology
Advanced Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Basic Certificate Requirements		16
Sewerage System Maintenance	WWT 110*(1)	1
Chemical Control Processes	WWT 112*(1)	1
Wastewater Plant Safety	WWT 114*(1)	1
Intermediate Biological Wastewater Treatment	WWT 115*(1)	3
Applied Chemistry in Water & Wastewater	WWT 203*(1)	2
Technical Communications	WRT 154*(1)	3
Supervision	MAN 122*(1)	3
Co-op Related Class in WWT	WWT 199*(1)	1
Co-op Work in WWT	WWT 199B*(1)	2
		33

Notes:
*(1) Core Course: D grades do not fulfill graduation requirement.

Wastewater Technology
Associate of Applied Science Degree
For Direct Employment

Required Courses (68)	**First Semester**	**Cr. Hrs.**
Introduction to Water & Wastewater Technology	WWT 101*(1)	3
Small Treatment Plants	WWT 103*(1)	1
Quality Monitoring	WWT 105*(1)	1
Hydraulics of Water	WWT 107*(1)	2
Technical Mathematics I	MTH 110*(1)	3
Practical Communications	WRT 150	3
Co-op Related Class in WWT	WWT 199*(1)	1
Co-op Work in WWT	WWT 199B*(1)	2
Reading Requirement*(2)		
		16
	Second Semester	
Sewerage System Maintenance	WWT 110*(1)	1
Chemical Control Processes	WWT 112*(1)	1
Wastewater Plant Safety	WWT 114*(1)	1
Intermediate Biological Wastewater Treatment	WWT 115*(1)	3
Technical Communications	WRT 154*(1)	3
Supervision	MAN 122*(1)	3
Co-op Related Class in WWT	WWT 199*(1)	1
Co-op Work in WWT	WWT 199B*(1)	2
Humanities Elective*(3)		3
		18
	Third Semester	
Advanced Biological Wastewater Treatment	WWT 201*(1)	3
Applied Chemistry in Water and Wastewater	WWT 203*(1)	2
Wastewater Collection Systems	WWT 209*(1)	3
Applied Chemical & Microbiological Analysis	WWT 215*(1)	3
Technical Mathematics II	MTH 120	3
Co-op Related Class in WWT	WWT 199*(1)	1
Co-op Work in WWT	WWT 299B*(1)	2
		17
	Fourth Semester	
Wastewater Treatment Processes	WWT 205*(1)	2
Wastewater Hydraulics	WWT 220*(1)	3
Physical-Chemical Sewage Treatment	WWT 225	3
Wastewater Treatment Plant & Collection System Design & Construction	WWT 235*(1)	3
Human Relations in Business and Industry	MAN 110*(1)	3
Co-op Related Class in WWT	WWT 299*(1)	1
Co-op Work in WWT	WWT 299B*(1)	2
		17

Notes:
*(1) Core Course: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for humanities electives.

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.

Welding
Basic Certificate
For Direct Employment

Required Courses		**Cr. Hrs.**
Oxyacetylene Welding	WLD 150*(1)	4
Arc Welding	WLD 160*(1)	4
Technical Drafting I	DFT 150	4
Technical Math I	MTH 110	3
Basic Metallurgy	MAC 130	3
Blueprint Reading	WLD 115*(1)	3
		21

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Welding continued next page

Welding
Technical Certificate
For Direct Employment

Required Courses		Cr. Hrs.
Oxyacetylene Welding	WLD 150*(1)	4
Arc Welding	WLD 160*(1)	4
Pipe Welding	WLD 250*(1)	4
Inert Gas Welding	WLD 260*(1)	4
Technical Drafting I	DFT 150	4
Technical Math I-II	MTH 110 120	6
Basic Metallurgy	MAC 130	3
Physical Metallurgy	MAC 135	3
Blueprint Reading	WLD 115*(1)	3
Practical Communications	WRT 150	3
Human Relations in Business	MAN 110	3
Machine Shop for Technicians I	MAC 110	4
Sheet Metal Pattern Layout I	SML 130	3
		48

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.

Welding
Associate of Applied Science Degree
For Direct Employment

Required Courses (69)	First Semester	Cr. Hrs.
Oxyacetylene Welding	WLD 150*(1)	4
Basic Metallurgy	MAC 130	3
Blueprint Reading	WLD 115*(1)	3
Technical Math I	MTH 110	3
Sheet Metal Pattern Layout I	SML 130	3
Reading Requirement*(2)		
		16
	Second Semester	
Arc Welding	WLD 160*(1)	4
Physical Metallurgy	MAC 135	3
Technical Drafting I	DFT 150	4
Technical Math II	MTH 120	3
Sheet Metal Pattern Layout II	SML 135	3
		17
	Third Semester	
Pipe Welding	WLD 250*(1)	4
Technical Physics I	PHY 101	3
Machine Shop for Technicians I	MAC 110	4
Sheet Metal Pattern Layout III	SML 210	3
Practical Communications	WRT 150	3
Humanities Elective*(3)		3
		20
	Fourth Semester	
Inert Gas Welding	WLD 260*(1)	4
Technical Physics II	PHY 102	3
Human Relations in Business	MAN 110	3
Air Conditioning Estimating I	ACD 250	3
Technical Communications	WRT 154	3
		16

Notes:
*(1) Core Courses: D grades do not fulfill graduation requirement.
*(2) For reading requirement see page 26.
*(3) See page 26 for humanities electives.

Youth Care

The program will offer an advanced certificate, an associate of applied science degree, and an associate of arts degree. 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
For Direct Employment

(33 units required)		**Cr. Hrs.**
Introduction to Youth Care	YCA 163*(1)	3
Effective Parenthood	ECE 114*(1)	3
Casework Methods II	SSE 234*(1)	3
Group Work	SSE 235*(1)	3
Youth Care Methods	YCA 263*(1)	3
Field Experience*(2)	YCA 290*(1)	3
Reading Requirement*(3)	REA	4
Writing I or	WRT 101	
Practical Communications	WRT 150	3
Speech Elective		3
First Aid	REC 121	2
Math/Science Elective*(4)		3-4
Total Units Required		33-34

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) Field Experience must be taken in the second semester.

*(3) For reading requirement see page 26. 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.

*(4) Math/Science elective must be chosen from any MTH course or CHM 110 or LSC 120.

Youth Care
Associate of Applied Science Degree
For Direct Employment

Required Courses (61-63)	**First Semester**	**Cr. Hrs.**
Introduction to Youth Care	YCA 163*(1)	3
Human Development or	ECE 107*(1)	
Child Development	ECE 117*(1)	3
Writing I or	WRT 101	
Practical Communications	WRT 150	3
Introduction to Psychology	PSY 100	3
Reading Requirement*(2)		
		12

	Second Semester	
Writing II or	WRT 102	
Technical Communications	WRT 154	3
Effective Parenthood or	ECE 114*(1)	
Child Abuse Intervention & Prevention	AJS 146*(1)	3
Casework Methods II	SSE 234*(1)	3
Field Experience	YCA 290	3
Speech Elective		3
Youth Care Methods	YCA 263*(1)	3
		18
	Third Semester	
Juvenile Justice Procedures	AJS 212*(1)	3
Group Work	SSE 235*(1)	3
Humanities I	HUM 110	4
Math/Science Elective*(3)		3-4
Elective		3
		16-17
	Fourth Semester	
Issues in Youth Care	YCA 264*(1)	3
Co-op Related Class in YCA	YCA 299	1
Co-op Work in YCA	YCA 299B	2
Math/Science Elective*(3)		3-4
Social Science Elective*(4)		3
Electives*(5)		3
		15-16

Notes:

*(1) Core Courses: D grades do not fulfill graduation requirement.

*(2) For reading requirement see page 26. 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.

*(3) Math/Science elective must be chosen from any MTH course or CHM 110 or LSC 120.

*(4) Satisfied from Sociology, Psychology or Anthropology.

*(5) Recommended Electives:

Program Planning & Organization	REC 114	3
First Aid	REC 121	2
Food Study	FSN 113	3
Introduction to Behavior Modification	PSY 104	3
Crisis Intervention	SSE 236	3
Drugs in American Society	SSE 115	3

Youth Care continued next page

Introduction to Social Welfare	SSE 133	3
Normal Personality I	PSY 103	3
Introduction to Alcohol Abuse	SSE 116	3
Child Abuse Intervention and Protection	AJS 146	3
Understanding Children	ECE 116	3
Conversational Spanish I	SPA 050	4
Crime and Delinquency	AJS 260	3
Techniques for the Special Child	ECE 111	3
Defensive Tactics	AJS 012	2

Youth Care Rehabilitation
Transfer Option
Associate of Arts Degree

Required Courses (67)*(1)	**First Semester**	**Cr. Hrs.**
Writing I	WRT 101	3
Psychology I	PSY 100	3
Introduction to Youth Care	YCA 163*(2)	3
Child Development	ECE 117*(2)	3
Introduction to Speech or Business/Professional Communication	SPE 102 or SPE 120	3
Reading Requirement*(3)		
		15
	Second Semester	
Writing II	WRT 102	3
Psychology II	PSY 101	3
Math Elective*(4)	MTH	3
YCA Field Experience	YCA 290	3
Casework Methods II	SSE 234*(2)	3
Child Abuse: Intervention & Prevention or Effective Parenthood	AJS 146*(2) or ECE 114*(2)	3
		18
	Third Semester	
Behavior Modification	PSY 104	3
Humanities or option *(5)		4
Human Anatomy and Phys. I*(6)	LSC 120	4
Group Work	SSE 235*(2)	3
Youth Care Methods	YCA 263*(2)	3
		17

	Fourth Semester	
Social Science elective*(7)		3
Humanities or option *(5)		4
Human Anatomy & Phys. II*(6)	LSC 121	4
Issues in Youth Care	YCA 264*(2)	3
Juvenile Justice Procedures	AJS 212*(2)	3
		17

Notes:

*(1) These courses are required. Their arrangement by semester as specified below is not required. The student should be careful, however, to satisfy any prerequisities before taking a more advanced course. See an advisor.

*(2) Core Courses: D grades do not fulfill graduation requirement.

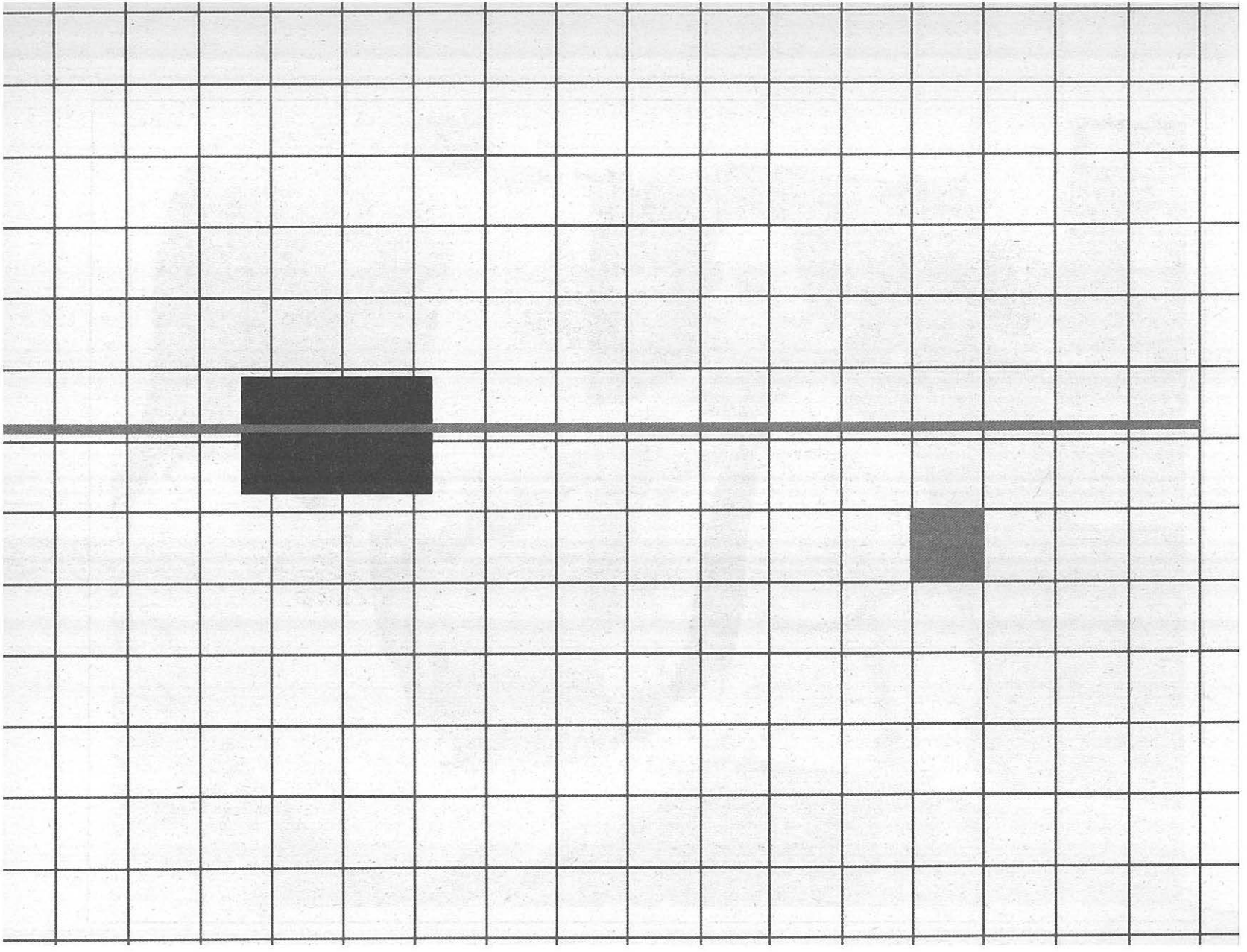
*(3) A strong reading background is helpful in this program. Students are required to achieve a minimum score of 12th grade reading proficiency as determined by the reading department in order to receive an AA degree in this program. The student is urged to take the reading test at the beginning of the program and to correct any reading deficiency early in the program.

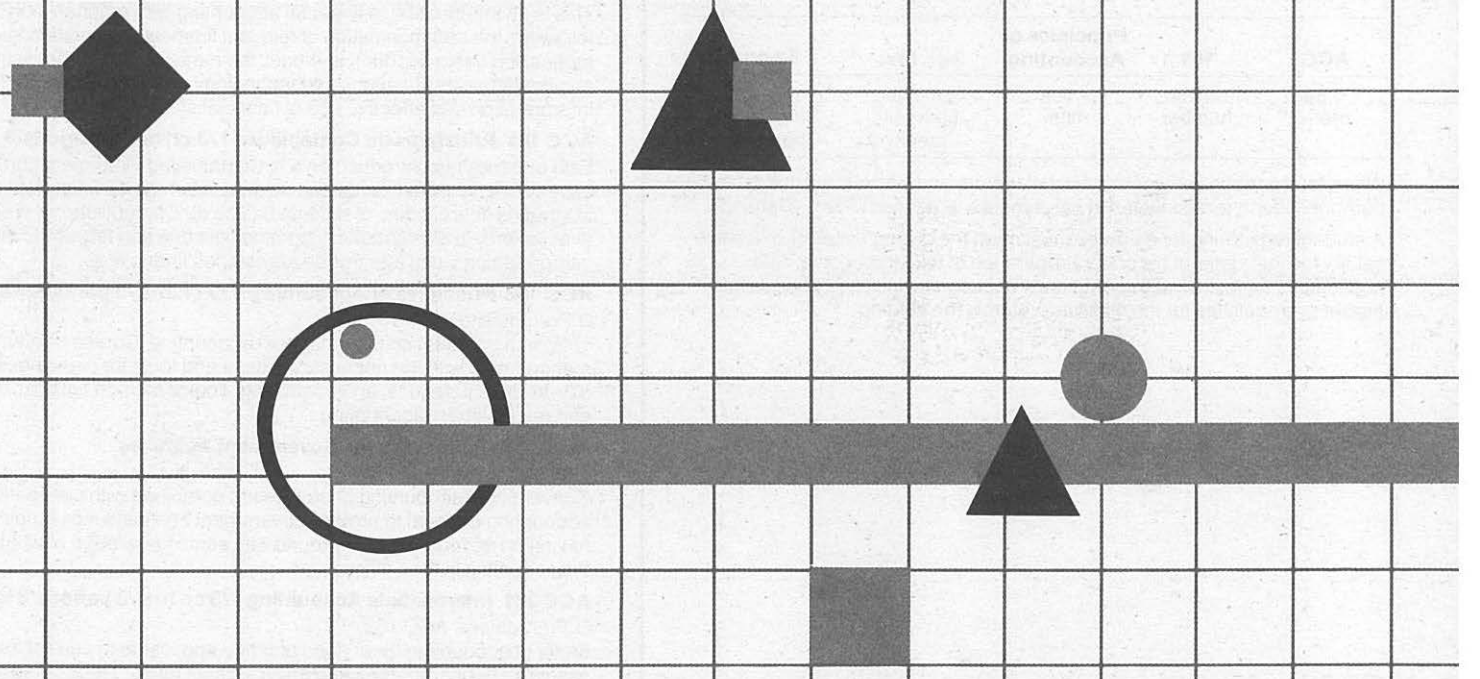
*(4) In order to count as a transferable course, this math elective must be Algebra II, MTH 130, or above. The student is urged to take this course if it was not taken in high school. Algebra II (MTH 130) will be helpful as a background course for upper division statistical methods course.

*(5) See page 26 for description of acceptable Humanities options.

*(6) Prior to taking LSC 120, 121, students should either have had Chemistry in high school or taken Fundamentals of Chemistry (CHM 110) at either Pima or another college. The student is urged to correct any deficiency in this area during this semester. See page 26.

*(7) Require 3 units from Anthropology, Psychology, or Sociology, in addition to PSY 100 and 101. Choose transferable courses. See an advisor.





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 050 Practical Accounting Procedures/3 cr. hrs./3 periods/3 lec.
This course provides a practical approach to the study of accounting for office, sales, and small business personnel. It includes the basic accounting cycle, the use of special journals, procedures for controlling cash, and payroll accounting. Accounting systems and procedures for small businesses are stressed.

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, concurrent enrollment, 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 102 Peace Officer Certification I /4 cr. hrs./4 periods/4 lec.
Part A of basic entry level training program for reserve peace officers leading to certification by Arizona Law Enforcement Officers Advisory Council (ALEOAC) Governor's Office as limited reserve officer (LRO). Subjects to include Introduction to Law Enforcement, Law and Legal Matters, Police Proficiency Skills. For admission to program student must comply with ALEOAC employment standards for peace officers. They must be sponsored by a law enforcement agency recognized by ALEOAC.

AJS 103 Peace Officer Certification II /4 cr. hrs./4 periods/4 lec.
Part B of basic entry level training program for reserve peace officers leading to certification by the Arizona Law Enforcement Officers Advisory Council (ALEOAC) Governor's Office, as a limited reserve officer (LRO). Subjects to include Basic Patrol Procedures, Basic Traffic Control, Basic Accident Investigation, Police Proficiency Skills. For admission to program student must comply with ALEOAC employment standards for peace officers. They must be sponsored by a law enforcement agency recognized by ALEOAC.

AJS 104 Peace Officer Certification III /4 cr. hrs./4 periods/4 lec.
Part C of basic entry level training program for reserve peace officers leading to certification by the Arizona Law Enforcement Officers Advisory Council (ALEOAC) Governor's Office, as limited reserve officer (LRO). Subjects to include Basic Criminal Investigation, Basic Community and Police Relations, Records, Reports, and Police Proficiency Skills. For admission to program, students must comply with ALEOAC employment standards for peace officers. They must be sponsored by a law enforcement agency recognized by ALEOAC.

AJS 106 Traffic Safety Functions—Vehicle Code 3 cr. hrs./3 periods/3 lec.
Traffic law enforcement and the police officer'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 109 Criminal Law/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 115 Criminal Procedures/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: AJS 101, concurrent enrollment, or consent of instructor.
Understanding the system used in the U.S. to administer criminal cases; implications of civil rights, the police process; the prosecuting attorney; the defense attorney; courts; grand jury; trial jury; coroner-medical examiner; judicial process; the trial and its aftermath.

AJS 123 Corrections As A System/3 cr. hrs./3 periods/3 lec.
An overview of corrections as a system and as a part of the justice process. It will include history, theories, systems of operations in corrections, analysis of the objectives of correctional administration, relevant law, and public relations.

Administration of Justice continued next page

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 REC 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 201 Rules of Evidence/3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: AJS 109, concurrent enrollment, 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 204 Criminal Investigation and Report Preparation
3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: AJS 109, concurrent enrollment, 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, crime prevention 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 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 225 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 240 Detention Supervision Methods/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: Second year major in AJS or corrections, AJS 101, concurrent enrollment, 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 Treatment of the Offender: Institutional and Field 3 cr. hrs./3 periods/3 lec.
□ Prerequisite: AJS 101, concurrent enrollment and/or consent of instructor.
The philosophy and history of correctional services; a survey of correctional models by type and function; institutional treatment; parole operations and community based treatment; special treatment programs.

AJS 273 Crime Scene Technology II /3 cr. hrs./3 periods/3 lec.
□ Prerequisite: AJS 218 or consent of instructor.
Advanced procedures in scientific identification of evidence, crime scene recording, collecting and preserving evidence; police photography.

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.

AJS 299 Co-op Related Class in AJS/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

AJS 299A-C Co-op Work in AJS/1-3 cr. hrs./5-15 periods/5-15 lab
A supervised work program for students in an occupation related to their program of study.

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 Advertising Drawing I /3 cr. hrs./5 periods (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 105 Airbrush Techniques/3 cr. hrs./5 periods (2 lec., 3 lab)
The use and application of the airbrush for the advertising art field.

ADA 106 Advertising Drawing II /3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisite: ADA 103.
Application of Drawing I basics will be applied to a variety of compositions. The principles of head drawing will also be covered.

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)
□ Prerequisite: MTH 060 or equivalent or concurrent enrollment.
Basic skills in preparing artwork for printing. Areas covered are inking, paste-up, typespecing, copy fitting, photo-sizing, photo-cropping, statmaking, keyline and overlay cutting for areas of color.

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 199 Co-op Related Class in ADA/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

Advertising Art continued next page

ADA 199A-E Co-op Work in ADA/ 1-8 cr. hrs./5-40 periods/5-40 lab
A supervised cooperative work program for students in an occupation related to their program of study.

ADA 205 Advertising Drawing III /3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisite: ADA 106.
Proportions, light, shading, form and anatomy of the human figure are covered.

ADA 207 Advertising Drawing IV /3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisite: ADA 205
Compositions of a variety of products rendered in colored markers as required in a layout.

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 and MTH 060 or an understanding of fractions and decimals and instructor permission.
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.

ADA 299 Co-op Related Class in ADA/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

ADA 299A-E Co-op Work in ADA/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

AIR CONDITIONING

ACD 101 Air Conditioning Fundamentals/3 cr. hrs./3 periods/3 lec.
Air properties and controls, refrigeration cycle, component selection, measurements and air and environmental problem solving techniques.

ACD 120 Air Conditioning Phase I /4 cr. hrs./6 periods (3 lec., 3 lab)
□ Prerequisite: ACD 101 or concurrent enrollment 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 199 Co-op Related Class in ACD/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

ACD 199A-E Co-op Work in ACD/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised cooperative work program for students in an occupation related to their program of study.

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.
Multi-zone and single-zone rooftop equipment and controls, heat load calculation, air-volume requirements, and duct size and design.

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.

ACD 299 Co-op Related Class in ACD/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

ACD 299A-E Co-op Work in ACD/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

AIRCRAFT MANUFACTURING TECHNOLOGY

AMT 100 Aircraft Harness Assembly/3 cr. hrs./4 periods (2 lec., 2 lab)
This course includes information on aircraft maufacturing engineering standards for soldering and mechanical bonding of wires and electrical connectors utilized in the production of high performance aircraft. Students learn the theory and application of various bonding techniques and the production of wire bundles and their connectors. A laboratory develops students' skills to the standards established by the engineering department.

AMT 110 Aircraft Sheetmetal I /4 cr. hrs./6 periods (3 lec., 3 lab)
Students learn to lay out and fabricate metal items for aircraft manufacutiring fittings under proper instruction given on the use of hand and machine tools.

AMT 120 Aviation Basic Electricity/3 cr. hrs./3 periods/3 lec.
This course provides the student withg the knowledge of direct and alternating current electrical systems in aircrafts. Included is electron theory, common circuit design, the use of Ohms law in understnaidng aircraft schematics and the basic techniques of troubleshooting aircraft D.C. elecrical systems.

AMT 150 Aircraft Electrical Systems/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: AMT 120 or permission of the instructor.
This course provides the student with a knowledge of aircraft power generation, generation controls and power distribution systems. It also includes and covers troubleshooting of aircraft systems.

AMT 170 Basic Avionics Systems/3 cr. hrs./3 periods/3 lec.
This course is designed to teach the operation of currently utilized avionics equipment. This course will include communications and navigation equipment, such as VHF, HF, SECAL, VOR, ADF, DME, ILS, Radar, Flight Directors, VLF Omega, glide slope, transponders, marker beacons, area navigation and autopilot systems.

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. (Same as ARC 100.)

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 traditional cultures.

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 HIS 122.)

ANT 123 The Anthropology of Music and Dance
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 HIS 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.)

Anthropology continued next page

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 Introduction to Southwestern Prehistory
3 cr. hrs./5 periods (2 lec., 3 lab)
The prehistory of the Southwest from its earliest inhabitants to European contact. Field trips are included. (Same as ARC 141.)

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 HIS 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 HIS 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 HIS 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 HIS 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. (Same as LSC 200.)

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 215 Esencia de lenguaje/3 cr. hrs./3 periods/3 lec.
Una introducción a los conceptos básicos de la lingüística y sus implicaciones para el estudio de la cultura humana.

ANT 225 Archaeology/3 cr. hrs./3 periods/3 lec.
A survey of the concepts and methods which archaeologists use to reconstruct human prehistory. (Same as ARC 225.)

ANT 250 Archaeology Laboratory/3 cr. hrs./7 periods (1 lec., 6 lab)
Laboratory experience in processing, preparation and analysis of excavated materials. (Same as ARC 250.)

ANT 275 Archaeological Field Methods
3 cr. hrs./9 periods/9 lab
An introduction to the techniques of archaeological mapping, excavation, and recording. Includes archaeological field experience in this area. (Same as ARC 275.)

ANT 276 Archaeological Exploration I /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. (Same as ARC 276.)

ANT 277 Advanced Archaeological Excavation
3 cr. hrs./9 periods/9 lab
□ Prerequisites: ANT 100 or ANT 141, ANT 275, or consent of instructor.
Scientific excavation of an archaeological site. Emphasis is on excavation procedures, specialized equipment, recording of information and conservation of cultural resources. Includes field work in this area. (Same as ARC 277.)

ANT 278 Archaeological Exploration II /3 cr. hrs./9 periods/9 lab
□ Prerequisite: ANT 276 or consent of instructor.
A continuation of ANT 276 with an emphasis on use of field instruments and selected field projects. (Same as ARC 278.)

ANT 280 Field Projects/3 cr. hrs./9 periods/9 lab
□ Prerequisite: Consent of instructor.
In-depth involvement with field projects in one of the subfields of anthropology. (Same as ARC 280.)

ANT 296 Individual Studies/1-3 cr. hrs./1-3 periods
The student independently pursues his or her further development in anthropology with the help of a faculty member. May be repeated for credit two times. (Same as ARC 296.)

ARCHAEOLOGY

ARC 075 Field Archaeology/3 cr. hrs./3 periods/9 lab
Participation in archaeological field activities. This is a non-technical course with an emphasis on local field work.

ARC 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. (Same as ANT 100.)

ARC 141 Introduction to Southwestern Prehistory 3 cr. hrs./5 periods (2 lec., 3 lab)
The prehistory of the Southwest from its earliest inhabitants to European contact. Field trips are included. (Same as ANT 141.)

ARC 225 Archaeology/3 cr. hrs./3 periods/3 lec.
A survey of the concepts and methods which archaeologists use to reconstruct human prehistory. (Same as ANT 225.)

ARC 250 Archaeology Laboratory/3 cr. hrs./7 periods (1 lec., 6 lab)
Laboratory experience in processing, preparation and analysis of excavated materials. (Same as ANT 250.)

ARC 275 Archaeological Field Methods 3 cr. hrs./9 periods/9 lab
An introduction to the techniques of archaeological mapping, excavation, and recording. Includes archaeological field experience in this area. (Same as ANT 275.)

ARC 276 Archaeological Exploration I /3 cr. hrs./9 periods/9 lab
□ Prerequisite: ARC 100 or 141, ARC 275 or consent of instructor.
Techniques and methods for recognizing, locating and recording of archaeological sites. Includes fieldwork in this area. (Same as ANT 276.)

ARC 277 Advanced Archaeological Excavation 3 cr. hrs./9 periods/9 lab
□ Prerequisites: ARC 100 or ARC 141, ARC 275, or consent of instructor.
Scientific excavation of an archaeological site. Emphasis is on excavation procedures, specialized equipment, recording of information and conservation of cultural resources. Includes field work in this area. (Same as ANT 277.)

ARC 278 Archaeological Exploration II /3 cr. hrs./9 periods/9 lab
□ Prerequisite: ARC 276 or consent of instructor.
A continuation of ARC 276 with an emphasis on use of field instruments and selected field projects. (Same as ANT 278.)

ARC 280 Field Projects/3 cr. hrs./9 periods/9 lab
□ Prerequisite: Consent of instructor.
In-depth involvement with field projects in one of the subfields of anthropology. (Same as ANT 280.)

ARC 296 Individual Studies/1-3 cr. hrs./1-3 periods
The student independently pursues his or her further development in anthropology with the help of a faculty member. May be repeated for credit two times. (Same as ANT 296.)

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 semiprecious materials. (Same as ESC 060.)

ART 065 Advanced Lapidary/3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisite: ART 060.
The further development of lapidary skills by using advanced lapidary techniques through the study and creation of works of art using semiprecious 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 Introduction to Sculpture/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 I /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 continued next page

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 papermaking, 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 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. (Same as DES 211)

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)
☐ Prerequisites: 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 contempory 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 Metalwork II: Smithing & Casting
3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisite: 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 008 Artesánia y tejidos/2 cr. hrs./4 periods (1 lec., 3 lab)
Ningún requisito - Estudio del mácrame, trábajos de punto, crochete, y borbado de tapiseria. También se incluyen trabajos artísticos de masa.

APD 009 Introduction to Freehand Sketching
2 cr. hrs./4 periods (1 lec., 3 lab)
Basic course in beginning freehand sketching for interested persons with little or no previous art experience. Not a transfer course; not designed for art majors.

APD 010-064 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 Painting: Oil/Acrylics/Mixed Media

APD 015 Applied Sketching Techniques
2 cr. hrs./4 periods (1 lec., 3 lab)
Reviews fundamental elements of freehand drawing as well as advanced techniques and concepts. Not a transfer course; not designed for art majors.

APD 016 Advanced Painting: Oil, Acrylics, Mixed Media
2 cr. hrs./4 periods (1 lec., 3 lab)
□ Prerequisite: APD 014, Painting: Oil, Acrylics, Mixed Media, or consent of instructor.
A studio course designed to deal with basic techniques and processes in painting with various media.

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.

Art for Personal Development continued next page

APD 020 Ceramics

APD 021 Portrait and Figure Painting/2 cr. hrs./4 periods (1 lec., 3 lab)
A comprehensive course introducing the fundamentals of portrait and figure painting in a choice of media. Live models, photos, and sketches will be used.

APD 022 Weaving I

APD 023 Weaving II /2 cr. hrs./4 periods (1 lec., 3 lab)
□ Prerequisite: APD 022.
Students learn the on and off loom weaving techniques. A study is made of man-made and natural fibers, their characteristics, and working properties.

APD 024 Sculpture

APD 025 Advanced Portrait and Figure Painting
2 cr. hrs./4 periods (1 lec., 3 lab)
□ Prerequisite: APD 021, Portrait and Figure Painting
A continuing study of the human figure and portrait employing drawing and painting methods in the medium of your choice.

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 033 Weaving III: Fiber Art/2 cr. hrs./4 periods (1 lec., 3 lab)
An extension of APD 023, Weaving II. Development of skills and techniques in fiber art such as three-dimensional weaving, sculptural form, felting, crochet, and advanced basketry, all using principles of color and design.

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 035 Beginning Illustration/3 cr. hrs./5 periods (2 lec., 3 lab)
A beginning course in illustration with emphasis on composition and technique. A wide range of subject matter and mediums (pencil, colored pencil, pen and ink, watercolor, designers gouache, markers, acrylics and oils) will be covered. May be repeated once for credit.

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 III (Creative Baking 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 charreria. 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 e structura del flamenco y su música. También se incluyen melodías clásicas y ejercicios para coordinación propia y el desarrollo de ambas manos, izquierda y derecha.

APD 065 Watercolor I /2 cr. hrs./4 periods (1 lec., 3 lab)
A course designed to introduce methods of watercolor in a manner in which imagination and creativity will be expanded. Basic watercolor techniques will be explored.

APD 066 Watercolor II /2 cr. hrs./4 periods (1 lec., 3 lab)
□ Prerequisite: APD 065, Watercolor I, or consent of instructor.
Water media techniques (any water-based media on paper) for beginning and intermediate painters. Personal creativity, color theory, and composition will be stressed.

APD 067 Watercolor III /2 cr. hrs./4 periods (1 lec., 3 lab)
□ Prerequisite: APD 065, Watercolor I, or consent of instructor.
A comprehensive course introducing the fundamentals of landscape painting in water media of your choice. Students will also learn how to use photos and sketches as a source for creativity.

APD 068 Watercolor IV /2 cr. hrs./4 periods (1 lec., 3 lab)
□ Prerequisite: APD 065, Watercolor I, or consent of instructor.
Exploring design and composition with basic and advanced techniques in water media. Introduction of the stroke technique.

ASTRONOMY

AST 050 Project Universe/3 cr. hrs./3 periods/3 lec.
A basic introduction to the evolving science of astronomy for general interest. The origin, characteristics and evolution of the solar system, the stars, the galaxies, and the universe are covered. Should not be taken as a liberal arts science requirement for transfer.

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

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.

Automotive Technology continued next page

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 126 Emission Certification Training/1 cr. hr./1 period/1 lec.
Technician training for emission system and adjustment using Arizona certified infra-red exhaust analyzer in preparation for Arizona certification examination.

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 199 Co-op Related Class in AUT/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

AUT 199A-E Co-op Work in AUT/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised cooperative work program for students in an occupation related to their program of study.

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.

AUT 299 Co-op Related Class in AUT/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

AUT 299A-E Co-op Work in AUT/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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 Mechanics/6 cr. hrs./8 periods (4 lec., 4 lab)
☐ Prerequisite: 30 months of 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, structural repair and basic electricity.

AVM 221 Airframe Systems and Components 6 cr. hrs./8 periods (4 lec., 4 lab)
☐ Prerequisite: 30 months of experience concurrently performing the duties of airframe and 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 of experience concurrently performing the duties of airframe and powerplant maintenance; or 18 months of experience 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.

BUSINESS

BUS 050 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 051 Mathematics of Business/3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: MTH 060 or equivalent math skills.
Basic mathematical procedures are applied to business problems. Includes mark-up, payroll, simple and compound interest.

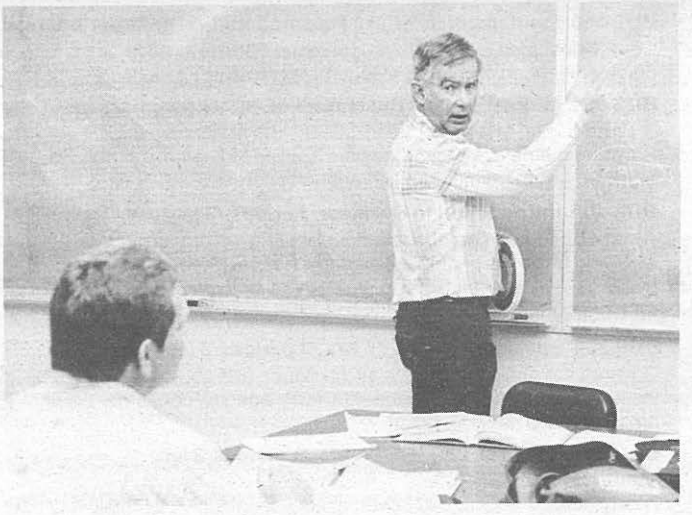
BUS 100 Introduction to Business/3 cr. hrs./3 periods/3 lec.
A survey of fundamental characteristics and functions of modern business involving business principles, marketing, record keeping and risks; and an historical review of business development including the viewpoint of various ethnic groups.

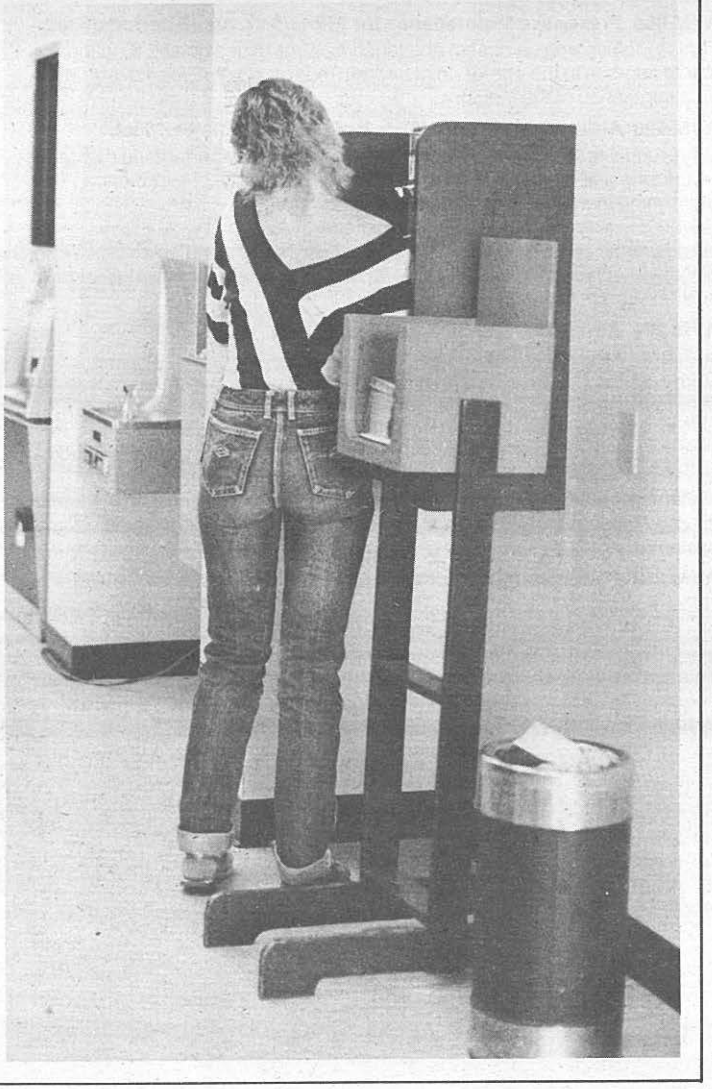
BUS 200 Business Law I /3 cr. hrs./3 periods/3 lec.
Covered are such legal topics as the nature and sources of business law, the judicial system, law of contracts, torts, agency, consumer credit protection and sales.

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, probability and probability distributions, the normal distribution, testing and hypothesis, the Chi-square distribution, and regression and correlation analysis.

Business continued on page 173





BUS 206 Statistical Methods in Economics and Business II
3 cr. hrs./3 periods/3 lec.

☐ Prerequisite: BUS 205.

Continuation of BUS 205. Covers analysis of variance, sampling, statistical quality control. Bayesian decision-making, non-parametric statistics, multiple and non-linear regression, time series, and index numbers.

BUS 295 Business Seminar I /1 cr. hr./1 period/1 lec.

This is a laboratory portion of the Business Administration program in which credit is given for working in an approved training station. Students must work an average of 15 hours each week and will be supervised and evaluated by a supervisor and the teacher/coordinator.

BUS 296 Business Seminar II /1 cr. hr./1 period/1 lec.

This is a laboratory portion of the Business Administration program in which credit is given for working in an approved training station. Students must work an average of 15 hours each week and will be supervised and evaluated by a supervisor and the teacher/coordinator.

CHEMISTRY

CHM 101 Introductory Chemistry I /5 cr. hrs./7 periods (4 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 /5 cr. hrs./7 periods (4 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
5 cr. hrs./7 periods (4 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./7 periods (4 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 /5 cr. hrs./7 periods (4 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 150 Electronic Industrial Chemistry
4 cr. hrs./6 periods (3 lec., 3 lab)

☐ Prerequisites: MRE 100, CHM 110 or CHM 120.

This course is designed for students interested in microelectronic technology. Emphasis is placed on material properties (thermal and electrical resistivity, coefficient of expansion, heat capacity, chemical reactivity, mechanical strength), use and location of published references, safety in use of materials, polymer formation, plating methods and problems, cleaning methods and clean room principles. Some materials to be studied are ceramics, glasses, solders, polymers, and a special listing of materials (gold, silver, platinum, palladium, ruthenium, copper, nickel, kovar, silicon) which are required to fabricate microelectronic circuits.

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 are classes stressed in the first semester.

CHM 241 Organic Chemistry II /4 cr. hrs./6 periods (3 lec., 3 lab)

☐ Prerequisite: CHM 240 or consent of instructor.

A continuation of CHM 240 with emphasis shifting to synthesis and the use of instrumentation as a means of identification. The remaining classes or organic compounds are discussed.

COMPUTER SCIENCE

CSC 090 The Microcomputer as a Tool for Personal Records
1 cr. hr./1.5 periods (1 lec., .5 lab)
The basics of computer operation and single programming. The emphasis is on using the computer as a resource for keeping home records, bank statements, financial records, inventory, insurance inventories, stock and bond records.

CSC 092 The Microcomputer: Applications for the Classroom Instructor I /1 cr. hr./1.5 periods (1 lec., .5 lab)
The basics of computer operation and simple programming. The emphasis will be to teach educators techniques of programming the microcomputer to supplement classroom instruction. A survey of commercially prepared teaching packets will be made.

CSC 094 The Microcomputer: Applications for the Classroom Instructor II /1 cr. hr./1.5 periods (1 lec., .5 lab)
Programming microcomputer techniques. Special emphasis will be in assisting teachers to develop programs for instructional units.

CSC 096 The Microcomputer as a Tool for Small Business
1 cr. hr./1.5 periods (1 lec., .5 lab)
This course teaches the basics of computer operation and simple programming. The emphasis will be on using the computer to control and report, inventory, cash flow, personnel records, payroll, capital depreciation, and recordkeeping.

CSC 098 Supervised Independent Microcomputer Programming
1 cr. hr./1.5 periods (1 lec., .5 lab)
Assists students in developing individual programs.

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 Microcomputer Uses
3 cr. hrs./4 periods (3 lec., 1 lab)
An overview of microcomputer uses with emphasis on hardware, how computers are used as tools in business, the home, education and the social and natural sciences, and application software evaluation. 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 buttered devices and key punch machines. Emphasis on low error rate production.

CSC 110A Introductory Diskette Operations
1 cr. hr./1.4 periods (1 lec., .4 lab)
☐ Prerequisite: Some typing ability needed, speed not essential.
Introduces the student to the diskette method of computer input, and develops operational skills and procedures.

CSC 110B Introductory 129 Operations
1 cr. hr./1.4 periods (1 lec., .4 lab)
☐ Prerequisite: Some typing ability needed, speed not essential.
Introduces the student to the card method of computer input and develops operational skills and procedures.

CSC 110C Diskette and/or 129 Performance
1 cr. hr./1.4 periods (1 lec., .4 lab)
☐ Prerequisite: CSC 110A and/or CSC 110B or consent of instructor.
Operational skills and procedures developed in A and/or B are used to produce diskette and/or card data in computer usable form.

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 115A Advanced Diskette Operations
1 cr. hr./1.4 periods (1 lec., .4 lab)
☐ Prerequisite: CSC 110A & 110C.
Increases skill in the operation of the 3742 and an introduction to the 3741. Includes operational procedures improved skills and efficiency, making a program diskette with permanent programs, and the use of the operators manual.

CSC 115B Advanced 129 Operations
1 cr. hr./1.4 periods (1 lec., .4 lab)
☐ Prerequisite: CSC 110B & 110C.
Increases skill in the operation of the 129 data recorders. Includes programming, keying, and verifying data.

CSC 115C Accuracy and Speed Building in Data Entry Operations
1 cr. hr./1.4 periods (1 lec., .4 lab)
☐ Prerequisite: CSC 110A & 110C or CSC 110B & 110C.
Operational skills and procedures are used to increase the production level by building accuracy and speed to produce diskette and/or card data in computer usable form.

CSC 120 Data Entry Problems/2 cr. hrs./3 periods (1 lec., 1 lab)
☐ Prerequisite: CSC 115
Set up, keying, verifying, recordkeeping, printing and recycling procedures for diskette and terminal type data entry equipment.

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, system 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 180 Programming in BASIC/3 cr. hrs./4 periods (3 lec., 1 lab)
☐ Prerequisite: CSC 100 or permission of instructor.
This is an advanced course in the BASIC language. The student will need to be able to program in BASIC on the introduction level before enrollment. Advanced programming techniques will be taught including matrix, file handling, business applications, simulations, turn-key application, structured design, documentation, etc.

CSC 190 Programming in PASCAL/3 cr. hrs./4 periods (3 lec., 1 lab)
☐ Prerequisite: CSC 100.
This is structured programming language. The student will write many programs in PASCAL via hands-on computer instructional techniques. The application that will be programmed will be selected from both the business and scientific world. The language will be compared to other high-level languages for the student's benefit.

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 Language 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 199 Co-op Related Class in CSC/1 cr. hr./1 period/1 lec.
Introduction to Cooperative education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

CSC 199A-E Co-op Work in CSC/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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.

Computer Science continued next page

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, subroutine 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)

☐ Prerequisites: 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.

CSC 299 Co-op Related Class in CSC/1 cr. hr./1 period/1 lec.

Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

CSC 299A-E Co-op Work in CSC/1-8 cr. hrs./5-40 periods/5-40 lab

A supervised work program for students in an occupation related to their program of study.

COOPERATIVE EDUCATION

CED 199 Co-op Related Class in Liberal Arts
1 cr. hr./1 period/1 lec.

☐ Co-Requisite: CED 199 A, B, C, D, or E

Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

CED 199A-E Co-op Work in Liberal Arts
1-8 cr. hrs./5-40 periods/5-40 lab

☐ Co-Requisite: CED 199

A supervised cooperative work program for students in an occupation related to their program of study.

CED 299 Co-op Related Class in Liberal Arts
1 cr. hr./1 period/1 lec.
□ Co-Requisite: CED 299 A, B, C, D, or E
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

CED 299A-E Co-op Work in Liberal Arts
1-8 cr. hrs./5-40 periods/5-40 lab
□ Co-Requisite: CED 299
A supervised work program for students in an occupation related to their program of study.

DENTAL ASSISTING

DAT 060 Orientation to Dental Care/1 cr. hr./1 period/1 lec.
□ Prerequisite: Consent of program coordinator.
Course introduces the student to the dental health team, ethics, jurisprudence and professional organizations.

DAT 061 Biomedical Dental Science/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: Consent of program coordinator.
Introduction to the biosciences as they relate to the oral cavity; anatomy, physiology, histology, microbiology and how nutrition affects total dental health.

DAT 062 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 063 Oral Radiography/3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisite: Consent of program coordinator.
Students learn the importance of dental roentgenography as a diagnostic aid; develop knowledge of safety factors when exposing radiograms; learn to expose, process, mount, label and file radiographs, and learn to recognize radiographs that are acceptable for diagnosis.

DAT 064 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 065 Pre-Clinical Procedures/2 cr. hrs./6 periods/6 lab
□ Prerequisite: Consent of program coordinator.
The basic procedures of chairside assisting in general and specialty dental practices are studied and performed.

DAT 066 Dental Assisting II /3 cr. hrs./3 periods/ 3 lec.
□ Prerequisite: Satisfactory completion of DAT 060 through 065.
A study of pharmacology and therapeutics; and emergency medical/dental care.

DAT 067 Dental Assisting III /3 cr. hrs./3 periods/ 3 lec.
□ Prerequisite: Satisfactory completion of DAT 061 through 065.
Provides the principles and application of practice management and oral health education.

DAT 068 Clinical Procedures/8 cr. hrs./24 periods/24 lab
□ Prerequisite: Satisfactory completion of DAT 061 through 065.
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.

Dental Laboratory Technology continued next page

DLT 104 Dental Laboratory I /3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisites: 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 ivorine blocks, set up to occlusion.

DLT 105 Partial Denture Construction/4 cr. hrs./12 periods (lab)
□ Prerequisites: DLT 101, 102, 103.
Construction of wrought metal lingual bars and clasps; investing and soldering techniques of bilateral appl'ances; 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/12 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 bridg es of various designs utilizing metal, porcelain and plastic, separately or in conjunction with one another.

DLT 204 Dental Laboratory III /3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisites: DLT 201, 202, 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)
□ Prerequisites: 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/6 lab
□ Prerequisites: 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 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. Course may be taken two times for a maximum of six credits.

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. (Same as ART 211)

DES 222 Advanced Commerical Graphics/4 cr. hrs./3 lec./3 lab
□ Prerequisite: DES 211, Commerical Graphics
Continued graphic design and development of production skills including the preparation of mechanical artwork for printing. Portfolio preparation will be emphasized.

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 299 Co-op Related Class in DES/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

DES 299C Co-op Work in DES/3 cr. hrs./15 periods/15 lab
A supervised work program for students in an occupation related to their program of study.

DRAFTING

DFT 101 Blueprint Reading and Sketching
4 cr. hrs./5 periods (3 lec., 2 lab)
Course involves reading blueprints and freehand technical sketching in orthographics, lettering, sections and auxiliaries, dimensioning, manufacturing operations and tolerance of position and form.

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 and 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/3-9 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. hrs./6 periods (3 lec., 3 lab)
The student proceeds through problems he/she will meet in his/her 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.

Drafting continued next page

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 drawing. 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. Drawings are prepared concurrently with the study of related shop practices, mathematics, geometry, materials and basic tools of jig and fixture fabrications.

DFT 154 Electronic Drafting/4 cr. hrs./6 periods (3 lec., 3 lab)
☐ Prerequisites: 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—ANS 6 14.5—and many commercial firms).

DFT 170 Microelectronic Drafting/4 cr. hrs./6 periods (3 lec., 3 lab)
Students are introduced to the fundamentals of drafting oriented toward microelectronic design. Instruction stresses schematic and logic diagrams, design and drafting of thin and thick film microcircuit.

DFT 250 Computer Aided Drafting/3 cr. hrs./4 periods (2 lec., 3 lab)
☐ Prerequisites: DFT 150, DFT 151 or DFT 110, DFT 120.
Computerized drafting. Equipment and commands to draw lines, angles, arcs, circles, and ellipses. Drafting problems including geometric, isometric, and multiview projections leading to the production of mechanical drawings, assembly drawings, printed circuit drawings, and construction drafting drawings.

DRAMA

DRA 051 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 060 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 109 Special Topics in Theater/3 cr. hrs./3 periods/3 lec.
Experience in and study of selected styles and forms in theater. One topic is covered each time course is offered.

DRA 109A Special Topics in Theater: Chicano-Latino Theater
3 cr. hrs./3 periods/3 lec.
Experience in and study of selected styles and forms in theater. One topic is covered each time course is offered.

DRA 109B Special Topics in Theater: Black Theater
3 cr. hrs./3 periods/3 lec.
Experience in and study of selected styles and forms in theater. One topic is covered each time course is offered.

DRA 115 Make-Up/1 cr. hr./3 periods (1 lec., 2 lab)
The study and practice of straight and character make-up under various conditions. Also, the history of make-up and masks in various cultures.

DRA 120 Stagecraft and Production I /3 cr. hrs./5 periods (2 lec., 3 lab)
A study and experience in the operation and effect of various types of stages and stage scenery; the drafting and construction of stage scenery; and the history and construction of costumes and properties. (DRA 120-121 need not be taken in sequence.)

DRA 121 Stagecraft and Production II
3 cr. hrs./5 periods (2 lec., 3 lab)
A study and experience in theatrical organization and stage management, lighting design and operation, scene painting.

DRA 201 Independent Studies in Drama
1-4 cr. hrs./3-12 periods/3-12 lab
Students work at various assigned tasks in theatrical productions under the guidance of an instructor. 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)
□ Prerequisites: 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)
□ Prerequisites: 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 Ciencias Sociales para Niños
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.

Early Childhood Education continued next page

ECE 112 Música/Arte Para el Niño/3 cr. hrs./3 periods/3 lec.
El papel de la música para el niño; presentación de materiales, actividas 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 116 Understanding Children/3 cr. hrs./3 periods/3 lec.
The study of children, infancy through early adolesence, 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 Day Care Programs/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 199 Co-op Related Class in ECE/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

ECE 199B Co-op Work in ECE/2 cr. hrs./10 periods/10 lab
A supervised work program for students in an occupation related to their program of study.

ECE 296 Independent Studies in Early Childhood Education 3 cr. hrs./3 periods/3 lec.
□ Prerequisite: Department approval.
Students pursue independent studies in early childhood education under the guidance of a faculty member. (May be repeated for credit.)

ECE 299 Co-op Related Class in ECE/1 cr. hr./1 period./1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

ECE 299B Co-op Work in ECE/2 cr. hrs./10 periods/10 lab
A supervised work program for students in an occupation related to their program of study.

ECONOMICS

ECO 100 Introduction to Microeconomics/3 cr. hrs./3 periods/3 lec.
Analysis of consumer and producer choices; how prices and incomes are determined in the U.S. economy. Applications of economic principles to such issues as monopoly, pollution, different economic systems.

ECO 101 Introduction to Macroeconomics/3 cr. hrs./3 periods/3 lec.
The determinants of gross national product, the level of employment, and prices; the role of money and banking institutions. Applications of economic principles to such issues as inflation, recession, federal government tax and expenditure policies.

ECO 210 Money and Banking/3 cr. hrs./3 periods/3 lec.
The nature of money and credit; how money and credit influence the economy; the role of commercial banks and the Federal Reserve Bank; interest rate determination; international monetary policies.

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.

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 Introduction to Environmental Science
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 film labs.

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 further study of more detailed igneous, sedimentary and metamorphic rocks.

ESC 221 Structural Geology/4 cr. hrs./8 periods (2 lec., 6 lab)
□ Prerequisites: Trigonometry and ESC 120 or equivalent required; ESC 121 recommended.
Study of structures resulting from formation and deformation of rocks, of the forces which cause such deformations, and the geographic features which result. Field mapping techniques will be introduced in the lab portion of the course.

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.

Education continued next page

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 l as ciencias sociales y cómo se pueden utilizar en la escuela primaria como parte del curriculum.

EDU 115 Actividades Creativas/3 cr. hrs./3 periods/3 lec.
Materias selectas y técnicas para la enseñanza de actividades para niños. Música, juegos, rimas, poemas, y drama para descarrollar y aumentar la creatividad de los niños se emplearán de las culturas anglo y mexicana.

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 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 and alternating current, passive circuit elements and their interaction with active circuit devices such as diodes and transistors.

ETR 101 Basic DC Electronic Circuit Analysis
2 cr. hrs./3 periods (1.5 lec., 1.5 lab)
□ Prerequisite: ETR 001 or equivalent, MTH 115 or concurrent enrollment.
This course is designed to provide the student with a thorough understanding of the fundamentals of direct current electronic circuit theory. Laboratory experiences will be utilized to prove the theory, insure understanding and provide practice using applicable test equipment.

ETR 102 Basic AC Electronic Circuit Analysis
2 cr. hrs./3 periods (1.5 lec., 1.5 lab)
□ Prerequisites: ETR 101 and MTH 115 or concurrent enrollment.
This course is designed to provide the student with a thorough understanding of the fundamentals of alternating current electronic circuit theory. Laboratory experiences will be utilized to prove the theory, insure understanding and provide practice using applicable test equipment.

ETR 103 Active Devices/2 cr. hrs./3 periods (1.5 lec., 1.5 lab)
□ Prerequisites: ETR 101, and MTH 115 or concurrent enrollment.
The course is designed to explain how active devices operate. The characteristics, parameters, circuit applications, and limitations of the devices will be covered. Diodes, bipolar transistors, linear amplifiers coupling and biasing are some of the topics to be studied.

ETR 105 Electronics Circuits/6 cr. hrs./8 periods (4 lec., 4 lab)
□ Prerequisites: ETR 102, ETR 103, and MTH 125 or concurrent enrollment.
The fundamentals of circuit analysis, power supplies, regulators, class A, B, AB, and C amplifiers, and introduction to feedback amplifiers. May be taken concurrently with ETR 110.

ETR 110 Digital Electronics/3 cr. hrs./4 periods (2 lec., 2 lab)
□ Prerequisites: ETR 103 or ETR 100 and MTH 125. (NOTE: ETR 105 and MTH 125 concurrent enrollment is acceptable.)
The fundamentals of digital electronics; binary, octal, and hexadecimal arithmetic; digital logic, Boolean algebra, discrete and integrated digital circuits.

ETR 112 Electronics for Technical Careers
3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisite: MTH 070
Concepts of solid state electronics as applied to technical careers.

ETR 121 Electronic Solder Assembly/2 cr. hrs./3 periods (1 lec., 2 lab)
This course is designed to familiarize students with the basic skills required to perform hand soldering on electronic equipment. The course includes component preparation and insertion, terminal installation and soldering, wire interconnections and construction of a printed circuit board assembly. Inspection methods and techniques will also be covered.

ETR 122 Electronics Construction and Assembly
2 cr. hrs./3 periods (1 lec., 2 lab)
□ Prerequisites: ETR 101 and MTH 115.
This course is designed to familiarize the student with the basic skills required to work on electronics equipment. The course will include assembly techniques, soldering and desoldering, printed circuit board fabrication and wire stripping. Machine shop and power tools will be discussed.

ETR 123 Electronics Fabrication and Processing
2 cr. hrs./3 periods (1 lec., 2 lab)
This course is designed to familiarize students with the basic skills required for manufacturing of printed wiring boards and related electronic hardware. The course includes printed wiring board artwork, patterning, lay-up, etching, plating, drilling and routing. Inspection methods and techniques will also be covered.

ETR 124 Electronic Measurements/2 cr. hrs./3 periods (1 lec., 2 lab)
☐ Prerequisites: ETR 105 and MTH 115.
This course is designed to familiarize the student with basic measuring techniques and equipment. The student will learn to make accurate AC-DC, power, time, period, and frequency measurements using a variety of techniques and instruments on different systems. Recorders, transducers, generators, counters, spectrum analyzers, distortion meters and microwave devices will also be covered.

ETR 143 Television Theory and Servicing
6 cr. hrs./8 periods (4 lec., 4 lab)
☐ Prerequisites: ETR 105, ETR 110 and MTH 125.
This course is for those individuals who wish to become troubleshooting television electronic technicians or students with other majors who wish to learn or sharpen their troubleshooting skills on analog and linear circuitry. Tools of the trade and television standards are covered as well as circuit analysis and troubleshooting. Flowcharts, signal tracing and signal substitution methods of troubleshooting will be covered as well as alignment techniques.

ETR 150 Home Entertainment Equipment Repair
6 cr. hrs./8 periods (4 lec., 4 lab)
☐ Prerequisites: ETR 105, ETR 110, ETR 143, MTH 125.
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 190 Electronic Theory Review/4 cr. hrs./4 periods/4 lec.
☐ Prerequisite: Previous electronics training and experience.
This course is to provide a review of electronics theory for students who have previously completed their training; but due to the lapse of time or lack of application of the theory have forgotten or just feel a need to review before enrolling in other electronics courses.

ETR 199 Co-op Related Class in ETR/1 cr. hr./1 period./1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

ETR 199A-E Co-op Work in ETR/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

ETR 230 Advanced Circuits/6 cr. hrs./8 periods (4 lec., 4 lab)
☐ Prerequisites: ETR 105, ETR 110 and MTH 125.
Advanced circuit analysis, primary signal sources, active filters, RF amplifiers, modulation techniques, discussion and application of linear integrated circuits.

ETR 235 Communications/6 cr. hrs./8 periods (4 lec., 4 lab)
☐ Prerequisite: ETR 230 or equivalent experience.
Communications systems from low frequencies through microwave frequencies; FM, AM and PM modulation techniques including single-sideband, and mlutiplexing. Antenna systems and systems measurements are also covered.

ETR 250 Digital Devices/4 cr. hrs./6 periods (2 lec., 4 lab)
☐ Prerequisite: ETR 105 and 110 or equivalent experience.
Digital integrated circuit applications, construction, troubleshooting, and maintenance; specific applications of TTL logic family in a simple computer project.

ETR 251 Digital Devices II /6 cr. hrs./8 periods (4 lec., 4 lab)
☐ Prerequisites: ETR 250.
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: CSC 180 and ETR 250 or concurrent enrollment.
Minicomputer operation, assembly and machine languages, methods of addressing: I/O operation on single user and multi-user operating systems. A variety of bus concepts and their associated timing-considerations.

ETR 256 Microprocessors/6 cr. hrs./8 periods (4 lec., 4 lab)
☐ Prerequisite: ETR 250 or equivalent.
A study of microprocessor software and hardware. Topics include assembly language programming, assemblers, introduction to operating systems, bus architecture, memory, I/O, timing and waveforms, and troubleshooting methods.

Electronics continued next page

ETR 257 Computer Peripherals/4 cr.hrs./6 periods (2 lec., 4 lab)
□ Prerequisites: ETR 255 and ETR 256. (ETR 256 may be taken concurrently.)
A study of computer peripheral equipment and its interface to the computer.

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 general radio-telephone certificate examination and review of circuit analysis, laws and regulations.

ETR 299 Co-op Related Class in ETR/1 cr. hr./1 period./1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

ETR 299A-E Co-op Work in ETR/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

EMERGENCY MEDICAL TECHNOLOGY

EMT 051 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 058 Refresher Training for EMT/2 cr. hrs./3 periods (1 lec., 2 lab)
□ Prerequisite: EMT 051 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 Department of Health Services refresher training requirements.

EMT 059 Emergency Cardiac Care/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: EMT 051 or permission of instructor.
A continuing education course designed to introduce the emergency medical technician to the more definitive pre-hospital care of the cardiac patient. Topics include anatomy and physiology of the heart, the conductive system, EKG recording and basic interpretation and physical assessment of the cardiovascular and respiratory systems. Mechanisms of cardiovascular disease processes are also discussed.

EMT 100 Basic Cardiac Life Support/1 cr. hr./1 period/1 lec.
A modular course designed to train and certify allied health and other interested individuals in the principles and techniques of basic cardiac life support. Includes techniques of airway care and cardiopulmonary resuscitation, an introduction to the common adjunctive equipment used in BCLS, as well as an introduction to the pathogenesis of coronary artery disease, electric shock, drowning and sudden death. Upon course completion, the student may be eligible for BLS certification by the American Red Cross.

EMT 101 Intermediate Emergency Medical Technology 6 cr. hrs./7 periods (6 lec., 1 lab)
□ Prerequisite: EMT 051.
Covers in greater depth aspects of human anatomy and physiology surveyed in EMT 051. Instructional units include: pharmacology; the respiratory, cardiovascular, and central nervous systems; soft tissue and musculoskeletal injuries; obstetrics/gynecological emergencies; rescue techniques; and communications.

EMT 102 Intermediate Emergency Medical Technology 4 cr. hrs./5 periods (4 lec., 1 lab)
Provides instruction on patient assessment and emphasis on the need for report writing. Also presents the recognition, management and pathophysiology involved with the respiratory, nervous and cardiovascular systems. Expands on disorders of hydration including progression of shock. Included also is an understanding of blood and its components. It also includes techniques of management.

EMT 103 Intermediate Emergency Medical Technology
4 cr. hrs./5 periods (4 lec., 1 lab)
Methods used by the I-EMT for interviewing in a medical emergency. It surveys the eight clusters of a medical situation associated with medical emergencies with exposure to environmental extremes. Emphasizes information on I-EMT skills associated with pre-hospital intervention in the medical emergency.

EMT 104 Intermediate Emergency Medical Technology
4 cr. hrs./5 periods (4 lec., 1 lab)
Techniques involved with rescue techniques, communications. Emphasizes the systems approach to medical emergencies. Preparation with emphasis on oral evaluation and skills evaluation will be considered. Provides rotations through clincial settings, which allows for further exposure to the I-EMT skills.

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, MTH 220 may be taken concurrently.
Applications of numerical methods and computer programming techniques to the solution of mathematical models of engineering systems.

ENGINEERING CONSTRUCTION TECHNOLOGY

ECT 100 Principles of Construction/4 cr. hrs./4 periods/4 lec.
Study of methods used to determine types of materials, equipment and labor required for construcion projects to meet building codes.

ECT 120 Building Materials/3 cr. hrs./5 periods (2 lec., 3 lab)
☐ Prerequisite: ECT 100, MTH 110 or consent of instructor.
This course provides an understanding of construction standards properties and specific types of building materials used in commercial/industrial and private construction projects.

ECT 130 Construction: Piping Systems
3 cr. hrs./5 periods (2 lec., 3 lab)
Course in piping design, installation, maintenance, safety parameters, project planning, inspection criteria and maintenance techniques.

ECT 140 Construction: Electricity/2 cr. hrs./2 periods/2 lec.
☐ Prerequisite: MTH 110 or consent of instrucor.
This course provides of the basic theory of electricity, circuit components, distribution systems, electrical equipment, power consumption, costs and the National Electric Code.

Engineering Construction Technology continued next page

ECT 150 Construction: Masonry/3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisite: ECT 120 or consent of instructor.
A study of the preparation, composition, protection, placement and curing of concrete, mortar and plaster. Construction using brick, concrete block and stone will also be covered.

ECT 200 Soil Mechanics/3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisite: ECT 120 or consent of instructor, MTH 120 or equivalent.
Covered are the techniques of soil mechanics leading to sound solutions of construction problems in the area of foundation work and earth structures acknowledging the limitation of these techniques.

ECT 210 Building & Material Cost Estimating
3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisite: ECT 120 or consent of instructor.
Covered are the building cost estimations, specifications, site work, concrete, steel, masonry, electrical piping, carpentry and alteration take-offs, job overhead, subcontractor's bids and pricing.

ECT 220 Construction: Management/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: ECT 210 or consent of instructor.
Covered are construction management procedures including an analysis of the general provisions of contracts and a review of material submittals.

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 acquiring and improving basic skills in listening, speaking, reading and writing Americanized English.

ESL 050A Elementary Grammatical Patterns I
3 cr. hrs./4 periods (3 lec., 1 lab)
Development of listening, speaking, reading and writing skills in frequently used patterns of basic American English. Reading, writing, and laboratory exercises are used to reinforce these patterns.

ESL 050B Elementary Grammatical Patterns II
3 cr. hrs./4 periods (3 lec., 1 lab)
□ Prerequisite: Successful completion of ESL 050A or equivalent.
A continuation of speaking, listening, reading and writing skills in frequently used patterns of basic American English. Reading and writing 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 Writing/3 cr. hrs./4 periods (3 lec., 1 lab)
Skill development in grammar, writing sentence patterns, paragraph development and organization at an advanced level.

ESL 055 Gaining Independence in Reading
3 cr. hrs./3 periods (3 lec., 1 lab)
This course will enable the student to gain "paragraph sense" by a conscious analysis of the paragraph in terms of progressive development of ideas in individual sentences; therefore, leading the student to clearer and faster comprehension.

EXPLORATORY

EXP 020 Techniques of Microwave Cooking/1 cr. hr./1 period/1 lec.
This course presents the fundamental principles and proper operation of microwave ovens. It will include such items as safety, special techniques in microwave cooking, and the advantages and disadvantages of microwave cooking.

EXP 051 Social Science Survey/4 cr. hrs./4 periods/4 lec.
Includes units from the social or behavioral sciences selected by the student.

EXP 055 Humane Treatment of Animals/3 cr. hrs./3 periods/3 lec.
Students will critically examine the moral, religious, and social issues raised by mankind's treatment of non-human animals. The history and philosophy of the human movement will be discussed.

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 period/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 and 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, matte materials, and construction of picture frames; and instruction in the safe operation of power and hand tools. This course is intended for students who are employed or seek employment in galleries or framing shops.

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 textile s selección y cuidado de telas.

FDC 112 Alteration and Designing/3 cr. hrs./5 periods (2 lec., 3 lab)
The coordinated method of flat pattern alterations and basic principles of alterations on ready-to-wear.

FDC 121 Applied Dress Design/3 cr. hrs./3 periods/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 fibers, 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 of 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 199 Co-op Related Class in FDC/1 cr. hr./1 period./1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

FDC 199A-C Co-op Work in FDC/1-3 cr. hrs./5-15 periods/5-15 lab
A supervised work program for students in an occupation related to their program of study.

Fashion Design and Clothing continued next page

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 fibers. 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 or instructor consent. Students design a pattern, select materials and construct an original garment.

FDC 299 Co-op Related Class in FDC/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

FDC 299A-C Co-op Work in FDC/1-3 cr. hrs./5-15 periods/5-15 lab
A supervised work program for students in an occupation related to their program of study.

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.

FFI 199 Co-op Related Class in FFI/1 cr. hr./1 period./1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

FFI 199A-E Co-op Work in FFI/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised cooperative work program for students in an occupation related to their program of study.

FFI 299 Co-op Related Class in FFI/1 cr. hr./1 period./1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

FFI 299A-E Co-op Work in FFI/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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 Principles of Credit Unions/3 cr. hrs./3 periods/3 lec.
Information and training to prepare persons as credit union executives. Credit union operations, how to conduct an annual meeting, what preparations are needed, and how to present the credit union concept at a public meeting.

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 Underwriter's 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 Underwriter's 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. hrs./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 139 Credit Union Accounting/3 cr. hrs./3 periods/3 lec.

Accounting systems used by credit unions for internal control, recordkeeping and report generation will be covered as well as terms and procedures unique to credit unions.

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, 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.

Finance continued next page

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 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 applications. 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 installmant 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 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 and their functions are stressed. The creation of credit and the need for external controls are reviewed in depth.

FIN 234 Loan Officer Development/3 cr. hrs./3 periods/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.

FIN 238 Estate Planning and Taxation/3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: ACC 204 or consent of instructor.
The course emphasizes the nature, valuation, disposition, administration, and taxation of property. Also includes the use of revocable and irrevocable trusts, testamentary trusts, life insurance, powers of appointment, wills, lifetime gifts, and marital deduction. This course prepares candidates for the American College National examination for estate planning and taxation.

FIN 239 Credit Union financial Management/3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: FIN 139 or ACC 101
Financial statement analysis, budgeting, liquidity management and financial planning are covered as well as implications of risk management, insurance and investment procedures.

FIN 240 Wealth Accumulation Planning/3 cr. hrs./3 periods/3 lec.
The fundamentals of tax sheltered and tax incentive investments with emphasis on real estate, oil and gas, agricultural, and equipment leasing limited partnerships.

FIN 241 Financial and Estate Planning Applications 3 cr. hrs./3 periods/3 lec.
☐ Prerequisites: FIN 136 and 240.
Cases will range from simple fact patterns and basic documents to complex situations involving personal financial problems and financial problems associated with business and business ownership.

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 history of foods, studies, instructor's demonstrations and field trips. May be repeated twice for credit.

FSN 056 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 057 Vegetarian Dietary Cookery/2 cr. hrs./3 periods (1 lec., 2 lab)
The planning and preparing of foods from the vegetable source that are nutritionally adequate to meet the nutrient needs of the body.

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.

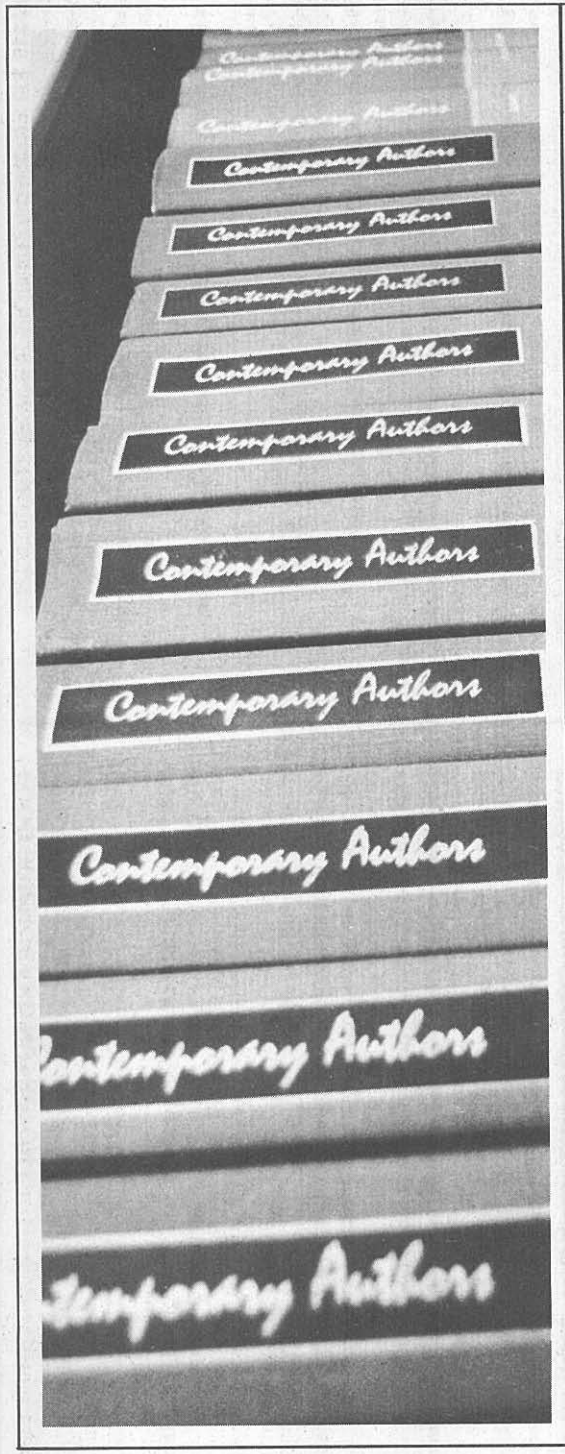
FSN 213 Meal Management/3 cr. hrs./5 periods (2 lec., 3 lab)
☐ Prerequisite: FSN 113 or consent of instructor.
The planning, preparation and serving of meals with emphasis on food economics, nutritional needs and management of resources.

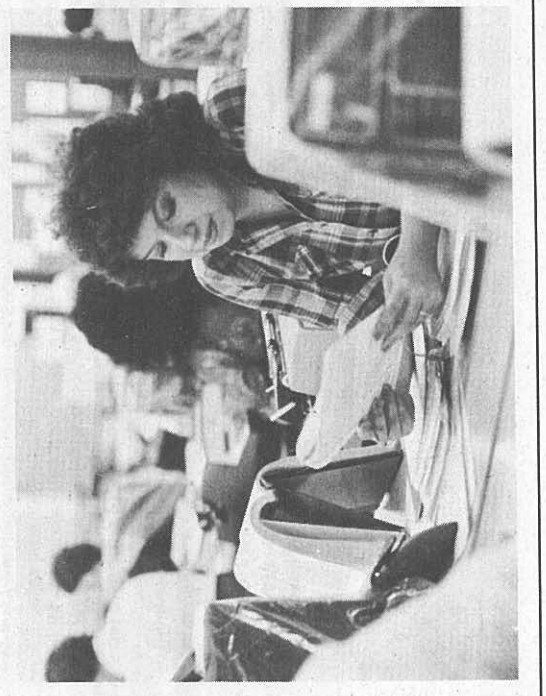
FRENCH

FRE 050 Conversational French I /3 cr. hrs./3 periods/3 lec.
A course in practical conversational French intended to permit the student to express him/herself in basic day-to-day situations. Emphasis is on the acquisition of audio-aural skills.

FRE 051 Conversational French II /3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: FRE 050 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.

French continued on page 195


Contemporary Authors
Contemporary Authors
Contemporary Authors
Contemporary Authors
Contemporary Authors
Contemporary Authors
Contemporary Authors
Contemporary Authors
Contemporary Authors



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 couse, 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, funding 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.

General Business continued next page

GEB 099 The Stock Market/3 cr. hrs./3 periods/3 lec.
The study of stocks, bonds, speculative investments, mutual funds, and commodities.

GEB 120 Elements of Agency Management I /1 cr. hr./1 period/1 lec.
This course is for beginning social workers with limited casework experience and is designed to improve knowledge about and provide application of the problem-solving process in order to assist the trainees in oganizing their casework.

GEB 121 Elements of Agency Management II /1 cr. hr./1 period/1 lec.,
This course is designed to provide social workers with training in the eight skills of helping, empathy, concreteness, respect, warmth, geniuneness, self-disclosure, confrontation and immediacy. The course is primarily for those already employed in social work.

GEB 122 Elements of Agency Management III /1 cr. hr./1 period/1 lec.
This course is designed to improve the written communication skills and the verbal and nonverbal communication skills of social workers to assist them in their work with individuals, groups, and on committees. The course is primarily for persons already employed in social work.

GEB 133 Elements of Agency Management IV /1 cr. hr./1 period/1 lec.
This course presents information on selected values, attitudes, and beliefs in order to assist social workers in working with clients of differing cultures. The course is primarily for persons already employed as social workers.

GEB 140 Elements of Agency Management V /1 cr. hr./1 period/1 lec.
This course is designed to assist office workers in recognizing and dealing with stress and its causes. The course will give methods for solving problems; managing time and tasks; and relaxing in stressful situations.

GEB 142 Improving Human Relations/1 cr. hr./1 period/1 lec.
Students learn techniques of improving interpersonal relationships in the work environment. Techniques of improving and enhancing your self-image and the self-image of co-workers are taught. Topics such as communications, Maslows Hierarchy of Human Needs, appreciation of others' differences, cultural and religious awareness, and appreciation for individual differences will be taught.

GEB 144 Improving Written Communications/1 cr. hr./1 period/1 lec.
This course stresses grammar, punctuation, and sentence structure. Practice and demonstration will be given in writing inter-office memoranda, technical report writing, preparation of case summaries, and descriptive writing will be taught.

GEB 150 Management Update Techniques I /1 cr. hr./1 period/1 lec.
This course is designed to assist first line managers review, re-examine, and update management and supervisory skills. Topics such as Management Coordination, Effective Decision Making, The Planning Process, Concepts of Organization Control, Staffing, Terminations, Sources of Authority are discussed.

GEB 151 Management Update Techniques II /1 cr. hr./1 period/1 lec.
This course is desinged to assist first line managers review, re-examine, and update management and supervisory skills. Topics such as interviewing Techniques, Communication, The Idea Transplant-Communication, Effective Presentations, Staffing, Time Management and How to Get the Job You Want are discussed.

GEB 152 Management Update Techniques III /1 cr. hr./1 period/1 lec.
This course is designed to assist first line managers review, re-examine, and update management and supervisory skills. Topics such as Toward a Helpful Self-Image, Working with Others, The Status Seekers, Group Processes, The Mystique of Human Motivation, Personality, Behavior & Motivation, Money & Motivation, Leadership are discussed.

GEB 153 Management Update Techniques IV / 1 cr. hr./1 period/1 lec.
This course is designed to assist first line managers review, re-examine, and update management and supervisory skills. Topics such as Leadership Techniques, Management Training, Coping with Change, Executive Ethics, Dealing with Complaints & Criticism, Motivation-Selling Yourself, Making a Habit of Success, Laws of Success are discussed.

GEB 154 Management Update Techniques V /1 cr. hr./1 period/1 lec.
This course is designed to assist first line managers review, re-examine and update management and supervisory skills. Topics such as Brown-Out, Burn-Out, the Mind as a Slayer, Body Language, Life Choices, Executive Mid-Life Crisis, Love and Work: The Crucial Balance, and Time Management are discussed.

GENERAL MACHINE SHOP

GMC 050 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 005 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 010 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 020 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 051 Business Machine Repair I /3 cr. hrs./4 periods (2 lec., 2 lab)
This course is designed to teach students the fundamentals of office machine repairs. Emphasis will be on the repair and routine maintenance of the manual and electric typewriter.

GTC 052 Business Machine Repair II /3 cr. hrs./4 periods (2 lec., 2 lab)
This course is designed to teach students the advanced techniques of office machine repairs. Emphasis will be on the care and routine maintenance of the electric typewriter.

GTC 058 Solar & Energy Retrofit/3 cr. hrs./3 periods/3 lec.
This course examines solar energy and alternative heating, cooling, insulating, power, and lighting systems for use in single family residences. Students will study an existing structure, analyze its energy usage, suggest and price potential alternative sources, and economic impact of those systems.

GTC 060 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 061 Building and Materials Cost Estimating
3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: GTC 060.
Fundamentals of construction blueprint reading and methods of cost estimating materials, labor, and equipment.

GTC 062 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 063 Principles of the Construction Industry
3 cr. hrs./3 periods/3 lec.
An overview of financing, real estate, zoning, subdivision, ordinances, deed restrictions, rezoning, estimating, scheduling, plan-checking, building inspection, as well as architects, engineers, contractors, sub-contractors and owners, and their impact on the process of building.

GTC 065 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 066 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 068 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 070 Heavy Equipment Operation
5 cr. hrs./8 periods (2 lec., 6 lab)
Presents the student with an understanding of the operation of heavy equipment. Emphasis is placed on safety, preventative maintenance, interpretation of grade stakes, and basic fundamentals of proper operation of front end loader and back hoes, motor graders, and bulldozers.

GTC 071 Heavy Equipment Maintenance
5 cr. hrs./8 periods (2 lec., 6 lab)
Provides lecture and laboratory experience pertaining to heavy equipment maintenance procedures. Emphasis will be on hydraulics, electric and fuel systems for front end loaders and back hoes, motor graders and bulldozers.

GTC 083 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.

General Technology continued next page

GTC 084 Advanced Equine Animal Science/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: GTC 083 or permission of instructor.
Equine management theories and practices, especially as they relate to both small businesses and the equine industry. Course will cover breeding, nutrition, preventive medicine, management and marketing.

GTC 085 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 087 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 088 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 090 Home 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 in the Southwest.

GTC 092 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 093 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 094 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 095 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 096 Advanced Upholstery/3 cr.hrs./4 periods (2 lec., 2 lab)
□ Prerequisite: GTC 095.
This course teaches advanced techniques of frame rebuilding, pattern design, fabric selection and upholstery fabrication.

GTC 097 Woodshop II /3 cr. hrs./5 periods (2 lec., 3 lab)
Students are taught the fundamentals of cabinet making and furniture construction: wood preparation, finishing, cabinet and furniture design, and cost estimating.

GTC 098 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 099 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.

GTC 219 Industrial Data Acquisition & Control Systems
6 cr. hrs./8 periods (4 lec., 4 lab)
□ Prerequisites: ETR 105, ETR 110, co-requisite ETR 276 or equivalent.
This course is designed to familiarize the student with modern, computer-based data acquisition and industrial control systems. Integration of various electronic components; ie., analog to digital convertors, signal conditioning circuits, and micro-computers into systems will be discussed in the lectures and explored in laboratory exercises.

GTC 220 Applications of Industrial Data Acquisition and Control Systems/6 cr. hrs./8 periods (4 lec., 4 lab)
□ Prerequisite: GTC 219.
This course is a sequel to Industrial Data Acquisition & Control Systems. Topics to be discussed include: data communication techniques, transducer interfacing, and intrinsic safety. The problems of systems application discussed in the course lectures will be explored in laboratory exercises.

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/1-4 lec

□ 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 199 Co-op Related Class in GRA/1 cr. hr./1 period./1 lec.

Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

GRA 199A-E Co-op Work in GRA/1-8 cr. hrs./5-40 periods/5-40 lab

A supervised work program for students in an occupation related to their program of study.

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)

□ Prerequisite: GRA 102 or instructor's permission.
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.

Graphic Technology continued next page

GRA 225 Offset Production/3 cr. hrs./9 periods/9 lab
□ Prerequisite: GRA 103, 221, 222
A job shop oriented production course including copy fitting, camera operation, stripping, platemaking, offset press operation, cutting, and finishing.

GRA 232 Offset Operations and Maintenance
3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisite: GRA 222 or concurrent enrollment.
Course includes printing half-tones, close register work, color ink mixing, multi-color printing, technical problems and minor maintenance of large offset presses.

GRA 299 Co-op Related Class in GRA/1 cr. hr./1 period./1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

GRA 299A-E Co-op Work in GRA/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

HEALTH CARE

HCA 099 Independent Studies in Health Sciences
1-6 cr. hrs./3-18 periods/3-18 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 care course representing the nucleus of the health sciences programs. It spans the entire pattern of the health care delivery system, the range of health careers, and how they relate to the patient as a person. Students also learn health science fundamentals.

HCA 155 Introduction to Pharmacology/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: MTH 060 or 70% or above on the mathematics placement test.
Introduction to the action, dosage, side effects and implications of drugs including mathematical computations and anatomical and physiological considerations.

HEALTH CONTINUING EDUCATION

HCE 059 Emergency Cardiac Care/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: EMT 051 or permission of instructor.
A continuing education course designed to introduce the emergency medical technician to the more definitive pre-hospital care of the cardiac patient. Topics include anatomy and physiology of the heart, the conductive system, EKG recording and basic interpretation and physical assessment of the cardiovascular and respiratory systems. Mechanisms of cardiovascular disease processes are also discussed.

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 musculo-skeletal systems. Foundations for the preparation and administration of drugs and solutions of each system are incorporated into the module.

HCE 100C Maintenance and Metabolism of the Body—Cardiovascular and Gastro-Intestinal Systems/1 cr. hr./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 service providers and others gain knowledge and experience in caring for disabled adults and/or aged persons outside of institutions. Course content includes the process of aging, cultural attitudes and perspective, common health problems disabilities, adaptive processes, 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 Skills
1 cr. hr./1 period/1 lec.

☐ Prerequisite: LPN's and RN's currently employed.

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 118 Renal Nursing Update/1 cr. hr./1 period/1 lec.

☐ Prerequisite: RN, LPN, currently enrolled nursing students, dailysis technicians.

Provdies an opportunity to review and update renal anatomy, physiology and pathophysiology. The focus will center on chronic renal disease processes and treatments including pharmacologic agents and approaches to nursing care.

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 to those who have not practiced for three to five years or more.

An opportunity for registered nurses to review and udpate their nursing, knowledge and skills in both the classroom and clinical setting. This course includes a review of various nursing concepts and trends in nursing and health care.

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 prspective 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 Introducion 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 Civiliations 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 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, from an historical perspective, 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-Columbian period through the Spanish conquest, Mexican Republic, U.S. Territory and statehood.

HIS 148 History of Indians of North America/3 cr. hrs./3 periods/3 lec.
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 160 History and Peoples of Latin America I
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 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-Columbian 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/6-12 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 "Aztlan."

HIS 227 Pensamiento y Cultura del México Americano
3 cr. hrs./3 periods/3 lec.
Historia del pensamiento del México Americano desde su pasado náhuátl 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 099 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 Managing Consumer Resources/3 cr. hrs./3 periods/3 lec.
A study of efficient consumer spending and management of resources.

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.)

Home Economics continued next page

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.

HONORS

HON 300 Honors Project Independent Study/3 cr. hrs.
An exploration of special interest areas for honor students. Content to be determined by student and faculty member. Course the same as other subject 300 course. Course must be taken with HON 301.

HON 301 Honors Seminar/1 cr. hrs./1 period/1 lec.
An honors colloquium which provides students the opportunity to explore a specialized area of interest and to participate with students and faculty from other fields of study with the intent to develop skills in critical and integrative thinking. Course must be taken with HON 300.

____ 350 Honors Special Project/3 cr. hrs./3 periods/3 lec. (Could be any prefix)
□ Prerequisite: Admission to the Pima Community College Honors Program.
An advanced class on a special topic in this discipline.

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, 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, sorting and issuing; food production; food and beverage service; bar operations; budgeting and pre-control; operational analysis; sanitation; equipment layout and selection; and maintenance.

HMM 110 Hotel-Motel Operations/3 cr. hrs./3 periods/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, lab or-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 199 Co-op Related Class in HMM/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

HMM 199A-E Co-op Work in HMM/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

HMM 202 Advanced Hotel-Motel Accounting
3 cr. hrs./3 periods/3 lec.
□ Prerequisite: HMM 102.
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; marketing 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.

HMM 299 Co-op Related Class in HMM/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

HMM 299A-E Co-op Work in HMM/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

HOUSEKEEPING—EXECUTIVE

HSK 150 Executive Housekeeping I /3 cr. hrs./3 periods/3 lec.
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.
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.

HSK 199 Co-op Related Class in HSK/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

HSK 199A-E Co-op Work in HSK/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

HSK 299 Co-op Related Class in HSK/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

HSK 299A-E Co-op Work in HSK/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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 or 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.

Human Development Education continued next page

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 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 and Reformation. 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.

INFORMATION INDUSTRIES

IIT 100 Telephony I /3 cr. hrs./3 periods/3 lec.
Provides the student with a fundamental understanding of the telecommunications industry. Traces significant events and decisions in that industry from 1875 to the present.

IIT 110 Information Industries I /3 cr. hrs./3 periods/3 lec.
This course explores the history and impact of the information revolution, quantifies the magnitude and trend of data handling with emphasis on future trends.

IIT 210 Information Industries II /3 cr. hrs./3 periods/3 lec.
An indepth analysis of the practical problems of managing an information industry with emphasis on managerial activities and their application to offices of the future.

INTERNATIONAL BUSINESS COMMUNICATION STUDIES

IBC 100 Foreign Language I /4 cr. hrs./4 periods/4 lec.
This course provides the basic vocabulary and sentence structure which will allow the student to function in the foreign country. Emphasis will be on developing elementary skills in pronunciation, ease of expression and comprehension. The requirements of IBC 100 are satisfied by taking IBC 100A, 2 cr. hrs., and IBC 100B, 2 cr. hrs.

IBC 100A Foreign Language I: Basic Language Skills
2 cr. hrs./2 periods/2 lec.
Course provides basic vocabulary and sentence structure with emphasis on develping skills in pronunciation, ease of expression and comprehension.

IBC 100B Foreign Language I: Basic Language Skills
2 cr. hrs./2 periods/2 lec.
☐ Prerequisite: IBC 100A or consent of instructor.
A continuation of IBC 100A with special emphasis on practice drills designed to develop the student's ability to function effectively in the foreign country.

IBC 110 Foreign Langauge II /4 cr. hrs./4 periods/4 lec.
□ Prerequisite: IBC 100 or consent of the instructor.
A continuation of IBC 100 with study on a more advanced level. Major emphasis is on speaking, listening, reading and writing skills used within the social and business environment. Note: The requirements of IBC 110 are satisfied by taking IBC 110A and 110B or IBC 110A and 110C.

IBC 110A Foreign Language II: Advanced Language Skills 2 cr. hrs./2 periods/2 lec.
□ Prerequisite: IBC 100 or consent of instructor.
A continuation of IBC 100 with study on a more advanced level emphasizing speaking, listening, reading and writing skills.

IBC 110B Foreign Langauge II: Language Skills for Social Environment/2 cr. hrs./2 periods/2 lec.
□ Prerequisite: IBC 110A or consent of instructor.
A continuation of IBC 110A with emphasis on language skills training for use in the social environment.

IBC 110C Foreign Language: Langauge Skills for Work Environment 2 cr. hrs./2 periods/2 lec.
□ Prerequisite: IBC 110A or consent of the instructor.
A continuation of IBC 110A with emphasis on language skills training for the work environment.

IBC 120 Cultural Similarities and Differences Between the United States and the Foreign Country/3 cr. hrs./3 periods/3 lec.
The student will acquire a basic understanding of the cultural values of the foreign country. Study will focus on the foreign country's religious and social customs, including roles of men and women, attitudes toward time, humor, drugs and alcohol, patterns of communication, political, educational and legal structures, health care values, attitudes toward conducting business and shopping, business structure, ethics and values. Emphasis will be on the differences and similarities between the foreign country and the U.S.

IBC 130 Living in the Foreign Country/3 cr. hrs./3 periods/3 lec.
This course covers entry requirements and basic information for living in the foreign country. Included are passport and immunization, tax, driving and importation regulations, the monetary, transportation and telelphne systems, local housing, medical facilities, support service and entertainment possibilities. Also covered are types of foods available, special food preparation, and appropriate dress.

IBC 140 Basic Techniques of International Trade 3 cr. hrs./3 periods/3 lec.
Basic principles involved in the movement of goods and services in the internatnional market, including freight forwarding, letters of credit, U.S. and foreign custom regulations.

IBC 150 Cultural Shock Management/2 cr. hrs./2 periods/2 lec.
This course is designed to help students manage cultural shock as they enter a new culture. Emphasis is on the stages and symptoms of cultural shock as well as how to foster acculturation. The requirements of IBC 150 are satisfied by satisfactorily completing IBC 150A and 150B.

IBC 150A Cultural Shock Management: Entry/1 cr. hr./1 period/1 lec.
This course is designed to help students manage cultural shock as they enter a new culture. Emphasis is on the stages and symptoms of cultural shock as well as how to foster acculturation.

IBC 150B Cultural Shock Management: Re-entry 1 cr. hr./1 period/1 lec.
This course is designed to help students manage cultural shock as they re-enter their own culture upon return from a foreign assignment/visit. Emphasis is on the stages and symptoms of cultural shock as well as how to cope with this problem.

IBC 160 Hosting Foreign Business Personnel/1 cr. hr./1 period/1 lec.
This course provides training in hosting foreign business personnel. Emphasis is on integrating routing hosting considerations with sensitivity to the culture of the visitor.

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.

Institutional Food Service continued next page

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.

IFS 199 Co-op Related Class in IFS/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

IFS 199A-E Co-op Work in IFS/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

IFS 299 Co-op Related Class in IFS/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

IFS 299A-E Co-op Work in IFS/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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/3 lec.
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. Coursework 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/3 lab
□ Prerequisite: JRN 160 or concurrent enrollment.
News, features and sports writing.

JRN 167 Editorial Staff/1 cr. hr./3 periods/3 lab
□ Prerequisite: JRN 161.
Page editing and general editing experience.

JRN 168 Production Staff/1 cr. hr./3 periods/3 lab
Experience in layout, photo selection and sizing, paste-up, proofreading and other production activities.

JRN 169 Business Staff/1 cr. hr./3 periods/3 lab
Management, ad sales, circulation and clerical experience.

JRN 201 Advanced Reporting/3 cr. hrs./3 periods/3 lec.
□ 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.

LANDSCAPE TECHNICIAN PROGRAM

LTP 100 Landscape Today and Tomorrow/3 cr. hrs./3 periods/3 lec.
This course is a profile of the landscape contracting industry: its history, current status and projections for the future. It offers a broad overview of the industry with special attention given to career oportunities within the various specialties which compromise that industry.

LTP 120 Plant Pathology, Pests, and Controls 4 cr. hrs./6 periods (3 lec., 3 lab)
□ Prerequisite: LSC 220 or consent of instructor.
An indepth study of the pests, insects, and diseases which damage shrubs, flowers, ornamental trees, turf grass, and interior foliage. Projects emphasize control and treatment methods, and the proper and safe use of chemicals, pesticides, herbicides, and various hand- and power-operated application equipment. Prepares students to take the Restricted Chemical Applicator's License Examination.

LTP 130 Soils: Plant Fertility/4 cr. hrs./6 periods (3 lec., 3 lab)
This course will present information on the derivation, classification and evaluation of soils as well as the chemical, biological and physical requirements for plant growth.

Landscape Technician Program continued next page

LTP 200 Landscape Management Systems/3 cr. hrs./3 periods/3 lec.
This course prepares the student to undertake a landscape planning project from the preparation phase to the implementation phase. The course will include at least one site visit. Student will also be familiarized with management information systems, foreman duties, customer relations, and contractor laws.

LTP 210 Irrigation Installation/3 cr. hrs./5 periods (2 lec., 3 lab)
An introduction to turf, ornamental and drip (emitter) irrigation systems including introduction to materials and equipment, installation techniques; and blueprint reading basis maintenance and repair procedures. This course is designed for technicians in the landcape and irrigation industries.

LTP 215 Interior Plantscape Design/Maintenance 3 cr. hrs./5 periods (2 lec., 3 lab)
This course prepares the student to work with interior plantscapers, interior designers, architects and clients to creatively design and maintain the total horticultural environment.

LTP 150 Landscape Equipment Repair and Maintenance 3 cr. hrs./5 periods (2 lec., 3 lab)
An introduction to power equipment used in the field of landscaping including (1) small engine repair and maintenance; (2) general repair procedures for equipment using small engines; (3) fleet maintenance; (4) small loader maintenance; (5) troubleshooting techniques; (6) economics of preventive maintenance.

LTP 160 Plant Usage and Identification 3 cr. hrs./5 periods (2 lec., 3 lab)
□ Prerequisite: LSC 220 or consent of instructor.
This course is designed to accomplish two goals: (1) to familiarize the student with a technique of plant identification, the history of plant taxonomy and the development of a dichotomous plant key, and (2) to familiarize the student with where and how to use plants. Emphasis will be on the fifty most commonly used landscape plants and thirty most commonly used interior plants in Arizona.

LTP 199 Co-op Related Class in LTP/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

LTP 199A-E Co-op Work in LTP/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

LTP 230 Landscape Maintenance/3 cr. hrs./3 periods/3 lec.
Describes the management and technical skills required to operate a commercial landscape business.

LTP 240 Nursery Operations and Maintenance 3 cr. hrs./3 periods/3 lec.
Describes the technical and management factors involved in producing and marketing nursery stock and supplies.

LTP 250 Irrigation Design/3 cr. hrs./3 periods/3 lec.
Design of turf, ornamental, and drip (emitter) irrigation systems including: establishment of design criteria, selection and application of system components, preparation of irrigation plans and specifications; and basic estimating procedures. This course is intended for students and professionals interested in irrigation systems.

LTP 260 Basic Landscape Design/3 cr. hrs./3 periods/3 lec.
Designing residential and light commercial landscape sites with emphasis on drafting tools and techniques, site planning, preparation of working drawings and specifications, and construction cost estimating.

LTP 299 Co-op Related Class in LTP/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

LTP 299A-E Co-op Work in LTP/1-8 cr. hrs./5-40 periods/5-40 lab.
A supervised work program for students in an occupation related to their program of study.

LEGAL ASSISTANT PROGRAM

LAS 101 Introduction to Legal Assistant Careers 3 cr. hrs./3 periods/3 lec.
The role and responsibilities of a legal assistant including functions and procedures in a law or government office, court system, financial institution, real estate and business.

LAS 102 Legal Systems and Procedures/3 cr. hrs./3 periods/3 lec.
Jurisdiction, venue, practice, procedure, and pleadings in federal and state courts, appellate courts, and courts of limited or special jurisdiction.

LAS 103 Legal Research/3 cr. hrs./3 periods/3 lec.
Law library familiarization, research skills, methods, terminology, and basic techniques of writing research memoranda and reports.

LAS 104 Judgment, Analysis and Ethics/3 cr. hrs./3 periods/3 lec.
Basic rules, principles of abstract, inductive and deductive reasoning as applied to analysis; judgment and decision making; ethics as applied to the practice of law and the legal assistant.

LAS 105 Corporate Law Procedures/3 cr. hrs./3 periods/3 lec.
A review of procedures and document drafting relating to the formation and continuing operation of various types of corporations.

LAS 105 Corporate Law Procedures/3 cr. hrs./3 periods/3 lec.
A review of procedures and document drafting involving the formation and continuing operation of various business organizations.

LAS 199 Co-op Related Class in LAS/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

LAS 199A-E Co-op Work in LAS/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

LAS 201 Consumer Litigation/3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: BUS 200.
Procedures involved in litigation among consumers, business entities, and governmental agencies; government regulation and licensing of businesses; debtor and creditor rights, remedies and obligations.

LAS 202 Discovery and Trial Preparation/3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: LAS 102
Procedures and methods of discovery based on Rules of Evidence and Rules of Civil Procedure, and trial preparation and conduct.

LAS 203 Personal Injury, Malpractice, Products Liability, and Complex Litigation/3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: LAS 101 and LAS 102.
Procedures used in the preparation of cases dealing with civil liability and complete litigation techniques.

LAS 204 Probate Procedures/3 cr. hrs./3 periods/3 lec.
Arizona probate law regarding wills, trusts, and the administration of various estates; tax related matters.

LAS 205 Asset Analysis, Collection, Management and Distribution 3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: LAS 204
Analysis of the various forms of assets; their classification, valuation, administration, and disposition.

LAS 299 Co-op Related Class in LAS/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

LAS 299A-E Co-op Work in LAS/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

LIFE SCIENCES

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. hrs./1-3 periods
A review of basic anatomy and physiology. This course is primarily for students who have taken a traditional course but may need a review and additional information about anatomy and physiology.

LSC 102 Principles of Human Anatomy and Physiology 4 cr. hrs./6 periods (3 lec., 3 lab)
Not for biology or pre-med majors.
The study of the systems of the human body. Designed for students in health occupation programs which require a one-semester anatomy and physiology course or to fulfill a one-semester lab science requirement.

LSC 103 General Biology I /4 cr. hrs./6 periods (3 lec., 3 lab)
Not for biology or pre-med majors.
An introductory biology course. 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.

Life Sciences continued next page

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.

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, nervous, and endocrine 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 reproductive 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.
A study of the social, economic, and environmental problems created by the use of our natural resources; current topics and their historical basis will be discussed, with emphasis on North America.

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 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 environment. (Same as ANT 200.)

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.
An exposure to Papago tales and legends in the native language. Tales are studied in both written and oral form. Those in oral form will be written down and translated into English. Tales from different villages also are compared and contrasted both in content and dialect variation.

LIT 130 Afro-American Literature/3 cr. hrs./3 periods/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 161 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 prmote 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 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.

Literature continued next page

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 101 Machine Tool Laboratory Training I
3 cr. hrs./3 periods/3 lec.
Laboratory Training I for Machine Tool Technology Block Program.

MAC 103 Applied Career Mathematics/3 cr. hrs./9 periods/3 lec.
Practical mathematics as applied to technical careers with application to shop problems.

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 199 Co-op Related Class in MAC/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

MAC 199A-E Co-op Work in MAC/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

MAC 201 Machine Tool Laboratory Training II
3 cr. hrs./9 periods/9 lab
Laboratory Training II for Machine Tool Technology Block Program.

MAC 203 Machine Shop for Technicians III
4 cr. hrs./8 periods (2 lec., 6 lab)
☐ Prerequisite: MAC 120
Advanced shop practice in machine tool set up and operation.

MAC 210 Jig and Fixture Designing I
4 cr. hrs./8 periods (2 lec., 6 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./8 periods (2 lec., 6 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 225 Manufacturing Concepts/3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: MAC 130.
Processes and concepts as they relate to modern manufacturing and automated production.

MAC 230 Machine Shop Inspector Skills/2 cr. hrs./2 periods/2 lec.
This course provides the skills necessary to become a machine shop inspector. Precision measurement methods and techniques emphasizing the theory, application and manipulation of inspection equipment used in a standard machine shop.

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 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.

MAC 299 Co-op Related Class in MAC/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

MAC 299A-E Co-op Work in MAC/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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 199 Co-op Related Class in MAN/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

MAN 199C-D Co-op Work in MAN/3-6 cr. hrs./15-30 periods/15-30 lab
A supervised work program for students in an occupation related to their program of study.

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.

Management continued next page

MAN 280 Business Organization and Management 3 cr. hrs./3 periods/3 lec.

□ Prerequisite: BUS 100 and any other 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.

MAN 299 Co-op Related Class in MAN/1 cr. hr./1 period/1 lec.

Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

MAN 299C-D Co-op Work in MAN/3-6 cr. hrs./15-30 periods/15-30 lab

A supervised work program for students in an occupation related to their program of study.

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 150 Physical Distribution Management/3 cr. hrs./3 periods/3 lec.

An in-depth study of physical warehousing, inventory control, materials handling, industrial packaging, order processing and location analysis. Included are studies of managerial responsibilities and recent transportation regulation actions. (Same as TTM 204.)

MKT 199 Co-op Related Class in MKT/1 cr. hr./1 period/1 lec.

Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

MKT 199C-D Co-op Work in MKT/3-6 cr. hrs./15-30 periods/15-30 lab

A supervised work program for students in an occupation related to their program of study.

MKT 299 Co-op Related Class in MKT/1 cr. hr./1 period/1 lec.

Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

MKT 299C-D Co-op Work in MKT/3-6 cr. hrs./15-30 periods/15-30 lab

A supervised work program for students in an occupation related to their program of study.

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 1 cr. hr./1 period/1 lec.
Topics include operations with whole numbers, place value, order of operations, divisibility, prime factorization, and least common multiple.

MTH 060B Introductory Mathematics—Fractions and Decimals 1 cr. hr./1 period/1 lec.
☐ Prerequisite: MTH 060A or concurrent enrollment.
Topics include operations with common and decimal fractions.

MTH 060C Introductory Mathematics—Percent, Ratio and Measurement/1 cr. hr./1 period/1 lec.
☐ Prerequisite: MTH 060B or concurrent enrollment.
Topics include percent, ratio and proportion, measures, metric system and applications, and signed numbers.

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 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 polynomials.

MTH 070B Algebra I—Factoring, Rational Expressions and Graphs 1 cr. hr./1 period/1 lec.
☐ Prerequisite: MTH 070A or concurrent enrollment.
Topics include factoring, rational expressions, and graphing linear equations and inequalities.

MTH 070C Algebra I—Systems of Equations, Roots, Radical, and Quadratic Equations/1 cr. hr./1 period/1 lec.
☐ Prerequisite: MTH 070B or concurrent enrollment.
Topics include systems of linear equations, roots, radicals, and quadratic equations.

MTH 090 Elementary Geometry/3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: MTH 070 or equivalent.
Topics include 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 110 Technical Mathematics/3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: MTH 060 or equivalent.
Mathematics 110A through 110C collectively comprise MTH 110.

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 algebraic operations, linear equations and factoring.

MTH 110C Technical Mathematics I: Algebra, Part II 1 cr. hr./1 period/1 lec.
☐ Prerequisite: MTH 110B or concurrent enrollment.
Topics include algebraic fractions, graphs of equations and systems of linear equations.

MTH 115 Electronics Mathematics I /3 cr. hrs./3 periods/3 lec.
☐ Prerequisites: MTH 070 or equivalent.
Topics include algebra, the electronic calculator, simultaneous equations, Kirchoff's law, trigonometry and AC circuit analysis.

MTH 120 Technical Mathematics II /3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: MTH 110 or equivalent.
MTH 120A through 120C collectively comprise MTH 120.

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 a review of graphing and scientific notation.

MTH 120B Technical Mathematics II: Roots, Radicals and Quadratic Equations /1 cr. hr./1 period/1 lec.
☐ Prerequisite: MTH 120A or concurrent enrollment.
Topics include roots, radicals, and quadratic equations.

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.

Mathematics continued next page

MTH 125 Electronics Mathematics II /3 cr. hrs./3 periods/3 lec.
□ Prerequisite: MTH 115 or equivalent.
Topics include computer number systems, determinants, vector analysis, 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 through 130C collectively comprise MTH 130.

MTH 130A Algebra II—Linear Equations/1 cr. hr./1 period/1 lec.
□ Prerequisite: MTH 070 or equivalent or concurrent enrollment in MTH 070C.
Topics include real numbers properties, linear equations, and systems of linear equations.

MTH 130B Algebra II—Factoring, Fractions and Radicals 1 cr. hr./1 period/1 lec.
□ Prerequisite: MTH 130A or concurrent enrollment.
Topics include products, factoring, algebraic fractions, fractional equations, exponents and radicals, and complex numbers.

MTH 130C Algebra II—Quadratic Equations and Logarithms 1 cr. hr./1 period/1 lec.
□ Prerequisite: MTH 130B or concurrent enrollment.
Topics include quadratic equations, functions and graphs, variation exponential and logarithmic functions, inequalities and sets.

MTH 134 Statement Problems/1 cr. hr./1 period/1 lec.
Writing and solving first and second degree equations from problems in work, motion, mixture, etc. To assist students to translate verbal statements into mathematical equations.

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.
Topics include 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 or equivalent.
MTH 150A through 150C collectively comprise MTH 150.

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, funtions and transformations; equations of a line and graphing the parabola.

MTH 150B College Algebra: Linear Systems, Matrix Operations and Certain Functions/1 cr. hr./1 period/1 lec.
□ Prerequisite: MTH 150A or concurrent enrollment.
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 equalities in two variables.

MTH 155 Trigonometry/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: MTH 150 or concurrent enrollment.
MTH 155A through 155C collectively comprise MTH 155.

MTH 155A Trigonometry: Algebraic & Circular Functions 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 or equivalent.
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 or equivalent.
Topics include set theory, partitions, permutations, combinations, probability, Bernoulli trials, Markov chains, and linear programming simplex method. For students majoring in business.

MTH 175 Topics in Calculus/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: MTH 150 or equivalent.
Topics include 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 or equivalent.
Topics include straight lines, conic sections, liits, 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 or equivalent.
Topics include 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. Topics include 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.
Topics include 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.
Topics include 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.

Media Technology continued next page

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: MET 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 199 Co-op Related Class in MET/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

MET 299 Co-op Related Class in MET/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

MET 199B-C Co-op Work in MET/2-3 cr. hrs./10-15 periods/10-15 lab
A supervised work program for students in an occupation related to their program of study.

MET 299B-C Co-op Work in MET/2-3 cr. hrs./10-15 periods/10-15 lab
A supervised work program for students in an occupation related to their program of study.

MICROELECTRONICS

MRE 100 Introduction to Microelectronics/3 cr. hrs./3 periods/3 lec.
Course provides fundamental information, including employment opportunities, for students interested in working in the microelectronics industry. It introduces all areas of the microelectronics technology beginning with historical development, economic rationale and current state of the art. An overview will be given of technical areas. These include thick and thin film materials and processes, monolithic ICs, hybrid assembly and packaging, art work and design and quality control and reliability.

MRE 116 Microelectronic 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 microelectronics component assembly process.

MRE 117 Microelectronics Assembly: Die Attach
3 cr. hrs./4 periods (2 lec., 2 lab)
This course is designed to develop students' skills in the Die Attach task of the microelectronic component process.

MRE 118 Microelectronic Asembly: 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 microelectronic components process.

MRE 150 Introduction to Microelectronics Materials
3 cr. hrs./3 periods/3 lec.
□ Prerequisite: LSC 220 or consent of instructor.
Course introduces the spectrum of materials that are used to fabricate microelectronic circuits. Emphasis will be placed on economic environment and technical considerations used in selecting materials. Lecture and laboratory will include the relationship of materials selection and processing to their electrical and mechanical performance in the circuit. Materials study will include: thick and thin film conductor, resistor and dielectric systems, Monolithic IC desposition systems, solders, brazes, glasses and organic adhesive used in attaching components and leads, and those used in final packaging.

MRE 160 Introduction to Microelectronic Equipment
4 cr. hrs./6 periods (2 lec., 4 lab)
□ Prerequisite: MRE 100, MTH 115 or MTH 130, or consent of instructor.
Course introduces microelectronic processing and assembly equipment. Emphasis is placed on equipment operation, set-up, trouble-shooting and maintenance of equipment utilized in Hybrid Assembly, Thick Film Processing and Monolithic (Thin Film & Water) Fabrication. Processing will also be covered. Equipment reviewed will include screen printers, wire bonders, laser trimmers, furnaces, vacuum deposition units and automatic test equipment.

MRE 199 Co-op Related Class in MRE/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

MRE 199A-E Co-op Work in MRE/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

MRE 200 Microelectronic Photolithographic Processes 3 cr. hrs./4 periods (2 lec., 2 lab)
□ Prerequisite: MRE 100. DFT 170 may be taken concurrently.
A study of the image-forming processes required to produce integrated circuits. Topics to be covered include imaging systems, photoresist technology, pattern transfer and process control monitors.

MRE 210 Quality Control and Reliability for Microelectronics 3 cr. hrs./3 periods/3 lec.
□ Prerequisites: MRE 150, MRE 160, DFT 170.
This course covers the application of probability, statistics, and sampling for microelectronic process control and failure analysis. Military standards and reliability documents will be used to evaluate product performance and identify cause of failure.

MRE 220 Microelectronics Packaging/3 cr. hrs./4 periods (2 lec., 2 lab)
□ Prerequisite: MRE 150, MRE 160.
This course develops comprehensive knowledge and experience in microelectronics packaging. Topics include packaging of materials, processing methods and economics. Also included are device specification, documentation, reliability, and failure analysis.

MRE 230 Microelectronic Circuit Fabrication 4 cr. hrs./6 periods (2 lec., 4 lab)
□ Prerequisite: MRE 220.
This course covers the fabrication of a thick/or thin film microelectronic circuit, including circuit design, component selection, layout generation, photofabrication, screens and masks, screen printing/desposition, testing, etching components—attachment, packaging and critique.

MRE 299 Co-op Related Class in MRE/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

MRE 299A-E Co-op Work in MRE/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

MILITARY SCIENCE (AIR FORCE)

MLA 101 The U.S. Air Force Today I /2 cr. hrs./2 periods/2 lec.
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/2 lec.
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./2 periods/2 lec.
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./2 periods/2 lec.
The history, mission and organization of the defense establishment; the role of the military in cold, limited and general warfare. Leadership laboratory included. (Course offered in cooperation with U of A.)

MSC 203 American Military History/2 cr. hrs./2 periods/2 lec.
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 035 Opera Chorus/1 cr. hr./3 periods (1 lec., 2 lab)
□ Prerequisite: Students chosen by audition.
A selected group of mixed voices for study, rehearsal, and performance of the world's great operatic literature. Performances are scheduled throughout the academic year.

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)
□ Prerequisite: MUS 042.
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 includes 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. Course may be taken four times for a maximum of eight credit hours. 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 052 Beginning Band/2 cr. hrs./3 periods (1 lec., 2 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 102.
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 the fundamentals of 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 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. hr./3 periods (1 lec., 2 lab)
Rehearsal and performance of many styles of music in the jazz idiom. Open to all students through a conference and audition with the instructor. Progressive development of musical skills through interpretation of literature is stressed. Course may be taken four times for a maximum of four credit hours.

MUS 123 Instrumental Ensemble/1 cr. hr./2 periods (1 lec., 1 lab)
Course offers an opportunity for supervised rehearsal and performance of literature for various instumental 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 structures 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.
A study of the terminology of modal and contrapuntal music. Modal harmony, non-western music, analysis, and 18th century counterpoint.

MUS 127 Aural Perception I /1 cr. hr./2 periods (1 lec., 2 lab)
Development of aural techniques through dictation and performance of intervals, melodic and simple rhythmic structures. Attention is also directed to the general aural techniques of listening to music. Required of all music majors.

MUS 128 Aural Perception II / 1 cr. hr./2 periods (1 lec., I lab)
□ Prerequisite: MUS 127.
Development of aural techniques through dictation and performance of intervals, chord progression, and melodic and rhythmic structures. Attention is also directed to the general aural techniques of listening to music. Required of all 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 acadmic 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. Progresive 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. hr./3 periods (1 lec., 2 lab)
The concert choir is chosen from those who wish to paticipate 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 133 Concert Choir (SATB)/1 cr. hr./3 periods (1 lec., 2 lab)
The concert choir is chosen from those who wish to paticipate 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 oportunity 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.

Music continued next page

MUS 145 Applied Music—Private Instruction
2 cr. hrs./½ period/½ lecture
Private weekly lesson with an instructor and participation in student recitals and jury exams. (Required for music majors.) (There is a special fee for private instruction.)
Section 1—Brass
Section 2—Guitar
Section 3—Percussion
Section 4—Piano
Section 5—Strings
Section 6—Voice
Section 7—Woodwinds

MUS 146 Applied Music—Private Instruction
2 cr. hrs./½ period/½ lec.
☐ Prerequisite: MUS 145.
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.
Music literature from the Greeks to the Baroque focusing on a study of specific works as representative of musical evolution. Open to non-music majors.

MUS 202 History and Literature of Music II /3 cr. hrs./3 periods/3 lec.
Music literature from the Baroque through the present day focusing on a study of specific works as representative of musical evolution. Open to non-music majors.

MUS 207 New Music Composition/3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: MUS 125.
Composition of music using new resources, techniques, and notational systems. Includes exposure to and analysis of new music.

MUS 211 Basic Conducting Techniques/3 cr. hrs./3 periods/3 lec.
☐ Prerequisite: MUS 125 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.
A study of 20th century musical structure, including atonality, serialism, polytonality, chord structure, polyrhythm, and microtones. Required for music majors.

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 skills 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 147.
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.

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.

MUS 290C 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.

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 Fundamentals of Nursing (Eight Week Module)
4 cr. hrs./16 periods (4 lec., 12 lab)
□ Prerequisite: Admission to A.D. Nursing Program.
Introduces students to the conceptual framework of the A.D.N. Program; namely, man, wellness-illness continuum, and the nursing process. An introduction to role of R.N. as a member of the health team.

NRS 171 Introduction to Medical-Surgical Nursing (Eight Week Module)/4 cr. hrs./16 periods (4 lec., 12 lab)
□ Prerequisite: Admission to the A.D. Nursing Program.
Presents the nursing process as a tool for providing nursing care. Introduces students to fundamental nursing techniques related to oxygenation, hydration, nutrition, elimination, mobility.

NRS 172 Medical-Surgical Nursing (Eight Week Module)
5 cr. hrs./20 periods (5 lec., 15 lab)
□ Prerequisite: NRS 170 and NRS 171.
Expands the students exposure to basic principles of medical-surgical nursing. Focuses on the nursing management of the surgical client and of clients experiencing commonly occurring interferences in nutrition and elimination.

NRS 173 Intermediate Medical-Surgical Nursing (Eight Week Module)
5 cr. hrs./20 periods (5 lec., 15 lab)
□ Prerequisite: NRS 170 and NRS 171.
Introduces student to more complex nursing techniques. Presents nursing care of hospitalized adult medical-surgical clients experiencing commonly occurring interferences in respiration, renal function and circulation. Introduces student to concepts of cancer nursing.

NRS 280 Pediatric Nursing (Eight Week Module)
5 cr. hrs./20 periods (5 lec., l5 lab)
□ Prerequisite: NRS 172 and NRS 173.
Introduces student to child growth and development. Focuses on knowledge and skills as they apply to the nursing process in the care of children with commonly occurring health problems.

NRS 281 Obstetrical Nursing (Eight Week Module)
5 cr. hrs./20 periods (5 lec., 15 lab)
□ Prerequisite: NRS 173 and NRS 103.
Maternity nursing focuses on the concepts of family, growth and development. The main emphasis is on the normal aspects of maternal newborn care with some information about the complications of maternity and the newborn, and the effects of these complications upon the family.

NRS 282 Advanced Medical-Surgical Nursing (Eight Week Module)
5 cr. hrs./20 periods (5 lec., 15 lab)
□ Prerequisite: NRS 280 and NRS 281.
Major emphasis on complex client care and incorporated principles of management within a hospital setting. Includes trends and issues, legal and ethical responsibilities of the registered nurse.

NRS 283 Psychiatric Nursing (Eight Week Module)
5 cr. hrs./20 periods (5 lec., 15 lab)
□ Prerequisite: NRS 280 and NRS 281.
Emphasis on psychiatric nursing care in a variety of hospital and community settings. Included in this course is the mental health-illness continuum and its interventions.

OFFICE EDUCATION

OED 021 Beginning Forkner Shorthand
3 cr. hrs./4 periods (3 lec., 1 lab)
Introduction of Forkner Shorthand theory; development of dictation speed from 60 to 80 words per minute, and typewritten transcription of business letters with emphasis on improved spelling, grammar, and punctuation.

Office Education continued next page

OED 022 Advanced Forkner Shorthand
3 cr. hrs./4 periods (3 lec., 1 lab)
Development of dictation speed from 60 to 120 words per minute. Dictation, business vocabulary, and technical terms. Further development of transcription skills including punctuation, grammar, and typing techniques.

OED 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 Stenoscript 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 technques are taught.

OED 062 Stenoscript 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, manuscripts, centering, tabulation, and forms.

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, productions and speed building.

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.

OED 095 Taguigrafia 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 esté 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 40-50 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: Development of a Program
3 cr. hrs./3 periods/3 lec.
A general survey course in the principles affecting the control of all types of records within an organization from creation to final disposition. Includes guidelines for the establishment, implementation, and maintenance of records control programs.

OED 132 Records Management: Filing Systems
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 132A Records Managements: Filing Systems A
1 cr. hr./1 period/1 lec.
This module includes the indexing, coding, cross-referencing and alphabetizing of personal and business names.

OED 132B Records Management: Filing Systems B
1 cr. hr./1 period/1 lec.
□ Prerequisite: OED 132A 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 132C Records Management: Filing Systems C
1 cr. hr./1 period/1 lec.
□ Prerequisite: OED 132B 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 199 Co-op Related Class in OED/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

OED 199A-E Co-op Work in OED/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

OED 201 Shorthand III /3 cr. hrs./5 periods (3 lec., 2 lab)
□ Prerequisites: Two years of shorthand or 60-70 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 220 Word/Information Processing Concepts
2 cr. hrs./3 periods (2 lec., 1 lab)
Basic concepts of word/information processing. Introduction to the types of equipment and procedures used in the automated office. Includes historical background and current developments in word/information processing.

Office Education continued next page

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.
Survey of copy processing. Techniques of copy preparation and reproduction, including duplicating, printing, copying, and imaging devices.

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 221C or equivalent.
A further development of machine transcription techniques, with emphasis on mailability and transcription speed development. Legal, medical, and general business correspondence is included.

OED 231 Records Management: Forms Management
3 cr. hrs./3 periods/3 lec.
□ Prerequisite: OED 130 or equivalent.
Course includes analysis of current forms, design of new forms, and the establishment of a forms management program.

OED 232 Records Management: Supervision
3 cr. hrs./3 periods/3 lec.
□ Prerequisite: OED 131 or equivalent.
A practical approach to office organization and adminstrative management. Emphasizes management of administrative services, physical resources, human resources, and systems and procedures.

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 and English proficiency in speaking and writing.
The Spanish and English languages as a business skill. The course is specially designed for bilingual secretaries or office personnel. Emphasis is given in developing business terminology in English and Spanish and applying these in a variety of business communications such as letters and memos. Also includes practice in taking, transcribing, and translating in both languages.

OED 252 Correspondencia comercial/2 cr. hrs./2 periods/2 lec.
□ Requisito: Habilidad de leer y escribir ambos idiomas de inglés y español.
Las destrezas comerciales de inglés y español. Esta clase es especialmente para las personas que requieren obtener aptitudes en comunicaciones comerciales. La clase de énfasis en el desarrollo de terminología comercial y en la redacción de cartas y memos. También se práctica el dictado, transcripcion, y traducción de varios tipos de comunicaciones en embos idiomas.

OED 262 Medical Terms II /3 cr. hrs./3 periods/3 lec.
□ Prerequisites: 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.

OED 299 Co-op Related Class in OED/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

OED 299A-E Co-op Work in OED/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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)
□ Prerequisites: 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)
□ Prerequisites: 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)
□ Prerequisites: 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 period (4 lec., 3 lab)
□ Prerequisite: ODT 055.
The theory and practice of contact lens fitting optics, corneal measurements, lens check-outs, adusting, bifocal and toric contact lenses and patient control.

ODT 058 Optical Dispensing II /4 cr. hrs./4 periods /4 lec.
□ Prerequisites: 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.

ODT 299 Co-op Related Class in ODT/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

ODT 299C Co-op Work in ODT/3 cr. hrs./15 periods/15 lab
A supervised work program for students in an occupation related to their program of study.

PAPAGO

PGA 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 Introduction to Bailes Folkloricos: Mexicanos
2 cr. hrs./3 periods (1 lec., 2 lab)
Introduction to basic techniques of the zapateado: skills and symbolism of foot and body movements and of costumes for various dances; progression to some of best known, traditional dances from different regions of Mexico.

PED 100 Bailes folklóricos mexicanos
2 cr. hrs./3 periods (1 lec., 2 lab)
Son ensenados los mejores conocidos bailes folklóricos tradicionales de varias regiones de Mexico. La clase empieza con ejercicios calisténios seguidos por las técnicas del zapateado. El progreso es segñn la abilidad de la clase. Cuando sea necesario, clases en las técnicas del baile moderno se ofrecen domo complemento a los folklóricas.

PED 101, 102-108, 112, 114-116, 118, 119 Professional Activities
1-13 cr. hrs./3-39 periods/3-39 lab
A series of 13 activities from which the P.E. major or minor must select a minimum of eight (8). These courses emphasize skill, strategy, learning theory, and evaluation methods beyond the beginning level.

PED 101 Badminton/1 cr. hr./3 periods/3 lab
PED 103 Basketball/1 cr. hr./3 periods/3 lab
PED 104 Field Hockey/1 cr. hr./3 periods/3 lab
PED 105 Racquetball/1 cr. hr./3 periods/3 lab
PED 106 Self Defense/1 cr. hr./3 periods/3 lab
PED 107 Soccer/1 cr. hr./3 periods/3 lab
PED 108 Softball/1 cr. hr./3 periods/3 lab
PED 112 Volleyball/1 cr. hr./3 periods/3 lab
PED 114 Archery/1 cr. hr./3 periods/3 lab
PED 115 Tennis/1 cr. hr./3 periods/3 lab
PED 116 Track & Field/1 cr. hr./3 periods/3 lab
PED 118 Weight Training/1 cr. hr./3 periods/3 lab
PED 119 Aerobics/1 cr. hr./3 periods/3 lab

PED 110 Folkloric Mexican Dance I: Oaxaca
2 cr. hrs./3 periods (1 lec., 2 lab)
□ Prerequisite: PED 100.
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.

PED 111 Folkloric Mexican Dance II: Michoacan
2 cr. hrs./3 periods (1 lec., 2 lab)
□ Prerequisite: PED 100.
Introduction to the folkloric Mexican dance. This course covers the study of the regional dance of the state of Michoacan in its different forms, the practice of danzas and dances of the region.

PED 117 Bailes folkloricos mexicanos: Vera Cruz
2 cr. hrs./3 periods (1 lec., 2 lab)
□ Prerequisite: PED 100 or permission of instructor.
A course in advanced Mexican folkloric dances, including the most traditional dances of the state of Vera Cruz. It will include theory and practices of the dances; symbolism of costumes; study of style; techniques for and accent of steps, and laboratory of skills in dances and costumes.

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 Introduction to Sports Injury Management
2 cr. hrs./2 periods/2 lec.
This course introduces the student to the basic concepts involved in preventing, treating, and rehabilitating sports related injuries. Areas covered include recognition of sports injuries, therapeutic modalities, mechanisms of sports injuries, nutrition, taping/wrapping techniques.

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 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 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 148 Dance: Country Swing/1 cr. hr./2 periods (1 lec., 1 lab)
This course is designed to provide the student with a working knowledge of the basic country swing steps and movements for recreational or professional use.

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 150-289 General Activities (Non-Majors)
1-2 cr. hrs./2-3 periods (1-2 lec., 1 lab)
The following activity classes are designed for non-majors. A wide variety of activities ranging from beginning to advanced skill levels are available. Students wishing to take intermediate or advanced classes should have skills above the beginning level and/or permission of the instructor.

PED 150 Beginning Archery/1 cr. hr./2 periods (1 lec., 1 lab)
PED 152 Advanced Archery/1 cr. hr./2 periods (1 lec., 1 lab)
PED 153 Beginning Badminton/1 cr. hr./2 periods (1 lec., 1 lab)
PED 156 Beginning Baseball/1 cr. hr./2 periods (1 lec., 1 lab)
PED 159 Beginning Basketball/1 cr. hr./2 periods (1 lec., 1 lab)
PED 160 Intermediate Basketball/1 cr. hr./2 periods (1 lec., 1 lab)
PED 161 Advanced Basketball/1 cr. hr./2 periods (1 lec., 1 lab)
PED 162 Beginning Bowling /1 cr. hr./2 periods (1 lec., 1 lab)
PED 165 Beginning Dance/1 cr. hr./2 periods (1 lec., 1 lab)
PED 167 Advanced Dancing/1 cr. hr./2 periods (1 lec., 1 lab)
PED 168 Defensive Tactics/2 cr. hrs./3 periods (2 lec., 1 lab)
PED 171 Deportes Biling$es/1 cr. hr./2 periods (1 lec., 1 lab)
PED 172 Beginning Fencing/1 cr. hr./2 periods (1 lec., 1 lab)
PED 174 Advanced Fencing/1 cr. hr./2 periods (1 lec., 1 lab)
PED 176 Flag Football/1 cr. hr./2 periods (1 lec., 1 lab)
PED 177 Fitness/1 cr. hr./2 periods (1 lec., 1 lab)
PED 180 Beginning Golf/1 cr. hr./2 periods (1 lec., 1 lab)
PED 182 Advanced Golf/1 cr. hr./2 periods (1 lec., 1 lab)

Physical Education continued next page

PED 183 Beginning Gymnastics/1 cr. hr./2 periods (1 lec., 1 lab)
PED 185 Advanced Gymnastics/1 cr. hr./2 periods (1 lec., 1 lab)
PED 186 Beginning Judo/1 cr. hr./2 periods (1 lec., 1 lab)
PED 188 Advanced Judo/1 cr. hr./2 periods (1 lec., 1 lab)
PED 189 Life Saving/1 cr. hr./2 periods (1 lec., 1 lab)
PED 190 Beginning Racquetball/1 cr. hr./2 periods (1 lec., 1 lab)
PED 191 Intermediate Racquetball/1 cr. hr./2 periods (1 lec., 1 lab)
PED 192 Advanced Racquetball/1 cr. hr./2 periods (1 lec., 1 lab)
PED 193 Self-Defense for Women/2 cr. hrs./3 periods/ (2 lec., 1 lab)
PED 195 Square Dancing/1 cr. hr./2 periods (1 lec., 1 lab)
PED 196 Soccer/1 cr. hr./2 periods (1 lec., 1 lab)
PED 198 Softball/1 cr. hr./2 periods (1 lec., 1 lab)
PED 199 Swimming/1 cr. hr./2 periods (1 lec., 1 lab)
PED 202 Beginning Tennis/1 cr. hr./2 periods (1 lec., 1 lab)
PED 204 Advanced Tennis/1 cr. hr./2 periods (1 lec., 1 lab)
PED 205 Track & Field/1 cr. hr./2 periods (1 lec., 1 lab)
PED 208 Beginning Volleyball/1 cr. hr./2 periods (1 lec., 1 lab)
PED 209 Intermediate Volleyball/1 cr. hr./2 periods (1 lec., 1 lab)
PED 210 Advanced Volleyball/1 cr. hr./2 periods (1 lec., 1 lab)
PED 211 Water Safety Instructor/1 cr. hr./2 periods (1 lec., 1 lab)
PED 212 Beginning Weight Training/1 cr. hr./2 periods (1 lec., 1 lab)
PED 213 Intermediate Weight Training/1 cr. hr./2 periods (1 lec., 1 lab)
PED 214 Advanced Weight Training/1 cr. hr./2 periods (1 lec., 1 lab)
PED 215 Wrestling/1 cr. hr./2 periods (1 lec., 1 lab)
PED 221 Ice Skating/1 cr. hr./2 periods (1 lec., 1 lab)
PED 224 Ice Hockey/1 cr. hr./2 periods (1 lec., 1 lab)
PED 256 Dance Arabic/1 cr. hr./2 periods (1 lec., 1 lab)
PED 290 Independent Studies in Health, Physical Education, and Recreation/3 cr. hrs./9 periods/9 lab
An exploration of special interest areas; students independently pursue their further development in HPER with the help of a faculty member. Course may be repeated twice.

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)
☐ Prerequisites: PHY 101, MTH 070.
A continuation of PHY 101. The course deals mostly with the application of the electro-magnetic theroy to the technologies.

PHY 105 Fundamental Physics/3 cr. hrs./5 periods (2 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 and Calculus I
5 cr. hrs./7 periods (4 lec., 3 lab)
☐ Prerequisite: Calculus or concurrent enrollment.
For mathematics and science majors. Topics include mechanics, heat, waves and sound.

PHY 132 Introductory Physics and Calculus II
5 cr. hrs./7 periods (4 lec., 3 lab)
☐ Prerequisite: PHY 131.
Light, electricity and magnetism, atomic and nuclear physics.

PHY 132 Introductory Physics and Calculus II
5 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/1-3 lec.
☐ 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/5 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
5 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
4 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
4 cr. hrs./6 periods (3 lec., 3 lab)
□ Prerequisites: 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/2-4 lec.
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 199 Co-op Related Class in PSM/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

PSM 199A-E Co-op Work in PSM/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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 210 Mailroom Procedures and Mailing Techniques 3 cr. hrs./3 periods/3 lec.
Provides in-depth knowledge of business mailroom procedures to include mailroom setup, equipment, personnel administration, time management and U.S. Postal Service requirements for all classes of mail. Prepares student for employment in a businss mailroom.

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.

PSM 280 Management of Small Post Offices 3 cr. hrs./3 periods/3 lec.
Provides in-depth knowledge of the management of small post offices within the U.S. Postal Service. Specifically includes the duties, responsibilities and skills necessary to manage these offices in a productive and responsive manner.

PSM 299 Co-op Related Class in PSM/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

PSM 299A-E Co-op Work in PSM/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

POTABLE WATER TECHNOLOGY

PWT 202 Water Treatment Processes/3 cr. hrs./5 periods (2 lec., 3 lab)
Unit processes involved in the treatment of both ground and surface water includes pretreatment, coagulation, mixing, flowculation, sedimentation, filtration, disinfection; including colored turbidity removal, softening, disinfection, chlorination, fluoridation, taste and odor removal.

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 050 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.

PSY 090 Psicologia 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 Psicologóa 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 105 Psychology of Women/3 cr. hrs./3 periods/3 lec.
This course will focus on the separate experiences of women. Biological and sociological explanations of female development, women's relationships to power, changing roles, and implications for human liberation will be studied.

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/3-6 lec.
□ 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/3-18 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 060 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.
A survey course dealing with the role of the public administrator in the development of public sector institutions and management systems in response to changing social needs and expectations.

PAD 201 Environment and Management in Public Organizations
3 cr. hrs./3 periods/3 lec.
Impact of environmental forces on public sector organizations and the ways that public managers respond with program planning, financial, personnel, and evaluation methods.

PUBLIC BUILDING MAINTENANCE

PBM 055 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.

PUBLIC TRANSPORTATION MAINTENANCE TECHNOLOGY

PTM 101 Applied Electrical Systems/4 cr. hrs./8 periods (3 lec., 5 lab)
Basic theory and application in the servicing and maintenance of electrical systems on public transportation vehicles. Topics include reading schematics, use of test equipment, and repair procedures.

PTM 102 Brake Systems/3 cr. hrs./3 periods/3 lec.
Includes maintenance, services, and repair of brake systems on public transportation vehicles.

PTM 103 Air Systems/3 cr. hrs./3 periods/3 lec.
The operation, diagnosis, maintenance, and repair of air operated systems on public transportation vehicles.

PTM 104 Diesel Engine Basics/3 cr. hrs./3 periods/3 lec.
Includes the theory of operation, tune-up procedures, and preventive maintenance for the diesel engine.

PTM 105 Air Conditioning Systems/4 cr. hrs./8 periods (3 lec., 5 lab)
□ Prerequisite: PTM 101.
Basic theory and application in the diagnosis, servicing, and overhauling components of the air conditioing systems in public transportation vehicles.

PTM 106 Automatic Transmission VH & VS
4 cr. hrs./8 periods (3 lec., 5 lab)
Includes the diagnosis, maintenance, servicing, and overhauling of the V-730 automatic transmission in a public transportation vehicle.

PTM 199 Co-op Related Class in PTM/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

PTM 199A-E Co-op Work in PTM/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

PTM 299A-E Co-op Work in PTM/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

PTM 201 Automatic Transmission V-730
4 cr. hrs./8 periods (3 lec., 5 lab)
Includes the diagnosis, maintenance, servicing, and overhauling of the V-730 automatic transmission in a public transportation vehicle.

PTM 202 Diesel Engine Overhaul/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: PTM 103.
Includes disassembly, reassembly, evaluation of parts, and use of special equipment for overhauling a diesel engine.

PTM 203 Rear Ends and Differentials/3 cr. hrs./3 periods/3 lec.
Involves the overhaul procedures on the rear axle and propeller shaft, diagnosis, removal, replacement, and adjustment procedures.

PTM 204 Front End Alignment and Steering Gears
3 cr. hrs./3 periods/3 lec.
Involves steering geometry, diagnosis and repair of steering gears, and the proper procedures for overhauling power and manual steering gears and front axle assemblies.

PTM 299 Co-op Related Class in PTM/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

RADIOLOGIC (X-RAY) TECHNOLOGY

RAD 071 Radiologic Fundamentals/4 cr. hrs./6 periods (3 lec., 3 lab)

☐ Prerequisite: Admission into program.

An introduction to radiographic equipment, the theory and practice of film processing, and positioning the upper-extremities. Emphasis on patient care and radiation protection.

RAD 072 Radiographic Processing and Technique 4 cr. hrs./6 periods (3 lec., 3 lab)

☐ Prerequisite: RAD 071 and consent of department chair.

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 073 Radiographic Positioning I /4 cr. hrs./6 periods (3 lec., 3 lab)

☐ Prerequisites: RAD 071 and consent of department chair.

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 081 Radiographic Positioning II /4 cr. hrs./6 periods (3 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 082 Radiologic Physics/4 cr. hrs./6 periods (3 lec., 3 lab)

☐ Prerequisite: Satisfactory completion of first-year courses.

This course introduces the fundamental aspects of matter, the basic principles of x-ray production and the electronic components of the x-ray generating circuit. Emphasis is on accurate radiographic principles, and technical factors, the demonstration and application of x-ray equipment and the methods of reducing radiation exposures of patients and personnel.

RAD 083 Clinical Procedures I /2 cr. hrs./6 periods/6 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 084 Radiation Biology and Therapy/3 cr. hrs./3 periods/3 lec.

☐ Prerequisite: Satisfactory completion of first-year courses.

An introduction to radiation biology, radiation protection and the specialty of radiation therapy. Emphasis is on the biologic effects of radiation on human tissues including current methods of minimizing the exposure and the equipment/technology utilized in radiation therapy for the treatment of various diseases.

RAD 085 Radiographic Positioning III 4 cr. hrs./6 periods (3 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 086 Clinical Procedures II /2 cr. hrs./6 periods/6 lab

☐ Prerequisite: Satisfactory completion of required third-semester courses.

A continuation of RAD 083. 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 088 Imaging Systems/4 cr. hrs./6 periods (3 lec., 3 lab)

☐ Prerequisite: Satisfactory completion of required third-semester courses.

This course emphasizes the newest equipment and techniques utilized in radiologic diagnostic imaging systems.

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.

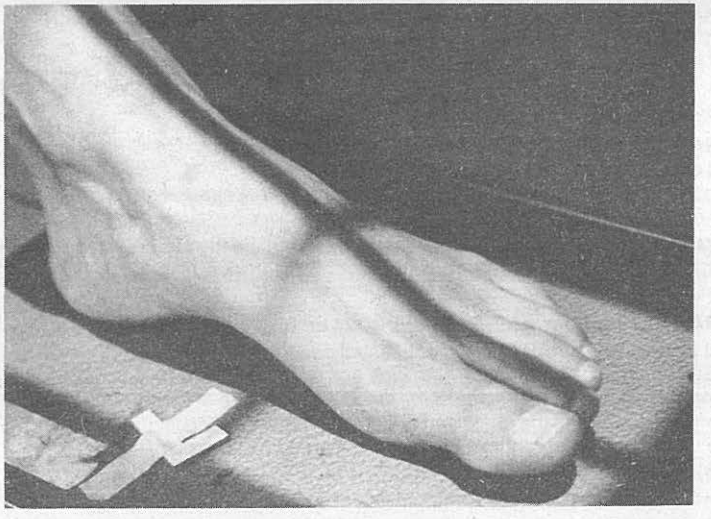
This course is designed to renew and improve the radiologic technologist's knowledge of the principles of tomography and its applications. The course includes historical context of tomography, factors affecting tomographic images, testing the system, applications and special techniques. The course will enhance the radiologic technologist's ability to perform all types of tomographic examinations.

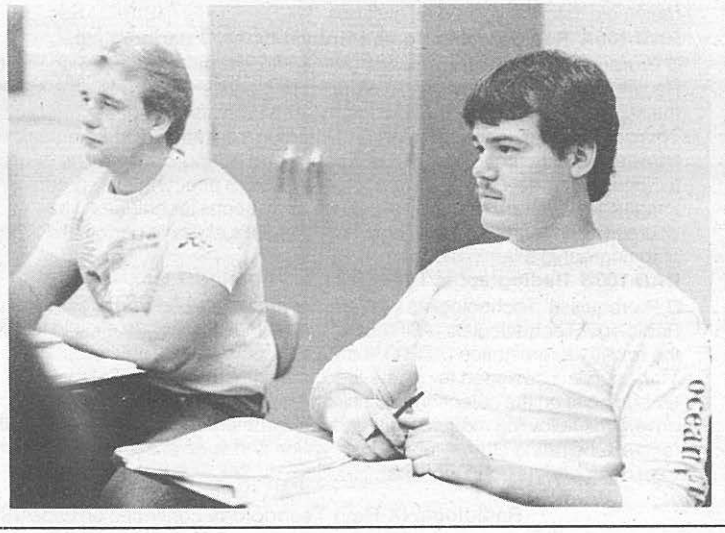
RAD 100B Radiographic Tubes/1 cr. hr./1 period/1 lec.

☐ 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.

Radiologic (X-Ray) Technology continued on page 239





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 (ARRT).
This course is for registered or registry eligible radiologic technologists to review and practice radiographic-positioning for visualization of the bones of the skull, sinuses and mastoids. Radiographic phantoms are used to demonstrate the principles of exposure. Group process is used to demonstrate positioning and to critique films.

RAD 199 Co-op Related Class in RAD/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

RAD 199E Co-op Work in RAD/8 cr. hrs./40 periods/40 lab
A supervised work program for students in an occupation related to their program of study.

RAD 299 Co-op Related Class in RAD/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

RAD 299E Co-op Work in RAD/8 cr. hrs./40 periods/40 lab
A supervised work program for students in an occupation related to their program of study.

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.

Reading continued next page

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.

REA 125 Speed Reading/2 cr. hrs./2 periods/2 lec.
□ Prerequisite: Nelson-Denny Reading Test. Comprehension score 12.
This course is designed to improve the reading rate of those students who have mastered the basic skills of reading. It teaches a student when and how to read rapidly and when not to. In addition, emphasis is placed upon comprehension and the critical analytical evaluation of the structure of writing. This course will benefit those in careers such as teaching, medicine, science, law, business, management and technologies.

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 103 Real Estate Legal Procedures/3 cr. hrs./3 periods/3 lec.
The procedures and requirements in real estate transactions and litigation; drafting of documents and pleadings.

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 160 Real Estate License Update I /1 cr. hr./1 period/1 lec.
This course is designed to update practicing real estate professionals in recent changes in legislation, real estate laws and appraisal techniques.

RLS 161 Real Estate License Update II /1 cr. hr./1 period/1 lec.
This course provides current information on real estate funding packages, contract negotiation, and IRA rulings.

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 051 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 052 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 074 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 080 Advanced Federal Lands Facility Planning and Visitor Services/1 cr. hr./3 periods (2 lec., 1 lab)
This also is a sequential four-day session during the spring recess. Students are introduced to the National Park Service basic law enforcement techniques, facility maintenance and planning, and environmental interpretation.

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 overdosages, 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. hrs./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 199 Co-op Related Class in REC/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

Recreation continued next page

REC 199A-C Co-op Work in REC/1-3 cr. hrs./5-15 periods/5-15 lab
A supervised work program for students in an occupation related to their program of study.

REC 252 Advanced Marksmanship/1 cr. hr./2 periods (1 lec., 1 lab)
Course covers advanced techniques of competitive marksmanship and includes extensive range practice while emphasizing range safety.

REC 256 Advanced Trapshooting/1 cr. hr./2 periods (1 lec., 1 lab)
Similar to REC 252.

REC 299 Co-op Related Class in REC/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

REC 299A-C Co-op Work in REC/8 cr. hrs./40 periods/40 lab
A supervised work program for students in an occupation related to their program of study.

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 the 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 study 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 071 Introduction to Respiratory Therapy
5 cr. hrs./9 periods (3 lec., 6 lab)
□ Prerequisites: Admission to the RTH core curriculum, concurrent enrollment in RTH 082.
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 073 Clinical Medicine/3 cr. hrs./3 periods/3 lec.
□ Prerequisites: RTH 071, concurrent enrollment in RTH 083, 086 and 091.
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 082 Respiratory Physiology/5 cr. hrs./5 periods/5 lec.
□ Prerequisite: Concurrent enrollment in RTH 071.
An in-depth study of the cardiopulmonary system, associated structures and the principles involved in ventilation and gas transport.

RTH 083 Respiratory Care I /5 cr. hrs./7 periods (4 lec., 3 lab)
□ Prerequisites: RTH 071 concurrent enrollment in RTH 073, 086 and 091.
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 084 Respiratory Care II /5 cr. hrs./7 periods (4 lec., 3 lab)
□ Prerequisites: RTH 083, concurrent enrollment in RTH 089 and 092.
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 086 Diseases I /4 cr. hrs./4 periods/4 lec.
□ Prerequisites: RTH 082, concurrent enrollment in RTH 073, 083 and 091.
Course covers cardiopulmonary diagnostic procedures and studies, and begins the study of common pulmonary disorders.

RTH 089 Diseases II /4 cr. hrs./4 periods/4 lec.
□ Prerequisites: RTH 086, concurrent enrollment in RTH 084 and 092.
A continuation of the study of pathophysiology of cardiopulmonary disorders and treatment.

RTH 091 Clinical Procedures I /5 cr. hrs./15 periods/15 lab
□ Prerequisite: Concurrent enrollment in RTH 083.
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 092 Clinical Procedures II /8 cr. hrs./24 periods/24 lab
□ Prerequisite: Concurrent enrollment in RTH 084.
An extension of RTH 091 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.

RCF 199 Co-op Related Class in RCF/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

RCF 199A-E Co-op Work in RCF/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

RCF 299 Co-op Related Class in RCF/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

RCF 299A-E Co-op Work in RCF/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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.

Sheet Metal continued next page

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 199 Co-op Related Class in SML/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

SML 199A-E Co-op Work in SML/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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.

SML 299 Co-op Related Class in SML/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

SML 299A-E Co-op Work in SML/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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 related professionals.

SLG 101 American Sign Language I /4 cr. hrs./6 periods (3 lec., 3 lab)
A beginning course in the language of signs. Emphasis is on the development of expressive sign skills, 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 American Sign Language 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 sign skills 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 105 Expressive/Receptive Fingerspelling and Numbers
2 cr. hrs./2 periods/2 lec.
□ Prerequisite: Co-registration in SLG 101 or 102 or instructor's permission.
Concentrates on refinement of receptive and expressive skills with the manual alphabet and numbers. This approach will focus on methodology, theory, and application.

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 stances supporting each.

SLG 150 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. Hearing aids, their functions and limitations are discussed.

SLG 180 Psycho-Social Aspects of Deafness/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: American Sign Language III or equivalent, or instuctor's permission.
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 199 Co-op Related Class in SLG/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

SLG 199A-E Co-op Work in SLG/1-8 cr. hrs./5-40 periods/5-40 lab)
A supervised cooperative work program for students in an occupation related to their program of study.

SLG 201 American Sign Language III /4 cr. hrs./6 periods (3 lec., 3 lab)
Advanced vocabulary and idioms, study of American Sign Language linguistics. Includes body language, mime forms of nonverbal communication and syntax grammar. 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 American Sign Language IV /4 cr. hrs./6 periods (3 lec., 3 lab)
□ Prerequisite: SLG 201.
Advanced course in American Sign Language stressing idioms, linguistics 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 203 American Sign Language V /3 cr. hrs./3 periods/3 lec.
□ Prerequisite: SLG 202 or equivalent.
This course is designed to develop conversational and communication skills with the deaf person who only uses American Sign Language or has minimal language competency.

SLG 220 Interpreting I /3 cr. hrs./3 periods/3 lec.
□ Prerequisite: American Sign Language III or equivalent or instructor's permission.
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. (May be taken concurrently with SLG 201.)

SLG 240 Practicum/3 cr. hrs./3 periods/3 lec.
This course is designed to provide practical exposure to interpreting/transliterating skills in various settings and conditions. Students may also facilitate commnication in specific situations after consulting with practicum advisor.

SLG 250 Interpreting II /3 cr. hrs./3 periods/3 lec.
□ Prerequisite: SLG 220. May take SLG 202 and SLG 250 concurrently.
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 260 Oral Interpreting/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: SLG 250.
This course will focus on oral interpreting for those hearing impaired/deaf individuals who rely on speech reading and choose not to utilize American Sign Language for communication.

SLG 270 Sign to Voice "Reverse Interpreting" 3 cr. hrs./3 periods/3 lec.
□ Prerequisite: Completion of SLG 203.
This course is designed to focus on the "Sign to Voice" aspect of sign language interpreting, rapid improvement of skills utilized in the specialized area of interpreting.

SLG 280 Interpreting III /3 cr. hrs./3 periods/3 lec.
□ Prerequisite: SLG 250.
This course focuses on the following specialized areas of interpeting/transliterating, legal, educational, medical, religious, M.L.C. deaf/blind and dramatic.

SLG 290 Practicum/6 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.

SLG 299 Co-op Related Class in SLG/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

SLG 299A-E Co-op Work in SLG/1-8 cr. hrs./5-40 periods/5-40 lab)
A supervised work program for students in an occupation related to their program of study.

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 I /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 199 Co-op Related Class in SSE/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

SSE 199B-C Co-op Work in SSE/2-3 cr. hrs./10-15 periods/10-15 lab
A supervised work program for students in an occupation related to their program of study.

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 le 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 obervar.

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 Casework Methods II /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)
□ Prerequisites: SSE 133, 134 and consent of instructor.
Supervised placement in community social services agencies so that students are exposed to and gain experience in the practical application of classroom knowledge. Bi-weekly seminars are conducted to discuss practical issues raised through the field experience and pertinent theory. Course may be taken two times for a maximum of six credit hours.

SSE 299 Co-op Related Class in SSE/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

SSE 299B-C Co-op Work in SSE/2-3 cr. hrs./10-15 periods/10-15 lab
A supervised work program for students in an occupation related to their program of study.

SOCIOLOGY

SOC 052 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.
An introduction to the basic concepts of sociology and sociological analysis, with emphasis on group, status, personality, role, socialization, social processes, institutions, social organiation and social change.

SOC 101 Current United States Social Problems
3 cr. hrs./3 periods/3 lec.
□ Prerequisite: SOC 100 for University of Arizona transfer.
Analysis of such topics as crime, mental illness, urban problems and other forms of social disorganization as they relate to modern American society. Problems are studied within the context of the international community.

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/3-6 lec.
□ Prerequisite: Consent of instructor.
An exploration of special interest areas. Content to be determined by student and facilitator-instructor.

Sociology continued next page

SOC 298 Topics in Community Involvement
1-3 cr. hrs./1-3 periods/1-3 lec.

□ Prerequisite: Consent of instructor.

Direct, constructive student involvement in community problems. Students work individually or in small teams through guidance and periodic consultations with faculty advisors. Special activities also will be determined by the advisors. Students employed or working as volunteers with agencies or groups may get credit for those activities under this course.

SOLAR ENERGY TECHNOLOGY

SET 100 The Sun and Solar Energy/3 cr. hrs./3 periods/3 lec.

Basic concepts and applications of solar energy.

SET 101 Solar Energy Fundamentals/3 cr. hrs./3 periods/3 lec.

Basic solar collector systems with emphasis on residential heating and cooling systems, refrigeration and evaporative cooling systems, solar system sizing and energy costs.

SET 102 Solar Design and Installation
4 cr. hrs./6 periods (3 lec., 3 lab)

Design and installation of active hydronic and air solar systems.

SET 103 Solar Maintenance and Repair
4 cr. hrs./6 periods (3 lec., 3 lab)

Covers maintenance and repair of active hydronic and air solar systems including troubleshooting, collector and energy transport evaluation and back-up system controls.

SET 104 Uniform Solar, Building & Electrical Code
3 cr. hrs./3 periods/3 lec.

Use of the current uniform solar energy, building and electrical codes including application to actual construction practices.

SET 105 Uniform Plumbing Code and Application
3 cr. hrs./5 periods (2 lec., 3 lab)

Use of the current uniform plumbing code related to solar applications.

SET 201 Energy Conservation/3 cr. hrs./3 periods/3 lec.

Energy conservation and use involving sources of energy, energy analysis, energy and the environment and descriptions of job functions typical to energy technicians.

SET 202 Solar and Energy Assessment/3 cr. hrs./3 periods/3 lec.

Examines and evaluates solar energy, alternative heating and cooling, insulating, power and lighting systems and establishes economic feasibility for use in single family residences.

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 on 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 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 201 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 201 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 202 Spanish for Native Speakers II /4 cr. hrs./4 periods/4 lec.

□ Prerequisite: SPA 201.

This is a continuation of intensive Spanish for native speakers.

SPA 202 Español para estudiantes de habla hispana II
4 cr. hrs./4 periods/4 lec.
☐ Requisito: SPA 201.
En Español 202 se continúa el curso 201 del primer semestre con mayor participación en la literatura y en la gramática.

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.
☐ Requisito: 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 particar el hablar y para ensanchar el vocabulario. Para la parte escrita se estudiarán trozos de cuento, para análisis de estilo y dispués 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 230 Introduction to Literature in Spanish
4 cr. hrs./4 periods/4 lec.
☐ Prerequisite: SPA 211, SPA 102 or permission of instructor.
SPA 230 is designed to give students a broader knowledge of the language through the study of literature written in Spanish. Selections are taken from representative Spanish, Latin American, and Chicano writers.

SPA 240 Independent Study in Spanish Language
1-4 cr. hrs./1-4 periods/1-4 lec.
☐ Prerequisite: Consent of instructor.
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 literararia.

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.

Speech continued next page

SPE 120 Comunicación Comercial y Profesional
3 cr. hrs./3 periods/3 lec.
Estudio y entrenamiento en situaciones comunicativas y problemas dentro del sistema de la organización. Los trabajos básicamente consisten en reportes orales, entrevistas, solución de problemas y grupos de conferencias, escuchar y persuadir.

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 focuses on the disabilities and handicaps associated with the multiple-handicapped with emphasis on minimizing handicaps through the use of teaching techniques, appropriate tasks and materials, behavior control, adaptive equipment, and therapeutic motor training.

TSE 132 Behavior Modification for Special Education I
3 cr. hrs./3 periods/3 lec.
This course teaches the major theories of personality development and methods of changing inappropriate behavior while developing and maintaining appropriate behavior. Major theories include Clinical Behavior Modification and Adlerian Psychology.

TSE 142 Special Speech and Language Techniques
3 cr. hrs./3 periods/3 lec.
This course is designed to assist the student in developing an understanding of the components involved in normal speech and language development and to provide an overview of speech and language disorders and their remediation.

TSE 150 Behavior Modification Techniques for Special Education II
3 cr. hrs./3 periods/3 lec.
□ Prerequisite: TSE 132.
Focuses on methods of changing inappropriate behaviors through the use of behavior modification techniques including positive, extinction and aversive contingency systems.

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 199 Co-op Related Class in TSE/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

TSE 199A-E Co-op Work in TSE/1-8 cr. hrs./5-40 periods/5-40 lab)
A supervised cooperative work program for students in an occupation related to their program of study.

TSE 236 Assessment, Instructional and Motivational Techniques 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. Topics include developing behavioral contingency management plans, academic assessment techniques and selection of materials and resources.

TSE 238 Characteristics of Learning Disabilities I 3 cr. hrs./3 periods/3 lec.
This course focuses on the principles of learning, defines learning disabilities, identifies characteristics of specific learning disabilities and introduces diagnostic procedures for remediation of learning disabilities.

TSE 239 Characteristics of Learning Disabilities II 3 cr. hrs./3 periods/3 lec.
□ Prerequisite: TSE 238.
This course will review the definition and characteristics of learning disabilities and introduce remediation techniques and materials for specific learning disabilities.

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 Classroom Communication Skills/3 cr. hrs./3 periods/3 lec.
This course is designed to assist the student with the development and application of communication skills for improved interpersonal relations 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.

TSE 299 Co-op Related Class in TSE/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

TSE 299A-E Co-op Work in TSE/1-8 cr. hrs./5-40 periods/5-40 lab)
A supervised work program for students in an occupation related to their program of study.

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.
□ Prerequisites: TTM 101 and 102 or consent of instructor.
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.
□ Prerequisites: TTM 101 and 102 or consent of instructor.
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 199 Co-op Related Class in TTM/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

TTM 199A-E Co-op Work in TTM/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

Transportation and Traffic Management continued next page

TTM 201 Principles of Air Transportation/3 cr. hrs./3 periods/3 lec.
☐ Prerequisites: TTM 101 and 102 or consent of instructor.
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.
☐ Prerequisites: TTM 101 and 102 or consent of instructor.
A study of the managerial and economic aspects of motor transportation as conducted under the auspices of state and federal regulations.

TTM 204 Physical Distribution Management/3 cr. hrs./3 periods/3 lec.
☐ Prerequisites: TTM 101 and 102 or consent of instructor.
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. (Same as MKT 150.)

TTM 299 Co-op Related Class in TTM/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

TTM 299A-E Co-op Work in TTM/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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 199 Co-op Related Class in TVL/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

TVL 199A-E Co-op Work in TVL/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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.

TVL 299 Co-op Related Class in TVL/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

TVL 299A-E Co-op Work in TVL/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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 199 Co-op Related Class in WWT/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

WWT 199A-E Co-op Work in WWT/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

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 operatory 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.

Wastewater Technology continued next page

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)
□ Prerequisites: 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 in spection. Course is designed to include materials found in Grade III and IV Certification requirements.

WWT 299 Co-op Related Class in WWT/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

WWT 299A-E Co-op Work in WWT/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

WELDING

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 octógena.

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 199 Co-op Related Class in WLD/1 cr. hr./1 period/1 lec.
Introduction to Cooperative Education; social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

WLD 199A-E Co-op Work in WLD/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

WLD 250 Pipe Welding/4 cr. hrs./6 periods (2 lec., 4 lab)
□ Prerequisites: WLD 150, WLD 160, SML 130 and/or consent of instructor.
Course includes flame cutting pipe, beveling pipe, welding different pipe joints, tack welding miter joints, and flange welding. Plate and pipe certification requirements are included.

WLD 260 Inert Gas Welding/4 cr. hrs./6 periods (2 lec., 4 lab)
□ Prerequisite: WLD 250.
Students learn techniques and procedures of Tungsten Inert Gas welding (Heli-Arc). Techniques involve proper control settings, proper manipulation of TIG torch, and welding in all positions on non-ferrous and ferrous metals. Also a study and practice of metal inert gas welding (MIG welding).

WLD 299 Co-op Related Class in WLD/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

WLD 299A-E Co-op Work in WLD/1-8 cr. hrs./5-40 periods/5-40 lab
A supervised work program for students in an occupation related to their program of study.

WRITING

WRT 005 Poetry Writing/3 cr. hrs./3 periods/3 lec.
Offered concurrently with WRT 205 but not designed for transfer credit.

WRT 006 Short Story Writing/3 cr. hrs./3 periods/3 lec.
Offered concurrently with WRT 206 but not designed for transfer credit.

WRT 062 Literary Magazine Workshop/3 cr. hrs./3 periods/3 lec.
Students will edit, design, layout and produce a literary publication. May be repeated three times for credit.

WRT 066 The Dabbler's Touch: A Writing Sampler
3 cr. hrs./3 periods/3 lec.
Reading and writing of poetry, short fiction, essay, and autobiography. Students will practice the techniques (tricks) of craft while pursuing their own interests and, when ready, share their work with the class as editorial audience.

WRT 070 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 072 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 073 Punctuation/1 cr. hr./1 period/1 lec.
This mini-course covers the mechanics of writing, including punctuation, capitalization, numbers and abbreviations.

WRT 077 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 088 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/3 lec.
□ 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.

Writing continued next page

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.
□ Prerequisites: 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 005 for non-transfer credit.

WRT 206 Short Story Writing/3 cr. hrs./3 periods/3 lec.
□ Prerequisites: WRT 101 and 102.
Introduction to the techniques used in contemporary short fiction, 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 006 for non-transfer credit.

WRT 215 Advanced Poetry Writing/3 cr. hrs./3 periods/3 lec.
□ Prerequisites: WRT 005 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 Poetry 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.
□ Prerequisites: 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 writing required in courses and in future occupations.

WRT 280 Workshop in Tutoring Composition
3 cr. hrs./9 periods/ 9 lab
□ Prerequisites: 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
□ Prerequisites: 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 Methods/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: YCA 163 or consent of instructor.
Designed to increase student knowledge and skill in specific youth care methods. This course is available in modularized format. Modules include:
(a) Building Youth Care Relationships: Methods
(b) Problem-Solving Methods
(c) Observing and Recording Methods.

YCA 263A Building Youth Care Relationships: Methods 1 cr. hr./1 period/1 lec.
□ Prerequisite: YCA 163 or consent of instructor.
A one-unit module of YCA 263. Provides specialized coursework toward developing knowledge and skill in building positive relationships with youth in alternative care settings through the study of youth care methods.

YCA 263B Problem-Solving Methods/1 cr. hr./1 period/1 lec.
□ Prerequisite: YCA 163 or consent of instructor.
A one-unit module of YCA 263. Provides specialized coursework in problem-solving methods applicable to youth care situations.

YCA 263C Observing and Recording Methods 1 cr. hr./1 period/1 lec.
□ Prerequisite: YCA 163 or consent of instructor.
A one-unit module of YCA 263. Provides specialized coursework in methods of observation and recording relating to the behavior of youth in a youth care setting.

YCA 264 Issues in Youth Care/3 cr. hrs./3 periods/3 lec.
□ Prerequisite: YCA 163 or consent of instructor.
Designed to increase student knowledge and skill in dealing with issues commonly experienced in the youth care field. Available in a modularized format. Includes the topical areas of:
(a) Health and Safety Issues
(b) Stress Issues in Youth Care Work
(c) The Special Needs Child

YCA 264A Health and Safety Issues/1 cr. hr./1 period/1 lec.
□ Prerequisite: YCA 163 or consent of instructor.
A one-unit module of YCA 264. Provides specialized coursework relating to health and safety issues in youth care work.

YCA 264B Stress Issues in Youth Care Work/1 cr. hr/1 period/1 lec.
□ Prerequisite: YCA 163 or consent of instructor.
A one-unit module of YCA 264. Provides specialized coursework relating to the issue of stress in youth care and its impact on the worker, the youth, and the setting.

YCA 264C The Special Needs Child/1 cr. hr./1 period/1 lec.
□ Prerequisite: YCA 163 or consent of instructor.
A one-unit module of YCA 264. Provides specialized coursework relating to the needs of the special needs child in a youth care setting. Special needs categories include learning disabled, physically handicapped, emotionally handicapped, mentally retarded, dangerous delinquent, autistic, and others. One topic will be chosen for emphasis in a given session.

YCA 290 Field Experience/3 cr. hrs./16 periods (1 lec., 15 lab)
Provides participation in community administration of justice and youth care 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.

YCA 299 Co-op Related Class in YCA/1 cr. hr./1 period/1 lec.
Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

YCA 299A-C Co-op Work in YCA/1-3 cr. hrs./5-15 periods/5-15 lab
A supervised work program for students in an occupation related to their program of study.

Apprentice Related Instruction

The following courses are offered cooperatively with local and state indentured apprenticeship committees.

ASSOCIATED GENERAL CONTRACTORS

AGC 050-051 Surveying I, II /5 cr. hrs./5 periods/5 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.
AAT 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 050-055 Bricklaying I-VI/@ 5 cr. hrs./6 periods (4 lec., 2 lab)

BUILDING CONSTRUCTION TECHNOLOGY

BCT 050 Building Trade Mathematics/5 cr. hrs./5 periods/5 lec.
BCT 051 Building Trades Blueprint Reading/5 cr. hrs./5 periods/5 lec.
BCT 060-061 Welding I, II /4-4 cr. hrs./6 periods (2 lec., 4 lab)

CARPENTRY

CRP 050 Carpentry History, Tools and Materials 5 cr. hrs./6 periods (4 lec., 2 lab)
CRP 051 Carpentry Foundations and Forms 5 cr. hrs./6 periods (4 lec., 2 lab)
CRP 052 Carpentry Exterior Finish/5 cr. hrs./6 periods (4 lec., 2 lab)
CRP 053 Reinforced Concrete and Heavy Construction 5 cr. hrs./6 periods (4 lec., 2 lab)
CRP 054 Carpentry Interior Finish/5 cr. hrs./6 periods (4 lec., 2 lab)
CRP 055 Carpentry Roof Framing/5 cr. hrs./6 periods (4 lec., 2 lab)
CRP 056 Carpentry Stair Building/5 cr. hrs./6 periods (4 lec., 2 lab)
CRP 057 Blueprint Reading and Estimating 5 cr. hrs./6 periods (4 lec., 2 lab)

ELECTRICAL APPRENTICESHIP TRAINING

ELT 101 Apprentice Inside Wireman I /6 cr. hrs./6 periods/6 lec
ELT 102 Apprentice Inside Wireman II /6 cr. hrs./6 periods/6 lec.
ELT 103 Residential Wireman Trainee I /4 cr. hrs./4 periods/4 lec.
ELT 104 Residential Wireman Trainee II /4 cr. hrs./4 periods/4 lec.
ELT 201 Apprentice Inside Wireman III /6 cr. hrs./6 periods/6 lec.
ELT 202 Apprentice Inside Wireman IV /6 cr. hrs./6 periods/6 lec.
ELT 203 Residential Wireman Trainee III /4 cr. hrs./4 periods/4 lec.
ELT 204 Residential Wireman Trainee IV /4 cr. hrs./4 periods/4 lec.
ELT 205 Journeyman-Wireman Advancement Course I 6 cr. hrs./6 periods/6 lec.
ELT 206 Journeyman-Wireman Advancement Course II 6 cr. hrs./6 periods/6 lec.
ELT 231 Apprentice Inside Wireman V /6 cr. hrs./6 periods/6 lec.
ELT 232 Apprentice Inside Wireman VI /6 cr. hrs./6 periods/6 lec.
ELT 241 Apprentice Inside Wireman VII /6 cr. hrs./6 periods/6 lec.
ELT 242 Apprentice Inside Wireman VIII /6 cr. hrs./6 periods/6 lec.

FLOOR COVERING

FLR 050 Introduction to Floor Covering/5 cr. hrs./5 periods/5 lec.
FLR 051 Tile and Linoleum/5 cr. hrs./5 periods/5 lec.
FLR 052 Carpet/5 cr. hrs./5 periods/5 lec.

GLAZING

GLZ 050 Orientation to the Glazing Trade/5 cr. hrs./5 periods/5 lec.
GLZ 051 Glazing, Tools, Equipment and Materials 5 cr. hrs./5 periods/5 lec.
GLZ 053 Blueprint Reading and Sketching/5 cr. hrs./5 periods/5 lec.
GLZ 054 Store Front Construction and Glazing 5 cr. hrs./5 periods/5 lec.
GLZ 055 Locks, Latches and Door Closers/5 cr. hrs./5 periods/5 lec.

IRONWORKING

IRW 050 Introduction to Trade Science 3 cr. hrs./4 periods (3 lec., 1 lab)
IRW 051 Reinforcing Blueprint Reading 3 cr. hrs./4 periods (3 lec., 1 lab)
IRW 052 Basic Welding/3 cr. hrs./4 periods (3 lec., 1 lab)
IRW 053 Advanced Welding/3 cr. hrs./4 periods (3 lec., a lab)
IRW 054 Rigging and Safety/3 cr. hrs./4 periods (3 lec., 1 lab)
IRW 055-056 Structural Blueprint Reading I, II 3-3 cr. hrs./4 periods (3 lec., 1 lab)
IRW 057 Ornamental Iron I /3 cr. hrs./4 periods (3 lec., 1 lab)

IRW 058 Steel Detailing and Fabrication
3 cr. hrs./4 periods (3 lec., 1 lab)
IRW 059 Ornamental Iron II /3 cr. hrs./4 periods (3 lec., 1 lab)
IRW 060 Post Tensioning/3 cr. hrs./4 periods (3 lec., 1 lab)
IRW 061 Light Industrial Construction Methods and Materials
3 cr. hrs./4 periods (3 lec., 1 lab)
IRW 064 Intermediate Combination Welding
3 cr. hrs./5 periods (2 lec., 3 lab)
IRW 066 Advanced Combination Welding
3 cr. hrs./5 periods (2 lec., 3 lab)

LATHING

LTH 050 Lathing I /5 cr. hrs./5 periods/5 lec.
LTH 051 Ceiling and Wall Construction/5 cr. hrs./5 periods/5 lec.
LTH 052-053 Blueprint Reading and Sketching I, II
5-5 cr. hrs./5 periods/5 lec.

OPERATING ENGINEERS

OEG 050-051 Diesel Engine I, II /5-5 cr. hrs./5 periods/5 lec.
OEG 052 Equipment Structure and Function
5 cr. hrs./5 periods/5 lec.
OEG 053 Transmission of Power I /5 cr. hrs./5 periods/5 lec.
OEG 054 Transmission of Power II /5 cr. hrs./5 periods (3 lec., 2 lab)
OEG 055 Construction Material Application/5 cr. hrs./5 periods/5 lec.
OEG 056-058 Grades, Plans and Earthwork I-III
@ 5 cr. hrs./5 periods/5 lec.
OEG 059 Basic Electricity and Wiring/5 cr. hrs./5 periods/5 lec.
OEG 062 Plant Equipment Structure and Function
5 cr. hrs./5 periods/5 lec.
OEG 063 Construction Material Processes/5 cr. hrs./5 periods/5 lec.
OEG 064 Mathematics for Operating Engineers
3 cr. hrs./3 periods/3 lec.
OEG 065 Mechanical Drawing for Operating Engineers
3 cr. hrs./3 periods/3 lec.
OEG 066-068 Refrigeration I-III/@ 5 cr. hrs./5 periods/5 lec.

PAINTING & DECORATING

PNT 050 Introduction to the Painting Trade/5 cr. hrs./5 periods/5 lec.
PNT 051 Color Harmony and Design/5 cr. hrs./5 periods/5 lec.
PNT 052 Blueprint Reading and Estimating/5 cr. hrs./5 periods/5 lec.
PNT 053 Wall Covering/5 cr. hrs./5 periods/5 lec.
PNT 054 Drywall Taping/5 cr. hrs./5 periods/5 lec.
PNT 055 Industrial Painting/5 cr. hrs./5 periods/5 lec.

PLASTERING AND CEMENT MASONRY

PCM 050 Related Mathematics and Science
5 cr. hrs./5 periods/5 lec.
PCM 051 Trade Theory/5 cr. hrs./5 periods/5 lec.
PCM 052 Blueprint Reading and Plaster and Cement Masons
5 cr. hrs./5 periods/5 lec.
PCM 053 Drafting and Sketching/5 cr. hrs./5 periods/5 lec.
PCM 054 Estimating and Building Codes/5 cr. hrs./5 periods/5 lec.
PCM 055 Trade Practices/5 cr. hrs./5 periods/5 lec.

PLUMBING AND PIPEFITTING

PFT 050 Plumbing and Pipefitting I /5 cr. hrs./5 periods/5 lec.
PFT 051 Plumbing and Pipefitting II /4 cr. hrs./5 periods (3 lec., 2 lab)
PFT 052 Plumbing and Pipefitting III /5 cr. hrs./5 periods/5 lec.
PFT 053 Plumbing and Pipefitting IV /4 cr. hrs./5 periods (3 lec., 2 lab)
PFT 054-058 Plumbing V-IX/@ 5 cr. hrs./5 periods/5 lec.
PFT 059 Plumbing X /4 cr. hrs./5 periods (3 lec., 2 lab)
PFT 060-061 Pipefitting V-VI /4-4 cr. hrs./5 periods (3 lec., 2 lab)
PFT 062 Pipefitting VII /5 cr. hrs./5 periods/5 lec.
PFT 063-065 Pipefitting VIII-X/@ 4 cr. hrs./5 periods (3 lec., 2 lab)

SHEETMETAL

SML 050 Introduction to the Sheet Metal Trade
5 cr. hrs./5 periods/5 lec.
SML 051-055 Apprentice Sheet Metal I-V/@ 5 cr. hrs./5 periods/5 lec.
SML 056 Apprentice Air Conditioning /5 cr. hrs./5 periods/5 lec.

THEORY AND PRACTICE OF ELECTRICITY

TGE 050-052 Electrical Theory I-III
@ 6 cr. hrs./6 periods/6 lec.
TGE 053-055 Advanced Apprenticeship Training I-III
@ 1 cr. hr./1 period/1 lec.
TGE 056 Advanced Apprenticeship Training IV
2 cr. hrs./2 periods/2 lec.
TGE 057 Advanced Apprenticeship Training V
1 cr. hr./1 period/1 lec.
TGE 058-060 Advanced Apprenticeship Training VI-VII
@ 6 cr. hrs./6 periods/6 lec.
TGE 061 Advanced Apprenticeship Training IX
2 cr. hrs./2 periods/2 lec.
TGE 062 Advanced Apprenticeship Training X
3 cr. hrs./3 periods/3 lec.
TGE 063-064 Advanced Apprenticeship Training XI-XII
1-1 cr. hr./1 period/1 lec.
TGE 065 Advanced Apprenticeship Training XIII
2 cr. hrs./2 periods/2 lec.
TGE 066-068 Advanced Apprenticeship Training XIV-XVI
@ 6 cr. hrs./6 periods/6 lec.

BUILDING TECHNOLOGY

BLT 050 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 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 055 Carpentry I /3 cr. hrs./6 periods (1 lec., 5 lab)
☐ Prerequisite: MTH 060 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 057 Carpentry II /3 cr. hrs./6 periods (1 lec., 5 lab)
☐ Prerequisite: BLT 055.
A continuation of Carpentry I, where advanced 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 060 Masonry/3 cr. hrs./6 periods (1 lec., 5 lab)
☐ Prerequisite: MTH 060 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 062 Glazing/3 cr. hrs./6 periods (1 lec., 5 lab)
☐ Prerequisite: MTH 060 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 070 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 072 Painting II /3 cr. hrs./6 periods (1 lec., 5 lab)
☐ Prerequisites: BLT 070 and MTH 060 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 074 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. Instructio n 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 076 Advanced Blueprint Reading
3 cr. hrs./6 periods (1 lec., 5 lab)
☐ Prerequisite: GTC 099 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.

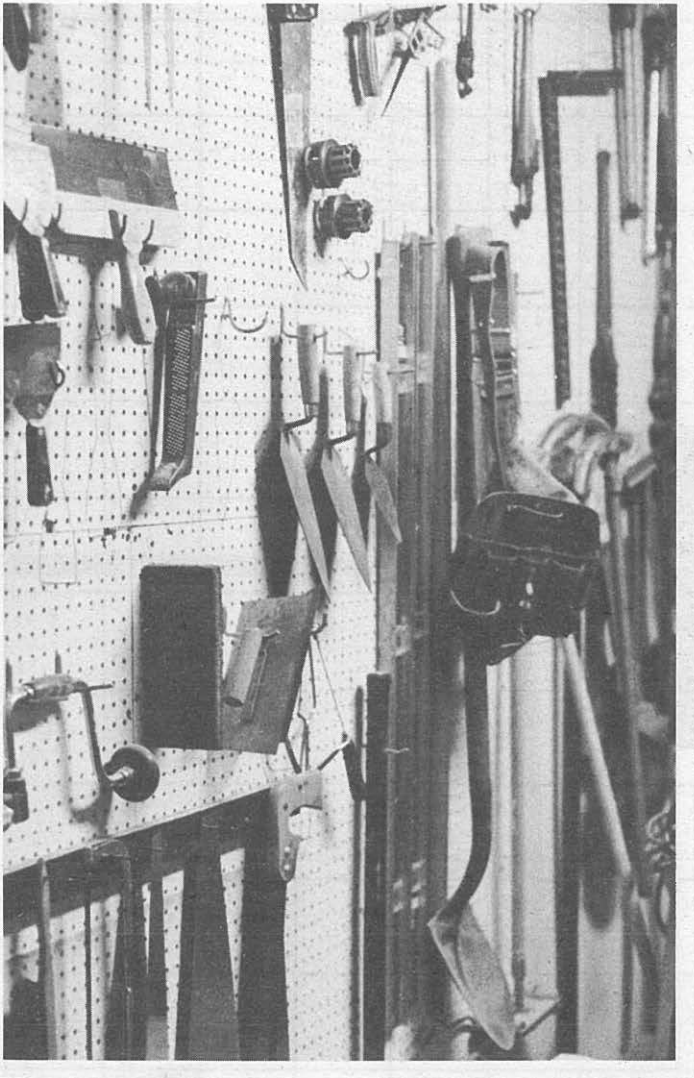
BLT 080 Color & Color Harmony/3 cr. hrs./6 periods (1 lec., 5 lab)
This course is designed to introduce the psychology of color and understanding of color harmony, systems of colors, methods for selecting colors for: harmony, industries and institutions. Practical problems and assignments of tasks for lab work.

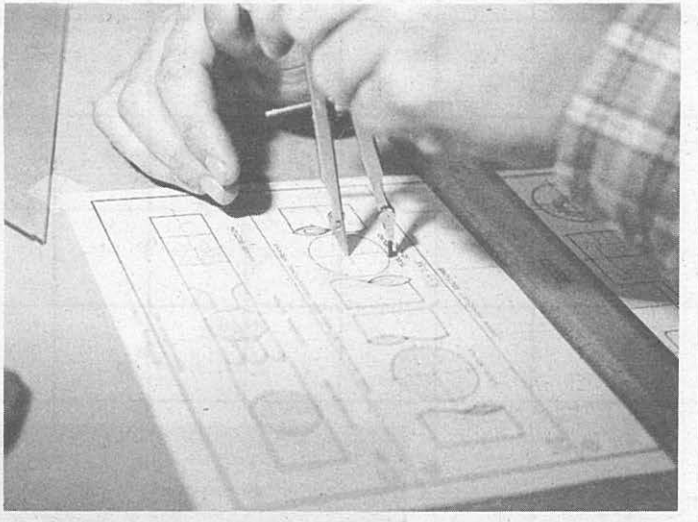
BLT 082 Wall Coverings/3 cr. hrs./6 periods (1 lec., 5 lab)
☐ Prerequisite: MTH 060 or equivalent.
The course is designed to introduce the fundamentals, estimating, preparation, and application of wall coverings; care and use of tools; practical applications of skills in a laboratory setting with emphasis on safety.

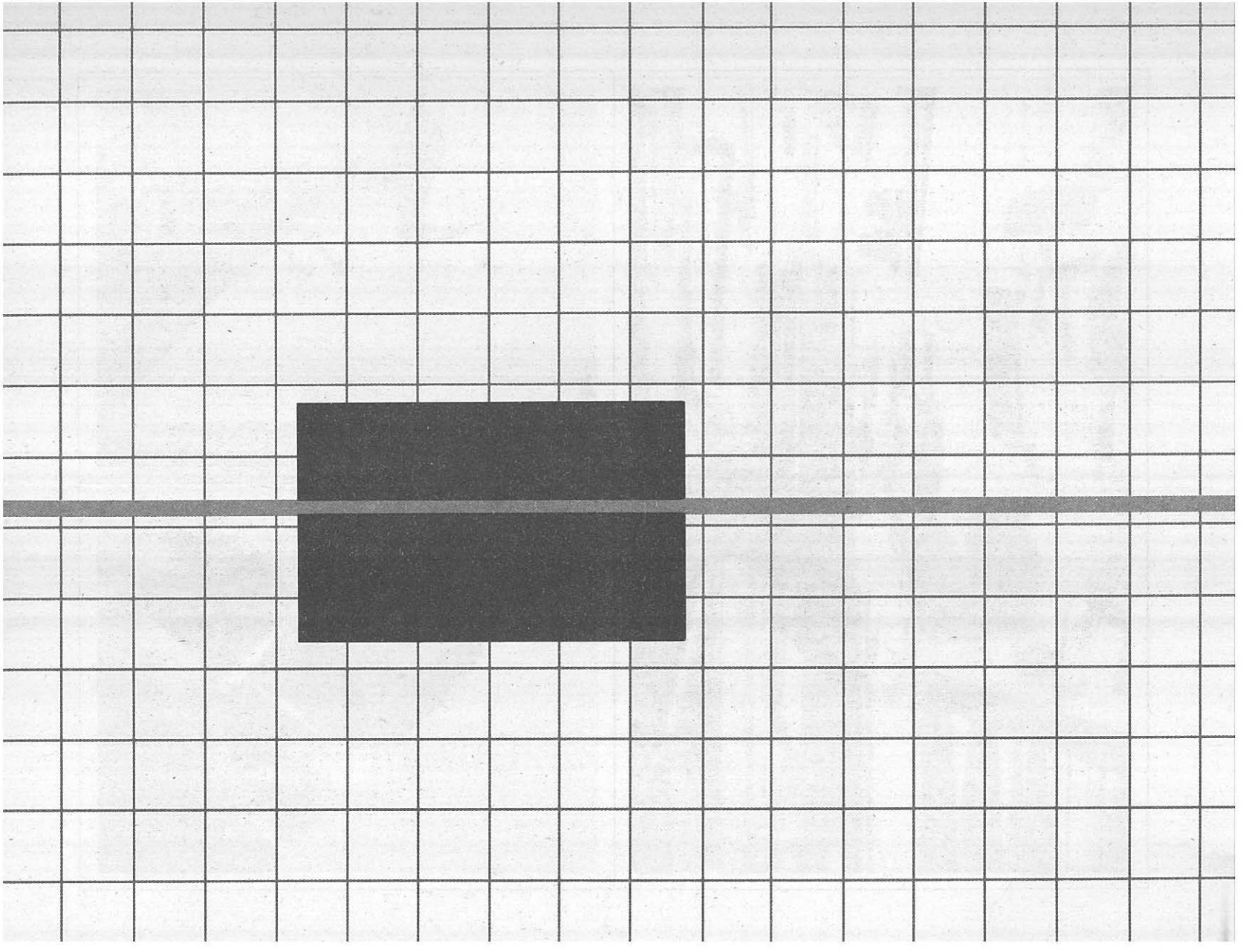
BLT 090 Drywall I /3 cr. hrs./6 periods (1 lec., 5 lab)
☐ Prerequisite: MTH 060 or equivalent.
The course is designed to introduce the student to the industry and to safety, trade vocabulary, materials, proper care and use of equipment and tools, and actual performance of practical tasks assigned in the laboratory portion of the course.

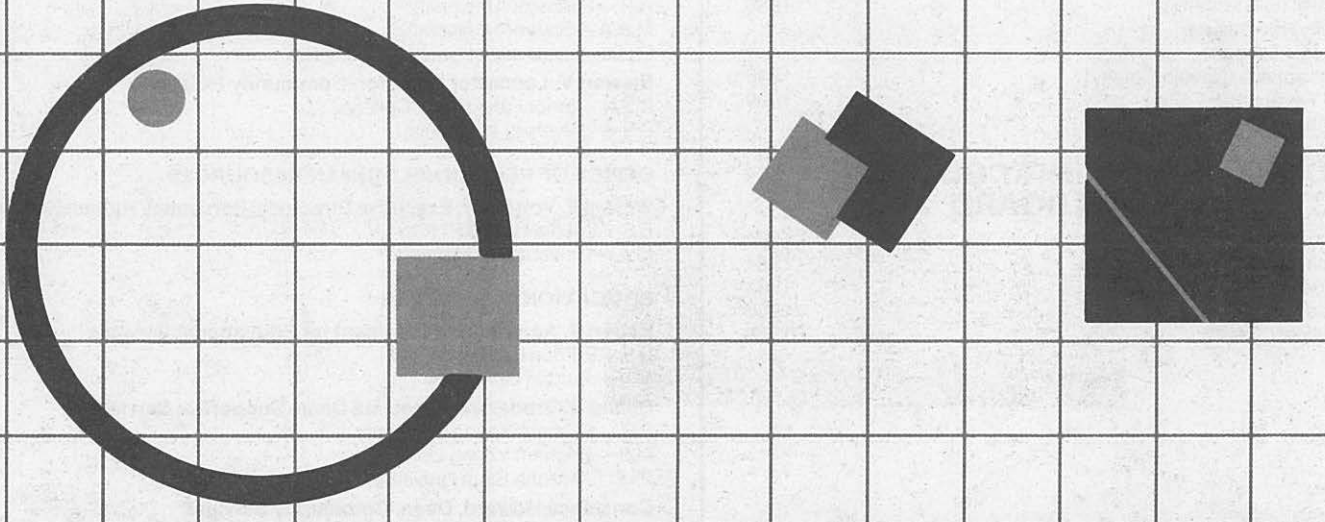
BLT 092 Drywall Taping/3 cr. hrs./6 periods (1 lec., 5 lab)
☐ Prerequisite: MTH 060 or equivalent.
The course is designed to introduce the student to the trade: its terminology, safety, equipment, tools, material applications, texturing and final finishing. Practical tasks will be assigned in the laboratory and the student rated on his skill and performance.

BLT 094 Drywall II /3 cr. hrs./6 periods (1 lec., 5 lab)
☐ Prerequisite: BLT 090 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.









Governing Board and Faculty

STATE BOARD OF DIRECTORS FOR COMMUNITY COLLEGES OF ARIZONA

Wanda G. Hall, Chairman (Apache County)	1984
John Cuthbertson, Vice Chairman (Greenlee County)	1985
James F. Haythornewhite, Secretary (Santa Cruz County)	1986
A. Paul Pearce, Treasurer (Pinal County)	1985
Charles D. Brumback (Coconino County)	1989
Dr. Joe S. Causey (Cochise County)	1988
Manuel H. Garcia (Pima County)	1984
Gherald L. Hoopes (Graham County)	1988
Dr. Don V. McIntyre (Mohave County)	1987
Mary Louise Montana (Yuma County)	1987
William G. Payne, M.D. (Ex-Officio)	
Herbert T. Pettet (Gila County)	1989
William P. Reilly (Ex-Officio)	
Dr. Ray Ryan (Ex-Officio)	
Abbott Sekaquaptewa (Navajo County)	1986
Nancy Tafel (Yavapai)	1990
Carolyn Warner (Ex-Officio)	

PIMA COUNTY COMMUNITY COLLEGE DISTRICT GOVERNING BOARD

Esther D. Tang, Chairperson	1984
Georgia L. Cole Brousseau, Secretary	1984
Alphus R. Christensen	1984
Carl H. Holzman	1986
Andrea M. Milligan	1986

DISTRICT ADMINISTRATION

OFFICE OF THE PRESIDENT

S. James Manilla, President
B.S.—University of Michigan
M.A.—Syracuse University
Ed.S.—Wayne State University
Ed.D.—Wayne State University

OFFICE OF PLANNING AND DEVELOPMENT

Judith W. Leslie, Vice President for Planning and Development
B.S.—University of Utah
M.Ed.—University of Utah
Ph.D.—Pennsylvania State University

Arthur H. Evans, Jr., Director, Governmental Relations
A.B.—Princeton University
M.B.A.—Stanford University
Ph.D.—University of California, Berkeley

Stewart V. Lancaster, Director, Community Relations
B.S.N.—Emory and Henry College
B.S.—University of Virginia

OFFICE OF PERSONNEL/HUMAN RESOURCES

Wilfred E. Von Mayr, Executive Director of Personnel/Human Resources
B.S.—Loyola College
M.A.—University of Maryland

EDUCATIONAL SERVICES

Robert F. Agrella, Vice President for Educational Services
B.S.—Purdue University
M.A.—Purdue University

Dillard S. Broderick, Associate Dean, Supportive Services
B.S.—Brigham Young University
M.S.—Brigham Young University
Ph.D.—Arizona State University

Constance Howard, Dean, Community Services
B.A.—Mt. St. Mary's College
M.S.—University of Arizona

Wynelle T. Knight, Director of Special Services
B.A.—University of Alabama
M.Ed.—University of Arizona

Charles R. Macon, Associate Dean, Occupational Education
B.S.—Arizona State University
M.A.—Arizona State University

Henry Oyama, Associate Dean, Bilingual and International Studies
B.A.—University of Arizona
M.Ed.—University of Arizona

STUDENT SERVICES

Diego A. Navarrette, Jr., Vice President for Student Services
B.A.—University of Arizona
M.Ed.—University of Arizona

David F. Shuford, Associate Dean, Student Support Services
B.S.—Western Carolina University
M.A.—Western Carolina University
Ed.D.—University of Tennessee

Lawrence R. Toledo, Director of Athletics, Intramurals, and Recreation
B.A.—California Western University
M.Ed.—University of Arizona

Doris Williams, Director of Minority Affairs
A.A.—Pima Community College
B.S.—University of Arizona
M.S.—University of Arizona

ADMINISTRATIVE SERVICES

Donald F. Klaasen, Vice President for Administrative Services
B.B.A.—University of Michigan
M.B.A.—University of Michigan

John A. Roberts, Assistant Vice President for Administrative Services
B.S.—University of Arizona

WEST CAMPUS

Raymond J. Stith, Executive Dean
B.C.E.—University of Dayton
M.S.—University of Notre Dame

Joseph W. Cosentino, Associate Dean, Admissions and Registration
B.A.—Mt. Union College
M.Ed.—Kent State University

William J. Flynn, Associate Dean, Arts Division
B.A.—Manhattan College
M.A.—Villanova University

Elizabeth Gonzales, Associate Dean, Student Services
B.A.—University of Arizona
M.Ed.—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

Kenneth E. McCollester, Associate Dean, Engineering Sciences Division
B.S.—Rollins College
M.S.—North Carolina State University
Ph.D.—University of Arizona

Jo S. Pahopin, Associate Dean, Human Sciences Division
B.S.—Columbia Teachers College
M.S.—Ohio State University
Ph.D.—Ohio State University

Donald E. Proulx, Associate Dean, Health Sciences Division
B.A.—University of Arizona
B.S.—University of Arizona
M.Ed.—University of Arizona

Carl C. Wachsman, Associate Dean for Educational Support Services
B.S.—Dickinson State College
M.A.—Arizona State University

DOWNTOWN CAMPUS

Jack W. Fuller, Executive Dean
B.A.—Southern Illinois University
M.S.—Southern Illinois University
M.A.—California State University
Ed.D.—University of Wyoming

Sallie A. Guy, Associate Dean for Student Services
B.A.—University of Northern Iowa
M.A.—Syracuse University
Ph.D.—University of Illinois

Miguel A. Palacios, Associate Dean, Admissions and Registration
B.A.—University of Arizona
M.A.—University of Arizona
Ph.D.—University of Arizona

Ralph W. Wahrer, Associate Dean of Extended Day Programs
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

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

Carl R. Webb, Associate Dean for Administrative Services/Registrar
B.S.—U.S. Naval Academy
M.A.—University of California at Los Angeles

EAST CAMPUS

David L. Landsburg, Executive Dean
B.A.—Albion College
M.A.—Michigan State University
Ph.D.—University of Michigan

Alfred B. Montes, Associate Dean, Registration and Admissions
B.A.—University of Arizona
M.Ed.—University of Arizona

Wesley E. Soderquist, Associate Dean for Instruction
B.S.—Illinois Institute of Technology
M.B.A.—University of Chicago
Ed.D.—Loyola University

Pima Community College Faculty

Arthur Alberding, Mathematics (1969)
B.S.—Nebraska State Teachers College
M.A.—University of South Dakota

Javier Alcaraz, Spanish-French (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
M.Ed.—University of Arizona

Jo Anne Anderson, Office Education (1977)
B.A.—Arizona State University
M.Ed.—University of Arizona

Lino Aragon, Graphics Technology (1980)
A.A.—Pima Community College

Cynthia A. Arem, Counselor (1975)
B.A.—City University of New York
M.S.—City University of New York
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, ESL and Reading (1970)
B.A.—Sacramento State Teachers College
M.A.—Sacramento State Teachers College

G. Elisabet Bailey, Speech (1973)
B.A.—University of Arizona
M.A.—University of Arizona

Kay S. Baker, Nursing (1978)
B.S.N.—Arizona State University
M.Ed.—University of Arizona

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 Science (1978)
BSEE—University of Texas
MSEE—New York University
Ph.D.—Columbia University

Robert P. Beitz, Counselor (1979)
A.S.—Mercer County Community College
B.A.—University of Arizona
M.Ed.—University of Arizona

Philip Bellomo, Ceramics (1975)
B.F.A.—University of Arizona
M.F.A.—University of Arizona

Louis C. Bernal, Art (1972)
B.A.—Arizona State University
M.F.A.—Arizona State University

Theria M. Beverly, Reading (1975)
B.A.—Clark College
M.Ed.—University of Arizona

Kathy Blicharz, Computer Science (1982)
A.A.—San Francisco State College

Michael Blicharz, Computer Science (1979)
B.S.—University of San Francisco

Lynn G. Bonner, Speech (1971)
B.A.—Western Michigan University
M.A.—Western Michigan University
M.A.—Northern Arizona University

Lucy A. Brajevich, Dental Assisting (1971)
A.A.—Los Angeles City College
B.S.—Northern Arizona University
M.Ed.—University of Arizona

Aristeo Brito, Jr., Spanish (1970)
B.A.—Sul Ross State College
M.A.—University of Arizona
Ph.D.—University of Arizona

Fé Brittain, Languages (1977)
B.A.—Florida State University
M.A.—Middlebury College

Clifford M. Brock, Journalism (1979)
B.A.—California State University, Fullerton
M.S.—University of Oregon
Ph.D.—Brigham Young University

Richard Brodesky, Writing (1978)
B.A.—Brandeis University
M.A.—Harvard University
Ph.D.—Harvard University

Louise F. Bronson, Psychology and Sociology (1969)
B.A.—University of Rochester
M.A.—University of Florida
Ph.D.—University of Arizona

Otis F. Bronson, Writing, Humanities and Art (1969)
B.S.—University of Florida
M.A.—University of Florida

Cynthia Brown, Nursing (1980)
B.S.N.—Catholic University
M.S.—University of Arizona

David K. Bruce, Administration of Justice (1975)
B.S.—Central Missouri State University
M.S.—California State University of San Jose

Nancy Buchanan, Librarian (1974)
B.A.—University of Arizona
M.L.S.—University of Arizona
M.A.—University of Arizona

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
Ph.D.—University of Arizona

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
Ph.D.—University of Arizona

P. Michael Carter, Respiratory Therapy (1977)
B.A.—University of Arizona
Registered Respiratory Therapist (RRT)

Margaret W. Catlin, Nursing (1971)
B.S.N.—University of Arizona

Anthony M. Chana, Counselor (1971)
A.A.—Phoenix College
B.A.—Arizona State University

Shirley J. Chann, Computer Science (1970)
B.A.—Wellesley College
M.Ed.—University of Arizona

Gustavo Chavez, Counselor (1982)
A.A. - Mesa Community College
B.A. - Arizona State University
M.A. - Arizona State University

Kenneth R. Chiaro, Political Science and History (1975)
B.A.—University of Arizona
M.A.—University of Arizona

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 State 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

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

Sergio V. Davalos, Computer Science (1980)
B.A.—University of Arizona
M.S.—University of Arizona

Arnold Davidson, Writing (1978)
B.A.—Emporia State University
M.A.—Emporia State University
Ed.S.—University of South Dakota
Ph.D.—Florida State University

Daniel Davidson, Physics (1971)
B.S.—University of Rochester
Ph.D.—University of Arizona

June F. Davidson, Counselor (1981)
B.S.—University of Rochester
M.Ed.—University of Arizona
Ph.D.—University of Arizona

Patricia J. Davis, Writing and Literature (1971)
B.A.—University of Texas
M.A.—University of Wisconsin
Ph.D.—University of Wisconsin

Frank Deits, Electronics (1982)

Robert C. Douglas, Dental Laboratory (1975)
Certified Dental Technician

Allan E. Doyle, Accounting and Business (1977)
B.A.—John Hopkins University
M.B.A.—New York University
M.A.—University of Arizona

Edward M. Duperret, Counselor (1970)
B.A.—Seton Hall University
M.A.—New York University
M.Ed.—University of Arizona

David G. Ebert, Hospitality Education, Cooperative 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 C. Estrada, Management and Marketing (1979)
B.S.—University of Arizona
M.B.A.—University of Arizona

Francisco Z. Fernandez, Counselor (1981)
B.A.—Univeristy of Arizona
M.Ed.—University of Arizona

Maria Figueroa, English as a Second Language (1979)
B.A.—University of Arizona
M.A.—Southern Illinois University
M.A.—University of Arizona

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 University
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

Robert E. Firestone, Hearing Impaired (1981)
B.A.—Gallaudet College

Charles L. Fletcher, Air Conditioning (1973)
Federal Aviation Administration Air Conditioning and Heating Certificate
A.A.—Pima Community College
B.S.—Arizona State University

D. Joan Forbes, Radiologic Technology (1974)
RT (ARRT)—St. Cloud Hospital
B.S.—Creighton University
Registered Radiologic Technologist (ARRT)

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 H. Fridena, Social Services (1981)
B.A.—University of Arizona
M.S.W.—Arizona State University

Margaret Fried, Nursing (1982)
B.S.N.—College of St. Teresa
M.A.—University of Washington

Richard Frontain, Writing (1976)
B.A.—Iona College
M.Ed.—University of Arizona

Sotero V. Fuentevilla, Accounting (1970)
B.A.—University of Havana
M.S.—University of Havana

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

Richard Garner, Electronics (1982)
A.A.S.—Pima Community 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)
B.S.—Northern Arizona University

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, Physics (1973)
B.S.—Polytechnic Institute of Brooklyn
M.Ed.—University of Arizona
M.S.—University of Arizona
Ph.D.—University of Arizona

Robert Gordon, Mathematics (1971)
B.S.—University of New Mexico
M.A.—University of Arizona

Max Gottschalk, Design (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

Thomas C. Grissom, Marketing and Management (1981)
B.S.—University of Arizona
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

Rosina Harmony, Drafting (1982)
B.A.—University of Arizona
M.S.—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
Ed.D.—Brigham Young University

Jon Laurence Hayes, Sign Language (1981)
B.S.—Oregon College of Education
M.S.—Oregon College of Education

Lester G. Hays, Computer Science (1968)
B.S.—Washington University
M.Ed.—University of Arizona

Angel Hernandez, Recreation (1976)
Certificado—University of Guadalajara

Pamela Holzmiller, Librarian (1979)
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, 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 Religion (1970)
B.A.—Wichita State University
M.S.—Kansas State College
Ph.D.—Paideia
Ph.D.—Brigham Young University

Carol G. Jacques, Art (1976)
B.F.A.—University of Denver
M.F.A.—University of Massachusetts

Robert D. Jameson, Computer Science (1978)
B.B.A.—University of Miami
M.B.A.—University of Miami

John Jarchow, Drafting (1978)
B.Arch.—University of Arizona

Karl B. Johnson, Librarian (1977)
B.A.—University of Arizona
M.A.—University of Denver
Ph.D.—Arizona State University

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

Kathryn Kalunian, Nursing (1982)
B.S.—Keuka College
M.S.—Boston University

Sandra Keith, Librarian (1982)
A.A.—Pima College
B.A.—University of Arizona
M.L.S.—University of Arizona

Margaret Kenski, Political Science (1969)
B.S.—Georgetown University
M.A.—Georgetown University
Ph.D.—Georgetown University

Robert A. Kish, Writing (1970)
B.S.—Indiana State University
M.A.—Arizona State University

James R. Kluger, History (1975)
B.A.—St. Ambrose College
M.A.—University of Arizona
Ph.D.—University of Arizona

Cecilia V. Knauss, Literature and Writing (1976)
B.A.—Silliman University
M.A.—Silliman University

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

Gretchen LeGault, Nursing (1982)
B.A.—Dakota Wesleyan University
B.A.—Augustana College
M.S.N.—University of Arizona

Moses A. Leon, Administration of Justice (1970)
A.A.—San Jose City College
B.A.—San Jose State College
M.S.—California State University, San Jose

Jean M. Lindeberg, 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

James A. Lowell, Life Sciences (1969)
B.S.—University of Arizona
M.S.—University of Arizona
Ph.D.—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

Shelley Maxfield, Life Science (1982)
B.S.—Central State University
M.S.—University of Arizona

David May, Mathematics (1971)
B.S.—University of Arizona
M.A.—University of Arizona

Pamela D. Mayhall, Administration of Justice/Youth Care (1975)
B.S.—University of Arizona
M.Ed.—University of Arizona

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

Charles McKaskle, Electronics (1981)
A.A.—Pima Community College

James V. Meisel, Sheet Metal (1971)
A.A.—Pima Community College
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

Ronald Moody, Electronics (1980)
A.A.—Pima Community College
A.A.S.—Pima Community College

Becky J. Moore, Assistant Catalog Librarian (1978)
B.A.—University of Arizona
M.Ed.—University of Arizona

M. Beverley Moore, Writing (1978)
B.A.—University of Tennessee
M.S.—University of Tennessee
M.A.—Governors State University

Guadalupe M. Moore, Physical Education (1974)
B.S.—Northern Arizona University
M.A.—Northern Arizona University

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 (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

Robert Nixon, Marketing and Management (1981)
B.S.—University of Pittsburg
M.S.—Ohio State - Air Force Institute

Eli Noble, Jr., Health Education and Physical Education (1971)
B.A.—St. Augustine's College
M.Ed.—University of Arizona
Ph.D.—University of Arizona

Keray Nouri, 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

William Pagnotta, Computer Science (I982)

Virginia Pangman, Nursing (1982)
B.S.—Marquette University
M.S.—Marquette 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

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
Ph.D.—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

Eileen Perry, Music (1981)
B.M.—University of Arizona
M.M.—University of Arizona

Norbert Pittner, Mathematics (1969)
B.A.—University of California
M.A.—San Francisco State College

Anthony Pitucco, Physics (1973)
B.S.—University of Arizona
M.Ed.—University of Arizona

David G. Poedel, Emergency Medical Technology (1975)
A.A.—Pima Community College
B.S.—University of Arizona
EMT—Paramedic, Arizona Department of Health Services

George W. Porter, Business Administration and Management (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

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

Stephen R. Rinehart, Sign Language (1982)
CSC, LS/C, Interpreters for the Deaf

Frank Rizzuto, Chemistry (1976)
B.S.—University of Utah
Ph.D.—University of Utah

Donald Roberts, Business (1982)
B.A.—University of Nebraska
M.S.—George Washington University

Nancy Roberts, Nursing (1982)
B.S.—University of Arizona

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

JoAnn Rust, Physical Education (1981)
B.S.—University of Utah
M.S.—University of Arizona

Marvin A. Saari, Sheet Metal/Drafting (1976)
A.A.—Pima Community College

Christine F. Scharf, Counselor (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

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, Counselor (1969)
A.B.—University of Southern California
B.D.—Garrett Theological Seminary
Ph.D.—Yale Graduate School

Glenn L. Seubert, Machine Tool Technology (I982)
Journeyman Machinist Certificate

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

Barbara Sinclair, Counselor (1980)
B.S.—South Dakota State University
M.S.—South Dakota State University

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
M.Ed.—University of Arizona

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, Business/Marketing (1975)
B.S.—Northwestern State University
M.S.—Northwestern State University

Marilyn Speert, Computer Science (1981)
B.S.—University of Arizona

Oma J. Spillman, Automotive (1971)
Master Technician, Chevrolet

David Stephen, Anthropology (1975)
B.A.—California State University
M.A.—University of Arizona

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

Harold Symms, Music (1975)
B.A.—Arizona State University
M.M.—Arizona State University

Nard N. Taiz, Writing (1970)
B.A.—University of Arizona
M.A.—University of Arizona

Donna Tang, Librarian (1974)
B.A.—Boston University
M.L.S.—University of Arizona
M.S.—University of Arizona

Stella Tetar, Recreation (1970)
A.A.—Kendall College
B.S.—Northwestern University
M.Ed.—University of Arizona

Rebecca Jane Thacker, Health Care (1975)
B.S.—University of Arizona
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 (1970)
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, ESL, 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, Counselor (1972)
B.S.—University of Arizona
M.A.—Northern Arizona University

Yone B. Van Olphen, ESL, Reading, and Writing (1970)
B.A.—San Jose State College
M.A.—Arizona State University

Manuel Velez, Writing (1970)
B.A.—University of Arizona
M.A.—University of Arizona

Marie Vergata, Counselor (1981)
B.S.—Adelphi University
M.Ed.—University of Arizona
Ed.D.—University of Arizona

Laurence J. Victor, Psychology (1974)
B.S.—Rensselaer Polytechnic Institute
M.S.—University of Chicago
Ph.D.—Yale University
Ph.D.—University of Minnesota

Nancy B. Wall, Writing (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

Pearlye Warner, Data Entry (1978)
A.G.S.—Pima Community College

Arleigh B. Watkins, Early Childhood Education (1971)
P.S.C.—Toronto Teacher's College
B.A.—University of Arizona
M.Ed.—University of Arizona

D. Glynn 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, Engineering and Mathematics (1972)
B.S.—University of Arizona
M.A.—University of Arizona
M.Ed.—University of Arizona

Alice White, Librarian (1976)
B.A.—George Williams College
M.L.S.—Texas Woman's University

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, Librarian (1974)
B.A.—Moorhead State College
M.S.—Florida State University

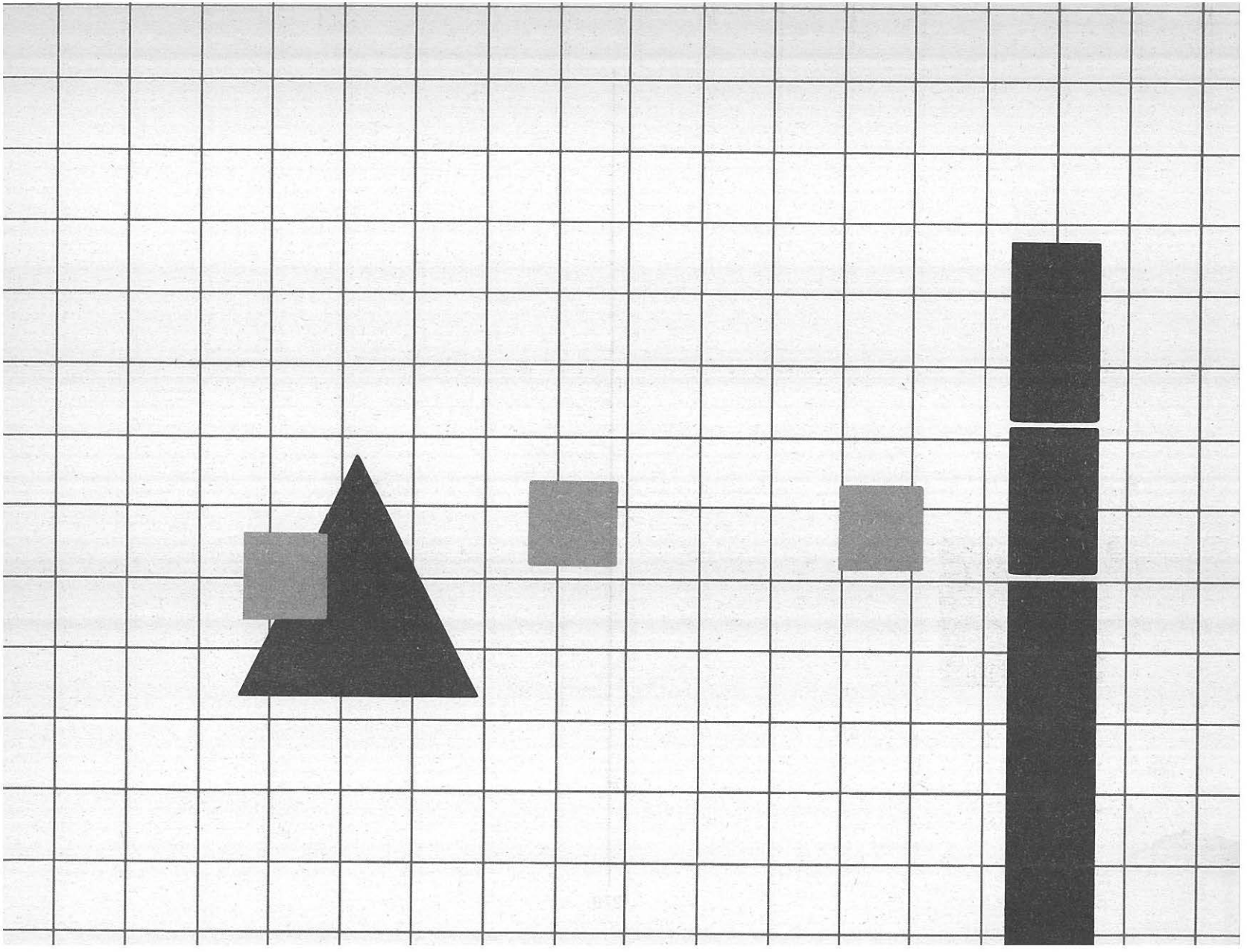
Stanley P. Witt, Humanities, English, and Philosophy (1976)
B.A.—University of Arizona
M.A.—University of Arizona
Ph.D.—University of Arizona

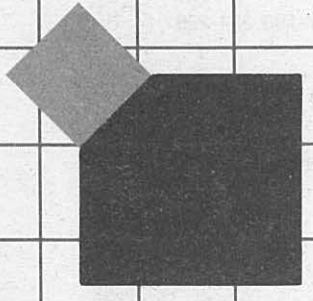
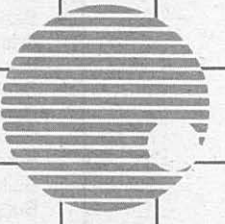
Donna Yoder, Office Education (1978)
B.A.—Goshen College
M.A.—University of Northern Colorado

Angela Zerdavis, Anthropology (1972)
B.A.—University of Illinois
M.A.—California State University
Ph.D.—Brigham Young 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



Index

Index

editorial direction	Dill Broderick, Susan Fincke
art direction	Dennis Landry, David Tang
production direction	David Tang
cover design	Dennis Landry
photography	David Tang, Marianne Daley
typography	Joanne Wilhelmsen, Grace Burton
layout	Elio Zambrano, Anne Marie Hamill
printing	Times Mirror Press