

PimaCommunityCollegeCatalog

PimaCountyCommunityCollegeDistrict



89/90



1989/90

District Service Center
200 N. Stone Avenue
P.O. Box 3010
Tucson, Arizona 85702-3010
(602) 884-6060

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

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

District Service Center Annex
1927 N. Stone Avenue
2001 N. Stone Avenue
Tucson, Arizona 85705
(602) 884-6060

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

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

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

Skill Center
1859 W. Grant Road, #104
Tucson, Arizona 85745
(602) 623-8456

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

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 680,000 people residing within the 9,240 square miles of Pima County through three campuses and more than 70 off-campus locations. A community services program offers additional noncredit classes, workshops, and seminars at over 70 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 television each semester which can be taken on a general interest basis or as part of a program of study.

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 27,000 students in credit course programs and almost 26,000 in non-credit courses.

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

Published: June 1989.



Affirmative Action

Pima Community College has a policy of nondiscrimination on the basis of race, color, national origin, religion, sex, age, disability and/or status as a Vietnam-era veteran.

This policy applies to all programs, services, and facilities, and includes, but is not limited to applications, admissions, access to programs, classes, services, and employment. Such discrimination is prohibited by Titles VI and VII of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, sections 503 and 504 of the Rehabilitation Act of 1973, the Vietnam Era Veterans Readjustment Acts of 1972 and 1974, the Age Discrimination Acts of 1975 and 1967 as amended, and other federal and state statutes and regulations.

For further information regarding the application of these laws and regulations contact: Assistant to the President for EEO/AA, District Service Center, 200 N. Stone Avenue, Tucson, Arizona, (602) 884-6539.

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Academic Calendar 1989/90

Fall Semester 1989

All-College In-Service Day (no registration)	Aug 21
Faculty advising begins	Aug 22
Open Registration (Walk-In)	Aug 22-25
Drop-Add	Aug 28-Sept 1

Fall Classes start

Labor Day Holiday	Sept 4
Graduation Applications due	Oct 2
Veterans Day Holiday	Nov 10
Thanksgiving Day Holiday	Nov 23-26
Evaluation/Assessment/Exam Week	Dec 18-22
Final Grades due	Dec 22

Fall Semester ends

Winter Recess	Dec 22 Dec 23-Jan 5
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Spring Semester 1990

Faculty advising begins	Jan 8
Faculty Development Day	Jan 12
Open Registration (Walk-In)	Jan 8-12
Drop-Add	Jan 16-22

Martin Luther King Jr. Holiday

	Jan 15
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Spring Classes start

Graduation Applications due	Jan 16
Rodeo Days Holiday	Feb 1
Spring Holiday	Feb 22-25
Evaluation/Assessment/Exam Week	Mar 12-18
Final Grades due	May 7-11

Spring Semester ends

Graduation	May 11 May 10
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Summer School Program 1990 (May 14-Aug 16)

(Pending review and analysis of the 1989 Summer School Program, the 1990 Summer School Program may include 5, 6, or 7 weeks for Sessions A and B and 8 or 10 weeks for Session C.)

Summer Advising/Registration period April 30-May 11

Session A (May 14-June 28)

Classes begin	May 14
Drop Add	May 14-17
Memorial Day Holiday	May 28
Classes end	June 28

Session B (July 2-Aug 16)

Advising/Registration continues	June 25-28
Classes begin	July 2
Drop Add	July 2-9
Independence Day Holiday	July 4
Classes end	Aug 16

Session C (June 11-Aug 16)

Classes begin	June 11
Drop Add	June 11-14
Independence Day Holiday	July 4
Classes end	Aug 16

To Serve the Community



Pima County Community College District

Downtown Campus

1255 N. Stone Avenue
Tucson, Arizona 85705

East Campus

8202 E. Poinciana Drive
Tucson, Arizona 85730

West Campus

2202 W. Anklam Road
Tucson, Arizona 85709

Community Campus

1901 N. Stone Avenue
Tucson, Arizona 85705

Community Services

(non-credit classes)
220 E. Speedway Boulevard
Tucson, Arizona 85705

District Service Center

200 N. Stone Avenue
P.O. Box 3010
Tucson, Arizona 85702-3010

District Service Center Annex

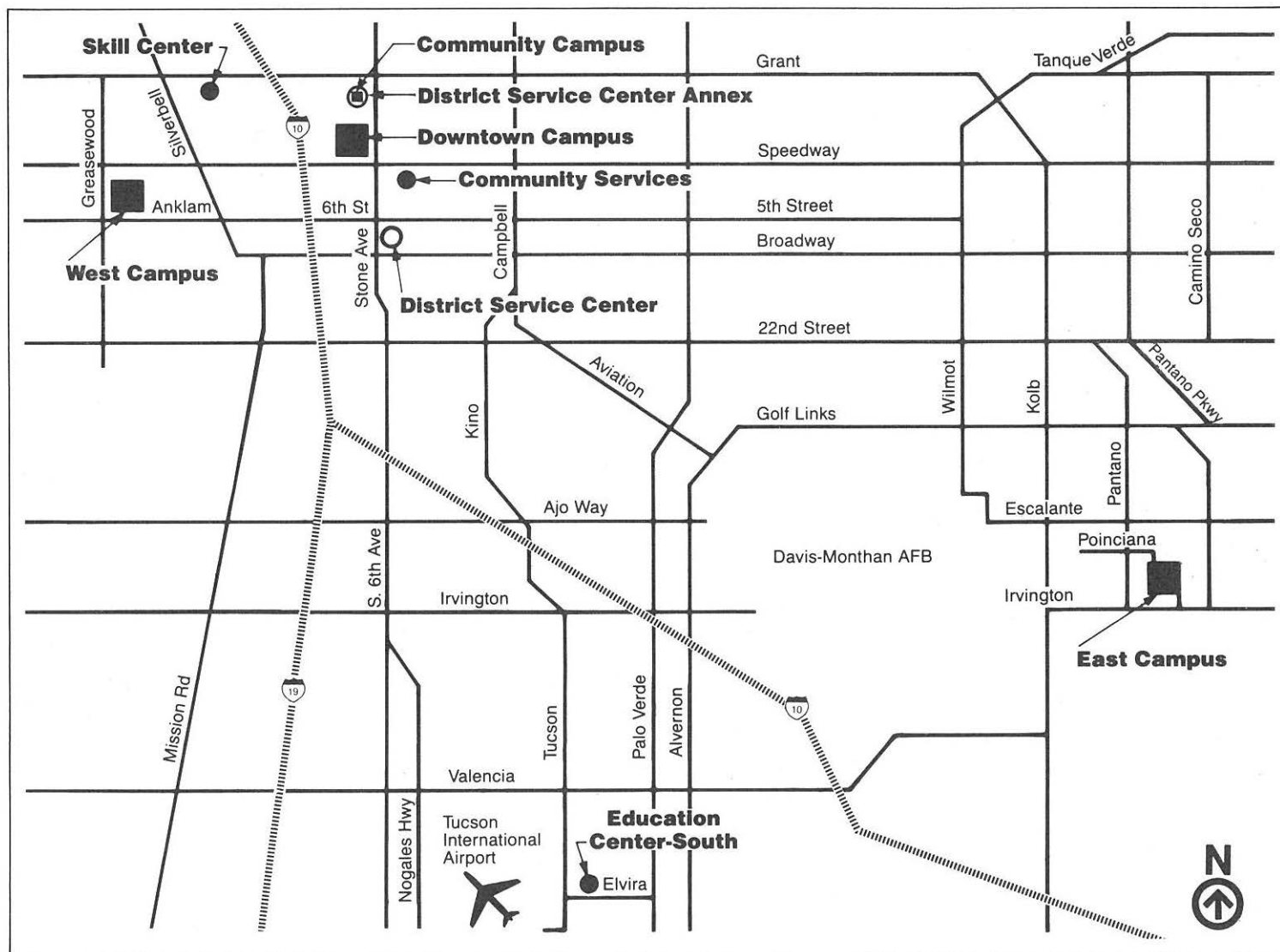
1927 N. Stone Avenue
2001 N. Stone Avenue
Tucson, Arizona 85705

Education Center-South

2859 E. Elvira Street
Tucson, Arizona 85706

Skill Center

1859 W. Grant Road, #104
Tucson, Arizona 85705



Downtown Campus

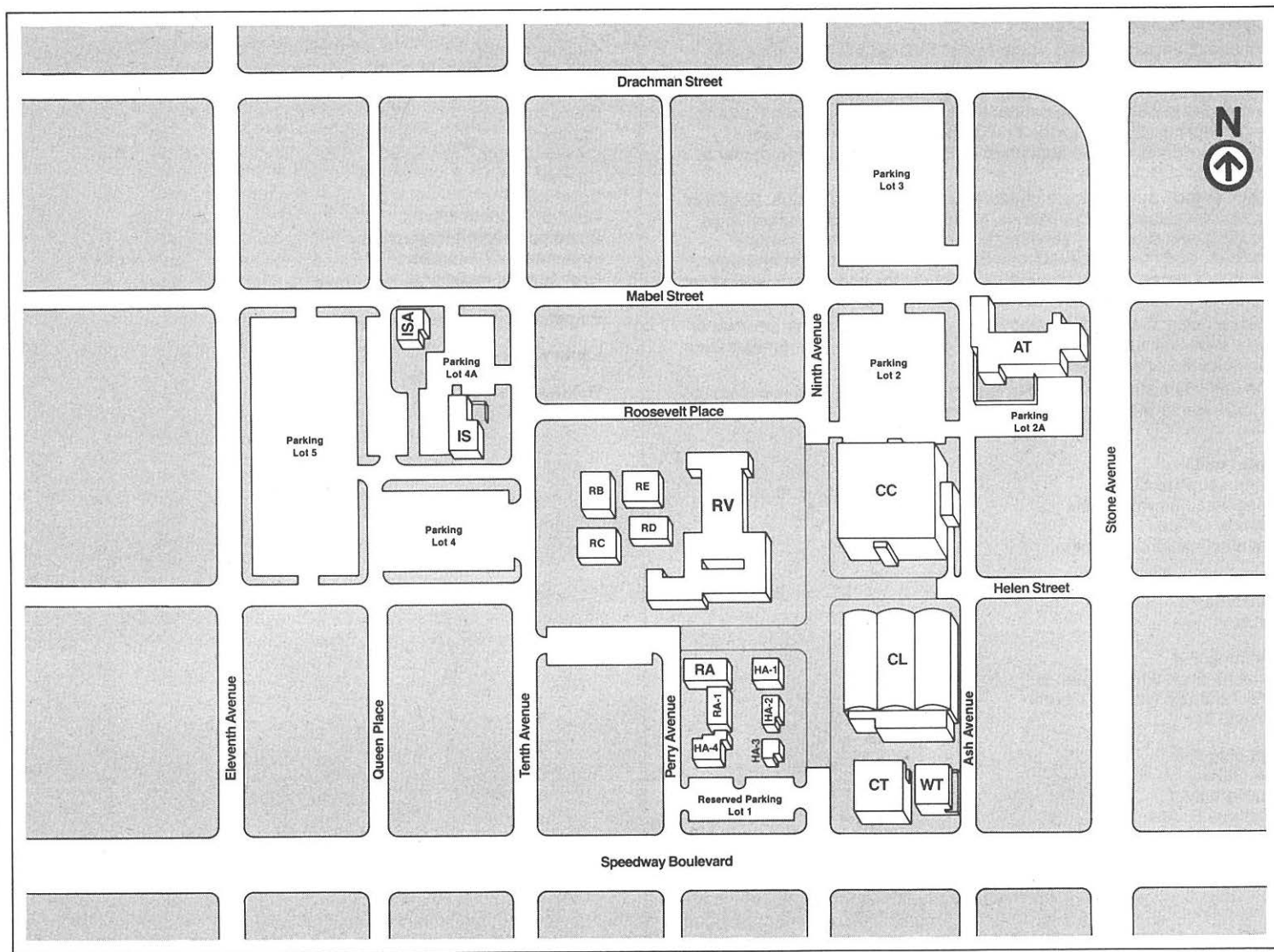
The Downtown Campus opened in 1974 in a remodeled post office annex near Speedway Boulevard and Stone Avenue. Now a complex of new and converted buildings, facilities include classrooms, laboratories, faculty offices, and the Campus Center, which houses various student services offices, the library,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

The 13-acre campus is easily accessible by public transportation from most sections of the city, and there is regular bus service between the Downtown and West campuses of the College.

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

The Downtown Campus enrollment is approximately 8,200.

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



East Campus

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

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

The curriculum at the East Campus includes introductory courses in many different subject areas, in developmental and general education, and selected programs in occupational education.

The East Campus enrollment is approximately 4,500 and is expected to increase as the new facilities are put into use.

Building O

Administrative Offices
Associate Faculty Office
Faculty Offices
Faculty Resource Office

Buildings E-1, E-2, E-3

Classrooms
Laboratories

Building E-4

Arizona State Environmental
Technology Training Center
(ASETT)

Building E-5

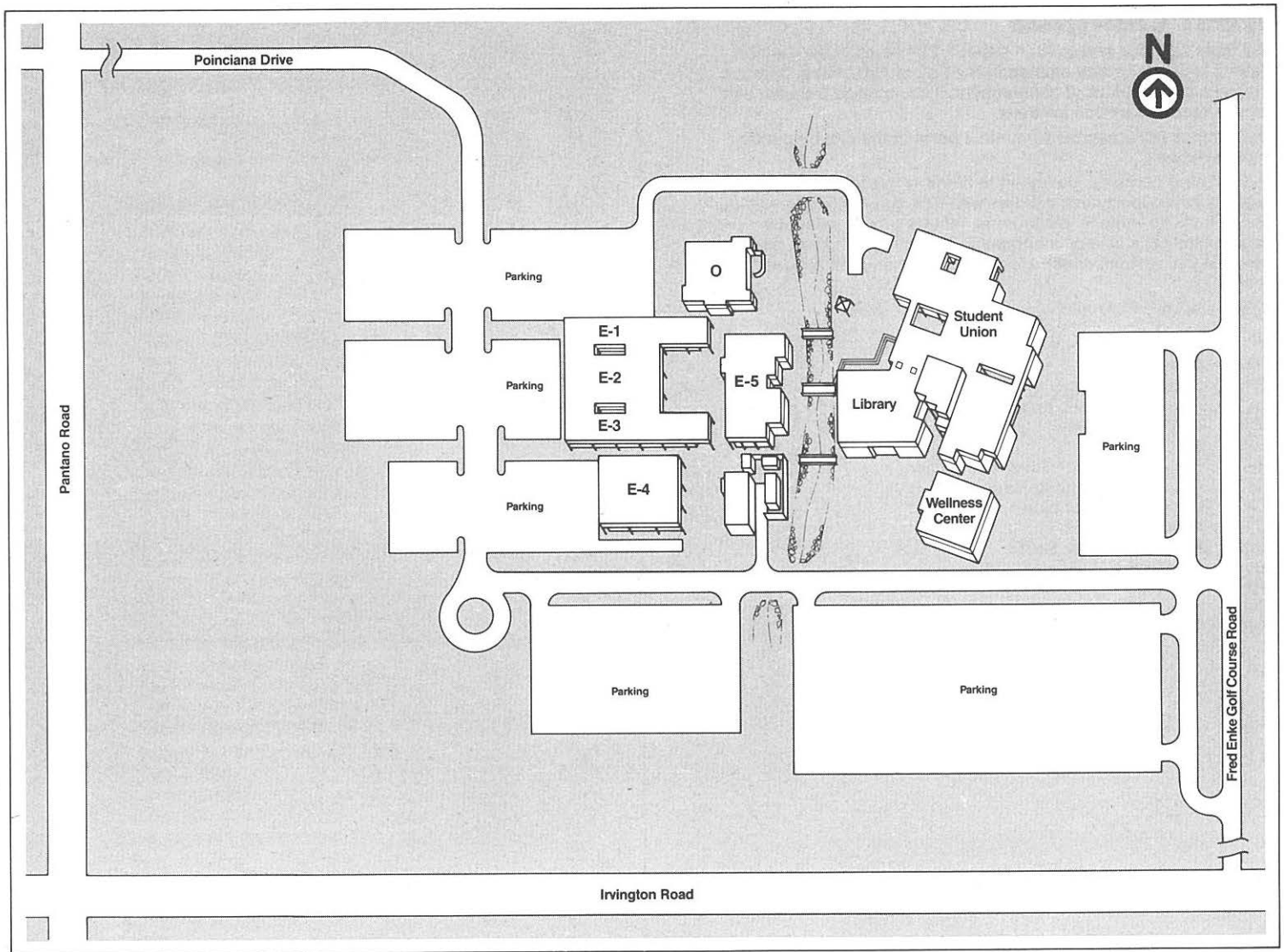
Art Gallery
Audio/Visual
Campus Police
Classrooms
Testing
Tutoring

Student Union

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

Library

Wellness Center



West Campus

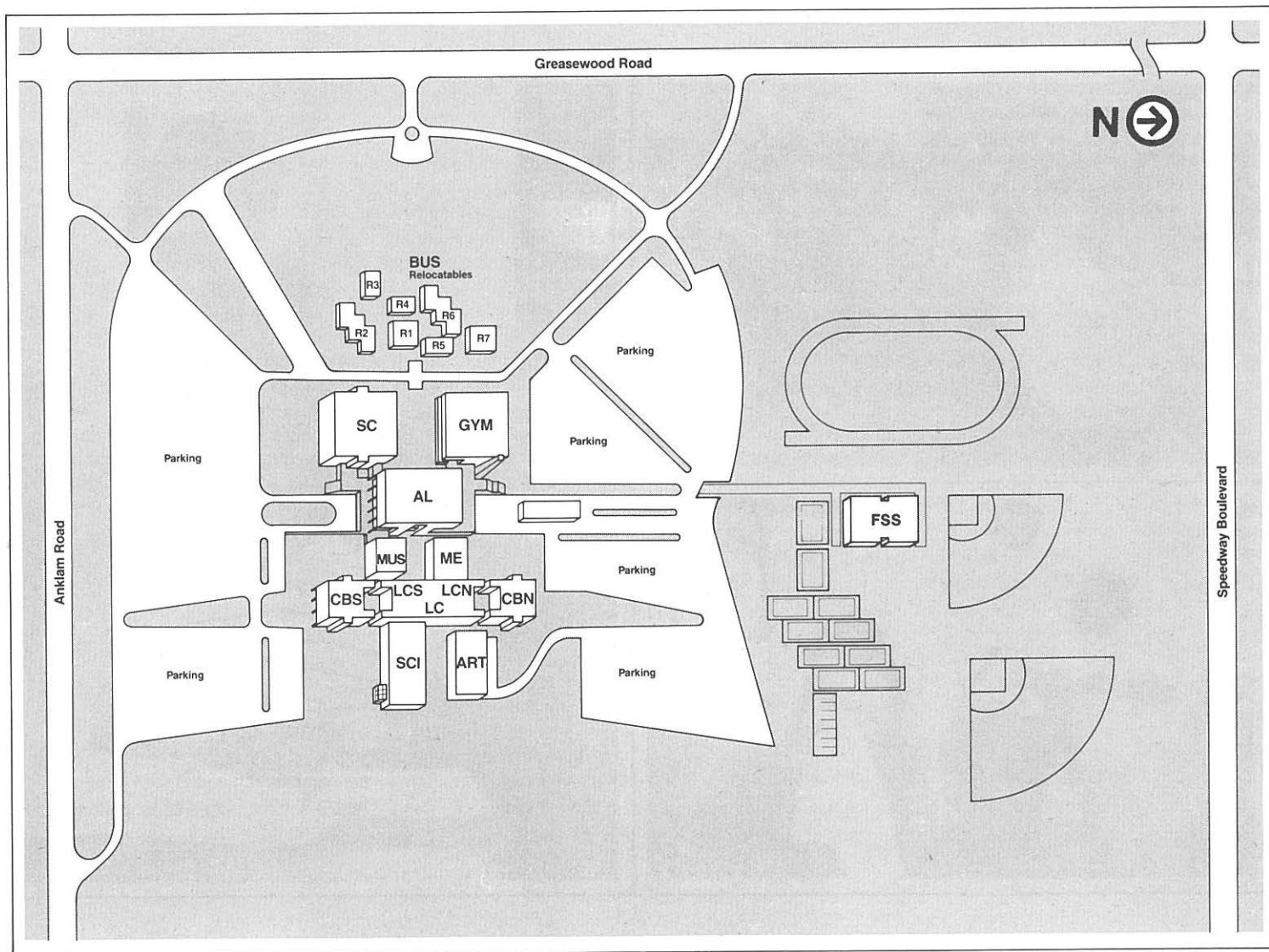
The West Campus was built in 1969 on 273 acres in the Tucson Mountain Foothills and opened in the Fall of 1970. West Campus provides a curriculum of general education, college transfer, and occupational education courses.

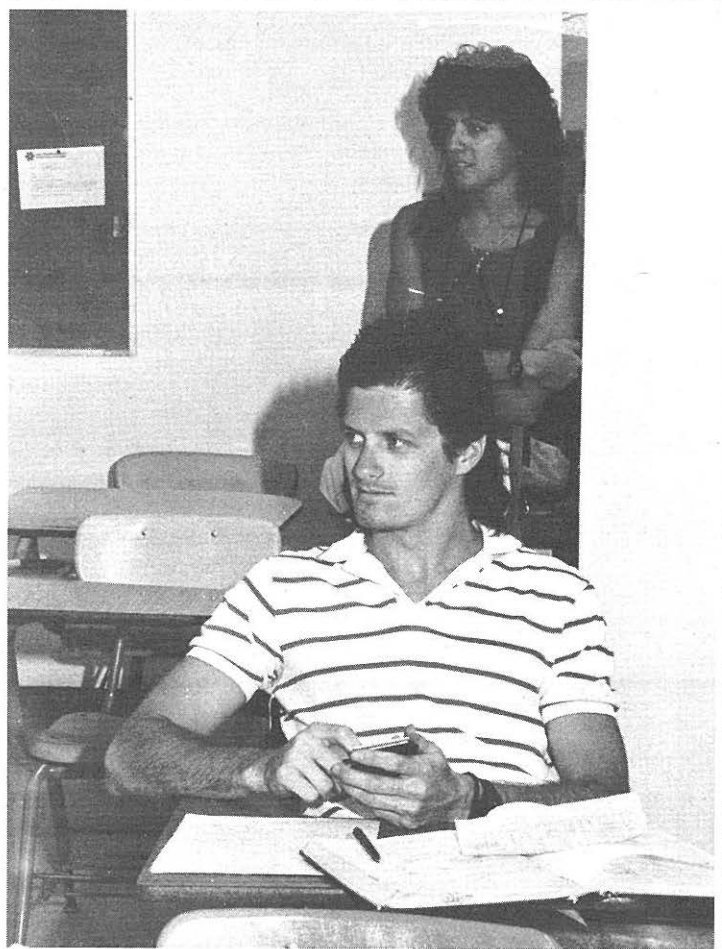
The campus is accessible from most parts of the city by public transportation.

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

West Campus enrollment is approximately 11,500.

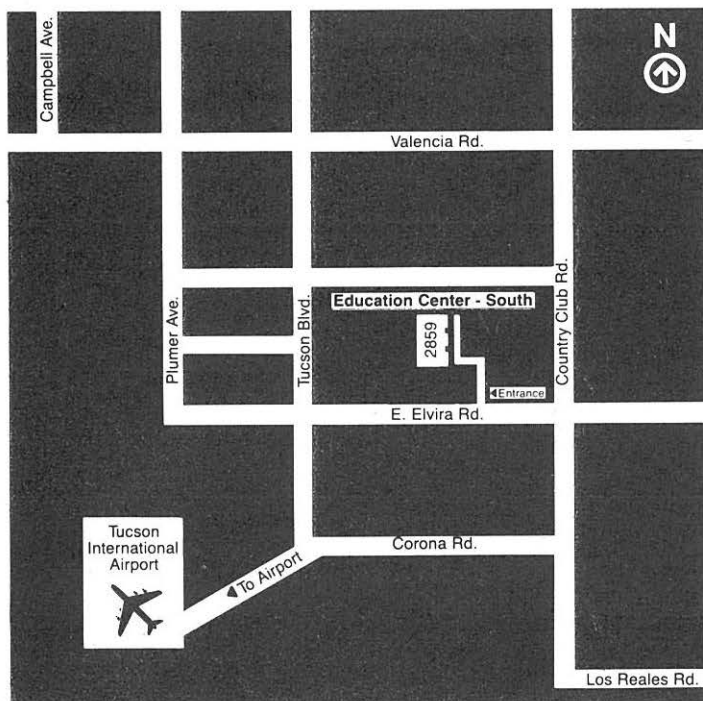
GYM	Gymnasium
SC	Student Center
AL	Administration/Library
ME	Math/Electronics
MUS	Music
FSS	Fitness and Sport Sciences Center
CBN	Classroom Building North
LCN	Learning Center North
LC	Lecture Center
LCS	Learning Center South
CBS	Classroom Building South
ART	Art
SCI	Science
BUS	R1-7, Relocatables





Education Center-South

The Education Center-South, Pima Community College's newest facility, serves Tucson's Southwest community. Day, evening and Saturday classes provide students with the opportunity to take university transfer courses as well as vocational education and special interest classes. A curriculum in English as a Second Language supports educational opportunities for the limited English proficient. Education Center-South is located at the Tucson Airport Center, 2859 E. Elvira. Enrollment is more than 700 at Education Center-South.



Skill Center

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

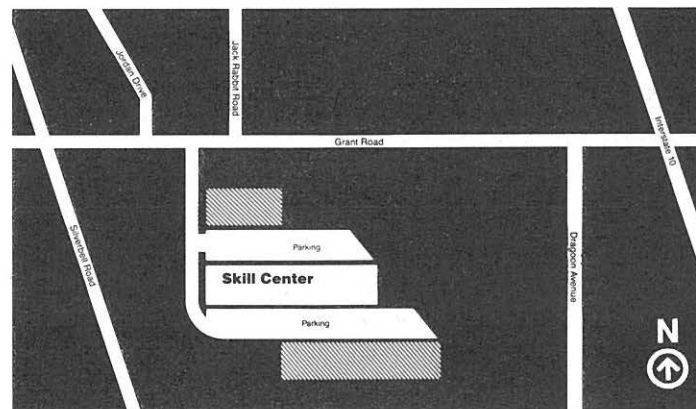
The Skill Center's major funding sources are the Job Training Partnership Act, the Arizona Department of Education's Division of Career and Vocational Education, the Tohono O'Odham Tribe, and the Department of Economic Security, Vocational Rehabilitation Division.

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

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

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

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



Community Campus

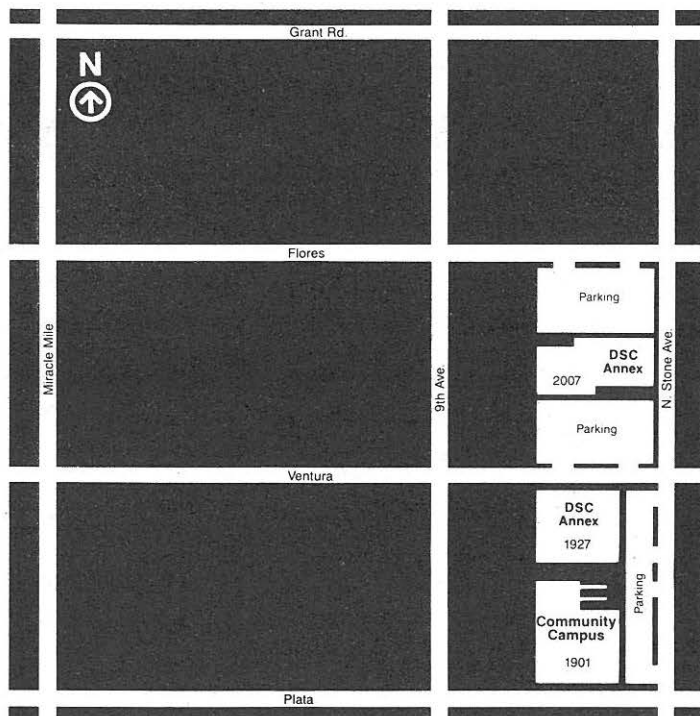
The Community Campus—a campus without walls—utilizes the facilities of the community including the public school system, various businesses, agencies, and neighborhood centers in the Tucson vicinity and in Ajo, Marana, Sells and Nogales. College credit classes are taught at approximately 76 locations, 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 1901 N. Stone Ave.

The Community Campus enrollment is about 8,000.

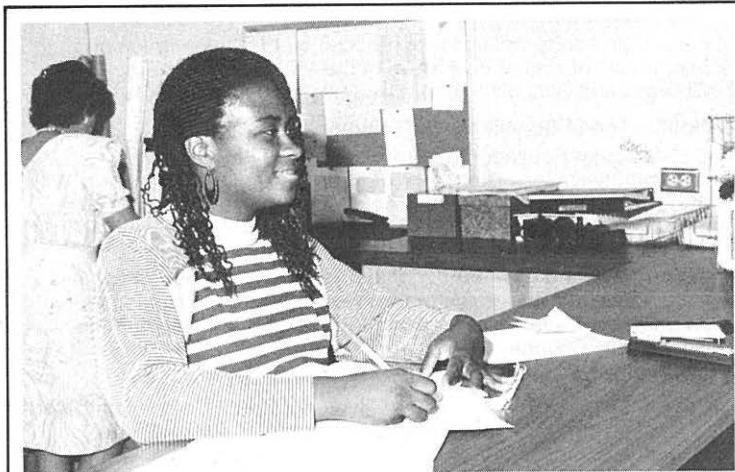


Community Services

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

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

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



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 is committed to education as a lifelong process, which develops an awareness in individuals of themselves and their environment, and thus prepares 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 resulting from diverse backgrounds.

For the College to fulfill its mission, all members of the College community must exercise their rights and assume responsibilities for the educational process.

Mission

Pima Community College, through its diverse educational programs, prepares students to function effectively in a highly complex and technological society; assists all students in being aware of and in reaching their highest potential; and contributes to the educational, social, and cultural development of Pima County residents.

Purposes

The purposes derived directly and equally from the mission statement are:

- 1) Include general education in all programs to enhance the capacity for personal enrichment, and for intelligent and responsible participation in society.
- 2) Prepare students to transfer to colleges and universities.
- 3) Assist all students in exploration of alternatives and the establishment of career and educational goals.
- 4) Prepare students for employment and advancement within their chosen careers.
- 5) Provide special opportunities for students to improve their academic skills.
- 6) Offer continuing education to serve both occupational and avocational interests.
- 7) Provide community services related to specific community needs, including cultural, recreational, and general interest offerings.
- 8) Provide educational opportunities to assist all students in developing their highest academic potential.
- 9) Provide on-going counseling opportunities for students and employees.

- 10) Provide continuous evaluation of all activities to improve services to the community and to increase awareness and accountability in all participants.

Accreditation

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

Notification of Occupational Education Opportunities

Occupational Education programs offered by Pima County Community College District provide students with training in a variety of career fields. These programs are designed to allow students to prepare for entry level employment, upgrading in their current occupation or training for a career change. Each occupational program has modern instructional equipment and the College has employed qualified instructors certified by the State. Occupational programs currently approved by the State to be offered at Pima Community College include:

Agriculture—Landscape Technician; Recreation.

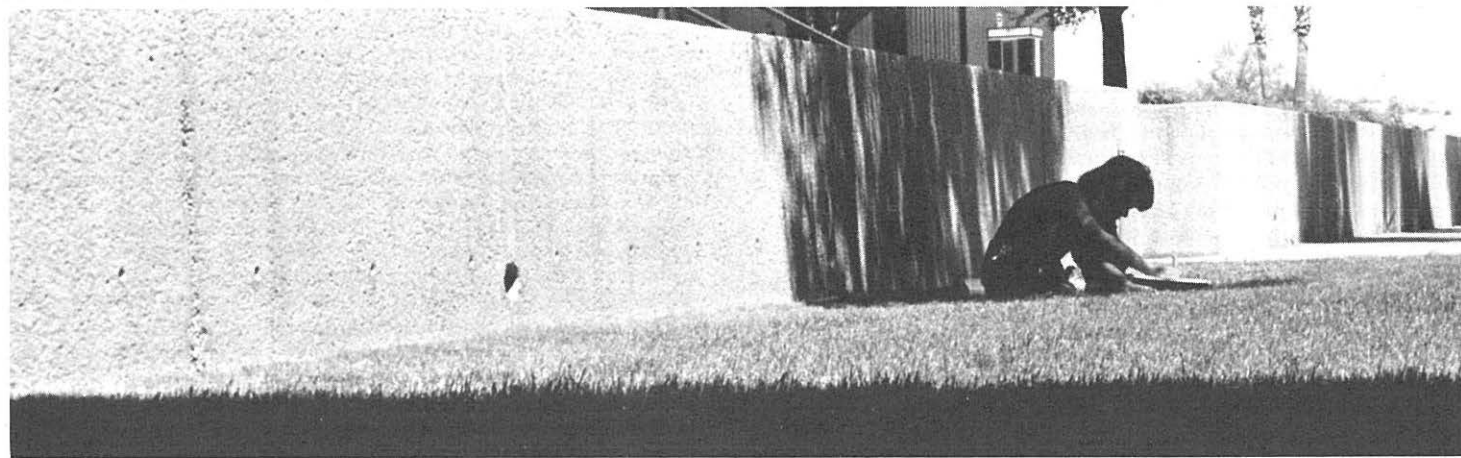
Distributive Education—Finance; Banking; Credit Union; Hotel/Motel Management; Fast Food Industry; Restaurant-Culinary Food Management; Advertising; Real Estate; Transportation & Traffic Management; Travel-Tourism; Postal Service Management; International Business Communications, Media Communications;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

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

Home Economics—Child Development; Early Childhood Education; Fashion Design & Clothing; Home Economics Professions; Institutional Food Service; Teacher Aides; Physical Therapy Assistant, and Pharmacy Technician.

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; Carpentry; Design; Drafting; Machine Tool; Plumbing & Pipefitting; Sign Language; Social Services; Welding; Solar Technician.

The list provided above is not all inclusive. Please check for other programs.

All Occupational Education programs and services are offered without regard to race, color, national origin, sex, or handicapping condition.

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.

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 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.

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. He joined the College on July 16, 1979.

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 provided 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 had roughly the same area as the former East Education Center but were designed for increased instructional facilities.

Two other branches of the College moved to new leased facilities in 1981. The 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.

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.

The 1983/84 year was marked by a number of changes. The College grading policy was changed to include both a "D" and an "F" grade. A program to assess the basic skill levels of students enrolling in reading, writing, or mathematics courses was fully implemented.

At the East Campus, a writing improvement project was incorporated into classes ranging from computer science to political science. The Downtown Campus implemented a new program for solar installation and maintenance technicians. The College Skill Center opened its



kitchen for the Food Service Training Program, and Community Services moved to 220 East Speedway Blvd.

The number of students seeking computer literacy and computer-related instruction, continued to grow. The noncredit senior education program offered computer classes for the first time, and Community Services expanded its regular computer offerings. The drafting department acquired a computer graphics terminal and began to teach computer-aided drafting. The archaeology department developed a unique system that allows site data to be entered into a computer at the moment an artifact is found, simplifying and accelerating data collection and analysis.

Electronics was also a high-demand area. The Skill Center, at the request of local employers, developed a continuous training program for structural assemblers and other positions. The Community Campus offered a new, accelerated 13-week General Electronics Certificate Program.

Engineering construction technology courses were offered for the civil engineering squadron at Davis-Monthan Air Force Base, and a landscape technology program was implemented at the suggestion of the Arizona Landscape Contractors' Association.

Although a College bond issue to construct a high technology/business management building was defeated in February, 1984, additional funds were received from a variety of external sources. The College was notified that it will receive \$75,000 over a ten-year period as one of the beneficiaries of the Pizzini Charitable Lead Trust for the estate of Mrs. Irene Pizzini, daughter of Tucson pioneer Albert Steinfeld. The grant provides for faculty development in specified areas and awards and loans to outstanding students. A grant from the Flinn Foundation was awarded to the College to survey the continuing education needs of Southern Arizona's rural clinics and hospitals. The College received three grants from Cox Cable Co. to develop a two-way communication link between campuses, produce two video news magazines, and tape ten programs to help students build confidence in their ability to learn.

In October, 1983, the College was awarded a federal grant to build a technical center for training sewage treatment plant operators and maintenance workers. In early 1984, I.B.M. invited the College to participate in its national model school computer literacy program to train teachers in three Tucson school systems to use computers. As part of that program, I.B.M. donated fifteen personal computer systems, plus \$10,000, to the college. Later, I.B.M. announced a further donation of computer-aided drafting systems and \$60,000.

Computer equipment was also donated to the College by Control Data Corporation and Digital Electronics Corporation.

The College received a \$94,577 federal grant in August, 1984, to develop an integrated curriculum in speech and writing within Pima County. The program includes testing student skills in writing and speaking at the high school, community college, and university levels, setting proficiency standards for each level, and integrating instruction in writing and speaking into other subject areas. Funds were provided by the U.S. Department of Education's Fund for the Improvement of Postsecondary Education.

During 1984/85, the grand total of unduplicated enrollment in credit and noncredit courses was nearly 50,000. Although this represented about a 2% decrease in the number of full-time student equivalent students, the overall number of part-time and full-time students increased over the previous level. The student profile at this time showed 73% were part-time students, 67% were day students, 45% were enrolled in programs for direct employment, and 80% were employed full- or part-time. The average Pima student was 28 years old.

At the state level, Governor Bruce Babbitt, on May 7, 1985, signed HB 2235, a measure resulting in a 17.7% increase in state appropriations to community colleges in 1985/86.

Membership of the Board of Governors changed as result of the 1984 elections. New members to the Board were Marie Christine Molina from District 5; Edward A. Wagner from District 2; and Janet M. Vasilius from District 1. Leaving the Board were Georgia Cole Brousseau, Dr. Alphus Christensen, and Esther Tang. Board members who continued to serve were Andrea Milligan, Board chair, and Carl Holzman, Board secretary.

In February, 1985, ground was broken for the Wastewater Training/Science Building, the sixth building on the East Campus. Classes started meeting in the facility that fall, and the following spring the building was dedicated, acknowledging the efforts of many in its development, principal among them Dr. Nathan C. Burbank, Jr., a retired County engineer, internationally renowned authority on wastewater technology, and associate faculty of the College. Built and furnished at a cost of \$930,999, funded in part by a \$500,000 grant from the U.S. Environmental Protection Agency, the building is the state's only wastewater training facility.

Several accomplishments marked the 1985/86 year. The Five Year District Master Plan was presented to the Board of Governors in Spring of 1986 and will serve as a guide to the year 1991.

Other milestones for the year included the opening of Education Center-South to serve southside residents; an Award for Energy Conservation from the U.S. Department of Energy for a system used to cool West Campus buildings; and the Cadre system of team advising marking its first year of success at East Campus.

Enrollment in credit and noncredit courses for 1985/86 totaled 48,782. Full-time faculty numbered 276, with approximately 750 additional part-time faculty each semester. Membership on the College's 60 community advisory committees totaled 400.

With the Fall, 1986, election, composition of the Board of Governors changed. Mark E. Webb was elected to the District 3 position, and Carole Miller to District 4. Leaving the Board were Carl Holzman and Andrea Milligan. Board members who continued to serve were Marie Christine Molina, Janet M. Vasilius, and Edward A. Wagner. Vasilius was elected to chair the Board for 1987.

The process for renewal of North Central Association accreditation for the College began in October of 1986 with formation of committees for a self-study, the first step in the accreditation process.

Fall semester credit enrollment for 1986/87 was the largest ever: 22,959, a 10 percent jump over credit enrollment for the previous fall semester.

When 1986/87 drew to a close, S. James Manilla had resigned as president of the College, a post he had held since July, 1979, and PCC Vice President for Student Services Diego A. Navarrette, Jr. was appointed interim president of the College. The Board of Governors approved plans for a performing arts center at West Campus and a student union on East Campus, and work began on a major administrative reorganization of the College.

The 1987/88 academic year began with another jump in enrollment: 24,866 for the Fall Semester and 24,083 for the Spring Semester. In January of 1988, Edward A. Wagner was elected chairman of the Board of Governors. In February the Board voted unanimously to appoint Navarrette permanent president of the College. That Spring, the College held its first intercollegiate rodeo.

The 1988/89 year began with an increase in tuition, the first in three years, from \$17 to \$20 per credit hour. Despite that, Fall enrollment was at a new high of 26,810. By the end of the year, tuition increased again, to \$21 per credit hour. Administrative reorganization progressed and a compensation/classification study was commissioned.

Unsettling developments created tension on the Board and within the College. The residency of Board member Karleen J. Kaltenmark was challenged; she was elected in District 3 to succeed Mark Webb. Board Chairman Edward A. Wagner resigned in February; Katharina Richter was appointed to serve out his term. In March, the College's accrediting agency, the Commission on Institutions of Higher Education of North Central Association of Colleges and Schools, placed the College on probation.

In April, District 4 Board member Carole Miller resigned and John R. Even was appointed to fill her seat until the next general election in

November, 1990. Also in April, College President Diego A. Navarrette Jr. resigned. East Campus Executive Dean Brenda M. Beckman was appointed acting president and began measures to restore the College image and bring about removal of probation. In May, Board Chairperson Janet M. Vasilius resigned.

Pima Community College Foundation

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

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

Prime objectives of the Foundation are to promote recognition by business and industry and to secure 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 held each year allow members to meet and hear from students and faculty about the programs of the college.

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

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

OFFICERS, 1989-90

Arthur A. Porter, President

Othella E. Daniels, Secretary

Michael J. Rich, Treasurer

Mary K. Foster, Immediate Past President

Philip J. Silvers, Executive Director

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Pima Community College Alumni Association

An enthusiastic group of former students of Pima Community College began to meet in the fall of 1984 to discuss formation of a College alumni association. As a result of that meeting, and over a period of a year, a steering committee of dedicated alumni and staff has written bylaws and formed the PCC Alumni Association with a current membership of more than 400 members. Officers for 1989 are James Baker, president; Estelle Hall, vice president and president-elect; Lillian Rotter, secretary; and Fred Stevenson, treasurer. Betty Pacheco is the immediate past president.

Purposes of the PCC Alumni Association

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

Membership eligibility and benefits

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

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

For further information, including a membership brochure, contact the Alumni Office, Room 309, District Service Center, 884-6745.

Información adicional del colegio:

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

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

La legislación del Estado de Arizona define el "community college" diciendo que será institución educativa donde se proporcionaran 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 tienen como fin satisfacer las aspiraciones vocacionales o académicas de la población;

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

Admission to the College

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

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

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

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

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

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

Student Residency Requirements

Each student applicant shall have the question of the one year durational domicile requirement determined by the appropriate

Campus Registrar prior to the time of registration and payment of fees. It is the responsibility of the applicant to apply for admission and to register under the correct domicile determination. Domicile is determined as of the first day of the session in which enrolling. Published below are the Arizona Revised Statutes that determine classification of students for tuition purposes:

SECTION 15-1801 Definitions

In this article, unless the context otherwise requires:

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

SECTION 15-1802 In-State Student Status

- A. Except as otherwise provided in this article no person having a domicile elsewhere than in this state is eligible for classification as an in-state student for tuition purposes.
- B. A person is not entitled to classification as an in-state student until he is domiciled for one year, except that a person whose domicile is in this state is entitled to classification as an in-state student if he meets one of the following requirements:
 1. His parent's domicile is in this state and his parent is entitled to claim him as an exemption for state and federal tax purposes.

2. He is an employee of an employer which transferred him to this state for employment purposes or he is the spouse of such employee.
- C. The domicile of an unemancipated person is that of such person's parent.
- D. Any unemancipated person who remains in this state when such person's parent, who had been domiciled in this state, removes from this state is entitled to classification as an in-state student until attainment of the degree for which currently enrolled, so long as such person maintains continuous attendance.
- E. A person who is a member of the armed forces of the United States stationed in this state pursuant to military orders or who is the spouse or a dependent child as defined in Section 43-1001 of the armed forces of the United States stationed in this state pursuant to military orders is entitled to classification as an in-state student. The student, while in continuous attendance, toward the degree for which currently enrolled, does not lose in-state student classification.
- F. A person who is a member of an Indian tribe recognized by the United States Department of the Interior whose reservation land lies in this state and extends into another state and who is a resident of the reservation is entitled to classification as an in-state student.

SECTION 15-1803 Alien In-State Student Status

An alien is entitled to classification as an in-state refugee student if such person has been granted refugee status in accordance with all applicable laws of the United States and has met all other requirements for domicile.

SECTION 15-1804 Presumption Relating To Student Status

Unless the contrary appears to the satisfaction of the registering authority of the community college or university at which a student is registering, it shall be presumed that:

1. No emancipated person has established a domicile in this state while attending any educational institution in this state as a full-time student, as such status is defined by the state board of directors for community colleges or the Arizona board of regents, in the absence of a clear demonstration to the contrary.
2. Once established, a domicile is not lost by mere absence unaccompanied by intention to establish a new domicile.
3. A person who has been domiciled in this state immediately prior to becoming a member of the armed forces of the United States shall not lose in-state status by reason of such person's presence in any other state or country while a member of the armed forces of the United States.

SECTION 15-1805 Student Status Regulations

The Arizona Board of Regents and the state board of directors for community colleges shall adopt guidelines applicable to all institutions under their respective jurisdictions that will insure uniform criteria to aid the institutions in determining the tuition status of any student and that will establish uniform procedures for review of that status.

SECTION 15-1806 Testimony Concerning Student Status:

Designation Of Persons To Administer Oaths

The Arizona Board of Regents and the state board of directors for community colleges shall designate a person employed at each institution under their respective jurisdictions to administer oaths or affirmations in connection with the taking of testimony relative to student status for tuition purposes.

SECTION 15-1807 Concurrent Enrollment; Nonresident Tuition

- A. It is unlawful for any nonresident student to register concurrently in two or more public institutions of higher education in this state including any university or community college for a combined student credit hour enrollment of more than six semester hours without payment of nonresident tuition at one of such institutions.
- B. Any nonresident student desiring to enroll concurrently in two or more public institutions of higher education in this state including any university or community college for a combined total of more than six semester hours who is not subject to nonresident tuition at any of such institutions shall pay the nonresident tuition at the institution of his choice in an amount equivalent to nonresident tuition at such institution for the combined total of semester hours for which the nonresident student is currently enrolled.

Evidence of Domicile

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

- 1. An affidavit signed by the student must be filed with the person responsible for verifying domicile.
- 2. Any of the following may be used in determining a student's domicile in Arizona:
 - a. Income Tax return.
 - b. Voter registration.
 - c. Automobile Registration.
 - d. Driver's License.
 - e. Place of graduation from high school.
 - f. Source of financial support.

- g. Dependency as indicated on Federal Income Tax Return.
- h. Ownership of real property.
- i. Notarized statement of landlord or employer.
- j. Bank accounts.
- k. Other relevant information.

International Student Admission

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

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

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 Language (TOEFL). Further information concerning examination dates and places for the TOEFL can be obtained by writing to: Test of English as a Foreign Language, Box 899, Princeton, New Jersey, U.S.A. 08540. 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. Copies of the guide are available in all Advising Centers.

Measles Immunity

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

Measles inoculations are available from private physicians and at the Pima County Health Department clinics. Information on inoculations, immunization testing, clinics, and other communicable disease concerns is available from the County's Immunization Program Office, 620-3755.

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

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.

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.

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.

Advising

Assistance is given each student to help select a program of study for the student's needs and goals. The advising program is offered throughout the year. Advisors and counselors are available, at each campus, to discuss program choices and course selection.

Orientation and Advising for New Students

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

Registration/Advising for International Students

International students must contact the 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.

Assessments

Basic Skills—Pima Community College requires skill assessment tests in mathematics, reading, and writing. These tests are provided free of charge and are administered through assessment centers.

- 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 student's third hour of instructional activity, all three assessment tests shall be required of any new, full-time student during his/her initial semester of enrollment or any student who is

placed on academic alert and who has not previously taken the tests.

- C. Prior to the student's third hour of instructional activity, an assessment test specific to developmental mathematics, reading, or writing courses shall be required of any student enrolling in such a course for the first time.

Assessment Services—In addition to Basic Skills Assessments, individual assessments are provided for assistance in counseling and in career or educational planning. Various tests are available to help determine individual capabilities, specific learning disabilities, vocational interests, aptitudes, achievement, and personal needs. English as a Second Language exams are available.

The General Education Development tests (GED for high school equivalency) and Pre-Professional Skills Tests (PPST for Colleges of Education) are offered through the Diagnostic Assessment Center at the West Campus. The CLEP (College Level Examination Program) tests and DANTES standardized subject tests for college level placement are offered through the Assessment Center at the Downtown Campus. Students should check times for walk-in services, individual appointments, or group sessions.

Special needs assessment appointments can be made by calling the Disabled Student Resources office on any Pima Community College campus. Accommodations include extended time for disabled students, large print tests, writing assistants, and interpreters.

Student Costs

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

Fees and Tuition

Credit Hours	In-State Resident	Out of State/Country
1	\$ 21.00	\$ 25.00
2	42.00	50.00
3	63.00	75.00
4	84.00	100.00
5	105.00	125.00
6	126.00	150.00
7	147.00	777.00
8	168.00	888.00
9	189.00	999.00
10	210.00	1,110.00
11	231.00	1,221.00**
12-18*	252.00	

*To calculate fees and tuition above 18 credit hours, add \$20.00 per credit hour.

**Tuition for out-of-state/country students who take 7 through 12 credit hours is \$111 per credit hour. For 13 or more credit hours, add \$90 to \$1,332 for each credit hour above 12. For example, the charge for 15 credit hours is \$1,602 which is \$1,332 plus \$270.

Other Costs

Withdrawal Fee	\$15.00
Course Repeat	21.00/cr. hr.
Music Lesson (Private)	
½ hour per week	170.00
1 hour per week	340.00
Health Science Liability Fee	Based on market
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	5.00
Parking and Traffic Fine	3-7.00
I.D. Card	2.00

Note: All fees are subject to change.

Refund Regulation (Credit Courses—Fall and Spring Semesters)

CANCELLED CLASSES—In the event class(es) is cancelled by the college, a 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 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 or more	13 calendar days after start of class

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

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 refund of student fees and tuition applicable to that class(es) will be made.

See Class Schedule for Refund Regulation for summer sessions.

Financial Aid Recipients

Federal financial aid recipients who drop below 6 credit hours will receive no refund of fees or tuition. Instead, the refund will be distributed to the respective aid program.

Refund Regulation (Noncredit Classes)

The Community Services office handles requests for questions concerning refunds for special interest community service/noncredit classes.

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

Refunds are made in full for cancelled classes.

Refund Regulation (Noncredit Educational Study Tours)

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

Trips of more than one day: A cancellation fee is charged for withdrawals unless the cancelled seat is resold, in which case a \$5 service fee is charged. Cancellation processing fees are:
100% nonrefundable if written request received within 13 calendar days of tour date.

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

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

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

Graduation

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

1. complete the general education requirements,
2. complete the college reading requirement,
3. complete program requirements in the major, and
4. complete a graduation application by the dates specified in the college academic calendar.

A Rationale for General Education

General education requires that students gain an understanding and appreciation of themselves; their own society; their own history and culture; the history and culture of the human species; the principles and impact of mathematics, science and technology; and the principles of effective communication. Through an understanding and appreciation of these elements, the students should come to a realization of the interrelationships.

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

Associate of Arts Degree

In order to graduate with an associate of arts degree for transfer, a student must:

1. complete the 40 to 41 credit hours of general education courses listed below,
2. complete the college reading requirement,
3. complete the program requirements in the major, and
4. complete a graduation application by the dates specified in the college academic calendar.

1. General Education Requirements:

	Credit Hours
English Composition	6
Humanities and Fine Arts	9
Biological and Physical Sciences	8
Mathematics	3
Social and Behavioral Sciences	9
Other Requirements:	
(a) Oral Communication	
(b) Mathematics, Computer Science, Logic, or Critical Thinking	
(c) Foreign Language	
(d) International and Multi-cultural Studies	5-6
Total	40-41

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

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

General Education Course List:

English Composition (6 credit hours required):

Course Number	Course Title	Credit Hours	Prerequisites
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
WRT 107	Writing I for International Students	3	WRT 106*
WRT 108	Writing II for International Students	3	WRT 107

* For additional prerequisite information, check Course Section.

Humanities and Fine Arts (9 credit hours required):

Course Number	Course Title	Credit Hours	Prerequisites
ART 100	Basic Design	3	
ART 110	Drawing I	3	ART 100
ART 130	Art and Culture I	3	
ART 131	Art and Culture II	3	
HIS 101	Introduction to Western Civilization I	3	

HIS 102	Introduction to Western Civilization II	3	
HUM 251	Western Humanities I	3	
HUM 252	Western Humanities II	3	
HUM 253	Western Humanities III	3	
HUM 260	Intercultural Perspectives	3	
LIT 231	Introduction to Shakespeare	3	*
LIT 260	Major British Writers	3	*
LIT 261	Modern Literature	3	*
LIT 262	Major Literary Themes	3	*
LIT 265	Major American Authors	3	*
LIT 266	World Literature: Dramatic	3	*
LIT 267	World Literature: Narrative	3	*
LIT 286	Themes in American Literature	3	*
MUS 102	Introduction to Music Theory	3	
MUS 104	Giant Steps I	1	*
MUS 105	Jazz Band II	1	*
MUS 108	Pima Jazz Band I	1	*
MUS 109	Pima Jazz Band II	1	*
MUS 120	Concert Band I	3	*
MUS 121	Concert Band II	3	*
MUS 125 ¹	The Structure of Music I	3	
MUS 127 ¹	Aural Perception I	1	
MUS 130	Chorale (SATB)	3	*
MUS 131	College Singers (SATB)	3	*
MUS 151	Exploring Music	3	

* For additional prerequisite information, check Course Section.

¹ MUS 125 and MUS 127 together are equivalent to MUS 120A at the University of Arizona.

Biological and Physical Sciences (8 credit hours required):

Course Number	Course Title	Credit Hours	Prerequisites
AST 101 ¹	Solar System	3	
AST 111 ¹	Solar System Laboratory	1	
AST 102 ¹	Stars, Galaxies, Universe	3	
AST 112 ¹	Stars, Galaxies, Universe Laboratory	1	
BIO 101	General Biology (Non-Majors) I: Selected Topics	4	
BIO 102	General Biology (Non-Majors) II: Additional Topics	4	
BIO 105	Environmental Biology	4	
BIO 184 ²	Plant Biology	4	BIO 101*
BIO 190 ²	Animal Biology	4	*
CHM 121	Introductory Chemistry	5	
CHM 130	Fundamentals of Chemistry	5	
CHM 140	Fundamentals of Organic and Biochemistry	5	CHM 130*
CHM 151	General Chemistry I	5	MTH 130*
CHM 152	General Chemistry II	5	CHM 151
GEO 101	Physical Geography: Weather and Climate	4	
GEO 102	Physical Geography: Land Forms and Oceans	4	
GLG 101	Introductory Geology I	4	
GLG 102	Introductory Geology II	4	
PHY 121	Introductory Physics I	5	
PHY 122	Introductory Physics II	5	PHY 121
PHY 131	Introductory Physics with Calculus I	5	MTH 180*
PHY 132	Introductory Physics with Calculus II	5	PHY 131*
PHY 210	Introductory Mechanics	5	MTH 180*
PHY 216	Introductory Electricity and Magnetism	5	PHY 210*
PHY 221	Introduction to Waves and Heat	4	PHY 210*

*For additional prerequisite information, check Course Section.

¹AST 101 and AST 111 together are equivalent to ASTR 110A, and AST 102 and AST 112 together are equivalent to ASTR 110B at the University of Arizona.

²BIO 184 and BIO 190 together are equivalent to ECOL 181 and ECOL 182 at the University of Arizona.

Mathematics (3 credit hours required):

Course Number	Course Title	Credit Hours	Prerequisites
MTH 150	College Algebra	3	MTH 130*
MTH 160	Precalculus	5	MTH 130*
MTH 175	Topics in Calculus	3	MTH 150
MTH 180	Analytic Geometry and Calculus I	4	MTH 160*
MTH 185	Analytic Geometry and Calculus II	3	MTH 180
MTH 210	Introductory Statistics	3	MTH 130*
MTH 215	Analytic Geometry and Calculus III	4	MTH 185
MTH 219	Differential Equations	3	MTH 215
MTH 225	Introduction to Linear Algebra	3	MTH 215

*For additional prerequisite information, check Course Section.

Social and Behavioral Sciences (9 credit hours required):

Course Number	Course Title	Credit Hours	Prerequisites
ANT 101	Human Origins and Prehistory	3	
ANT 102	Introduction to Cultural Anthropology and Linguistics	3	
ANT 121	Contemporary Indian Groups of the Southwest	3	
ANT 141	Introduction to Southwestern Prehistory	3	
GEO 103	Cultural Geography	4	
HIS 101	Introduction to Western Civilization I	3	
HIS 102	Introduction to Western Civilization II	3	
HIS 141	History of the United States I	3	
HIS 142	History of the United States II	3	
MEC 102	Survey of Media Communications	3	
PHI 101	Introduction to Philosophy I	3	
PHI 130	Introductory Studies in Ethics and Social Philosophy	3	
POS 100	Introduction to Politics	3	
POS 110	American National Government and Politics	3	
POS 120	Introduction to International Relations	3	
POS 130	American State and Local Governments and Politics	3	

POS 140	Introduction to Comparative Politics	3	
POS 160	Introduction to Political Ideas	3	
PSY 120	Introduction to Social Psychology	3	PSY 100*
REL 120	Old Testament	3	
REL 121	New Testament	3	
REL 140	Philosophy of Religion	3	
SOC 100	Introduction to Sociology	3	
SOC 201 ¹	Minority Relations and Urban Society	3	
SOC 204 ¹	Women in Society	3	

* For additional prerequisite information, check Course Section.

¹ SOC 201 and SOC 204 fulfill the gender, class, race, or ethnicity requirement at the University of Arizona.

Other Requirements (5-6 credit hours required):

(a) Oral Communication:

Course Number	Course Title	Credit Hours	Prerequisites
SPE 102 ¹	Introduction to Oral Communication	3	
SPE 110 ¹	Public Speaking	3	
SPE 136 ¹	Oral Interpretation of Literature	3	

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

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

Course Number	Course Title	Credit Hours	Prerequisites
ANT 102	Introduction to Cultural Anthropology and Linguistics	3	
MTH 170	Finite Mathematics	3	MTH 150
POS 100	Introduction to Politics	3	

(c) Foreign Language:

Course Number	Course Title	Credit Hours	Prerequisites
FRE 110	Elementary French I	4	
FRE 111	Elementary French II	4	FRE 110*
FRE 210	Intermediate French I	4	FRE 111*
FRE 211	Intermediate French II	4	FRE 210
GER 110	Elementary German I	4	
GER 111	Elementary German II	4	GER 110*
GER 210	Intermediate German I	4	GER 111*
GER 211	Intermediate German II	4	GER 210
ITA 110	Elementary Italian I	4	
ITA 111	Elementary Italian II	4	ITA 110
RUS 110	Elementary Russian I	4	
RUS 111	Elementary Russian II	4	RUS 110
SLG 101	American Sign Language I	4	
SLG 102	American Sign Language II	4	SLG 101
SLG 201	American Sign Language III	4	SLG 102
SLG 202	American Sign Language IV	4	SLG 201
SPA 110	Elementary Spanish I	4	
SPA 111	Elementary Spanish II	4	SPA 110*
SPA 210	Intermediate Spanish I	4	SPA 111*
SPA 211	Intermediate Spanish II	4	SPA 210

* For additional prerequisite information, check Course Section.

(d) International and Multi-Cultural Studies:

Course Number	Course Title	Credit Hours	Prerequisites
ANT 102	Introduction to Cultural Anthropology and Linguistics	3	
ANT 121	Contemporary Indian Groups of the Southwest	3	
ANT 141	Introduction to Southwestern Prehistory	3	
LIT 260	Major British Writers	3	*
LIT 266	World Literature: Dramatic	3	*
LIT 267	World Literature: Narrative	3	*
POS 120	Introduction to International Relations	3	
POS 140	Introduction to Comparative Politics	3	

* For additional prerequisite information, check Course Section.

2. College Reading Requirement:

In order to graduate with an associate of arts degree for transfer, a student must also meet the college reading requirement. Minimum college-defined competency in reading is a minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment.

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

3. Program Requirements:

Grades of "C" or better are required in core courses to fulfill graduation requirements. Core courses are designated in each college program. See Programs section of this catalog for the following associate of arts programs:

Administration of Justice—Corrections
Administration of Justice—Criminal Justice
Administration of Justice—Corrections Rehabilitation Option
Anthropology
Drama
Fine Arts
Fitness and Sport Sciences
Liberal Arts and Sciences
Mathematics
Media Communications—Print Media
Media Communications—Telecommunications
Music
Social Services
Social Services—Gerontology Subspecialty
Social Services—Substance Abuse Subspecialty
Speech Communication
Youth Care Rehabilitation

4. Graduation Application:

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

Associate of Science Degree

Associate of Applied Arts Degree

Associate of Applied Science Degree

Associate of General Studies Degree

Advanced/Technical Certificate

In order to graduate with an associate of science degree, associate of applied arts degree, associate of applied science degree, associate of general studies degree, or an advanced/technical certificate, a student must:

1. complete the general education requirements listed below,
2. complete the college reading requirement (exception: advanced/technical certificates),
3. complete the program requirements in the major, and
4. complete a graduation application by the dates specified in the college academic calendar.

1. General Education Requirements:

Subject Area	Number of Credit Hours				
	AS*	AAA*	AAS*	AGS*	A/TC*
Humanities and Fine Arts	6-9	3	3	-	-
Social and Behavioral Sciences	6-9	3	3	-	-
Science and/or Mathematics	10	6	6	3	3
Communication	6	6	6	3	3
Reading	0-4	0-4	0-4	0-4	-
Total Hours	28-38	18-22	18-22	6-10	6

*AS —Associate of Science

*AAA —Associate of Applied Arts

*AAS —Associate of Applied Science

*AGS —Associate of General Studies

*A/TC—Advanced/Technical Certificate

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

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

The General Education requirements are under review. Students must see their program advisor for current General Education courses to meet degree and transferability requirements.

General Education Course List:

1. Humanities and Fine Arts
ART 130, 131, 132, 135, DRA 140, 141, ECE 108, 112, HUM 110, 111, 251, 252, 253, Foreign Language, LIT 260, 265, MUS 151, 201, 202, PHI 101, 102, 120
2. Social and Behavioral Science
ANT 101, 102, 200, 210, 215, 225, ECE 107, 117, ECO 100, 101, GEO 103, HIS 101, 102, 141, 142, 147, MAN 110, POS 100, 110, 112, 120, 130, PSY 100, 101, 130, SOC 100, 101, 201, 204
3. Science and/or Mathematics
ACC 050, 101, 102, AST 101, 102, 111, 112, BIO 101, 102, 160, 190, 195, 201, 202, 204, 205, 242, 243, BUS 051, CHM 121, 130, 140, 141, 151, 152, ECE 124, ENV 203, GEO 101, 102, GLG 101, 102, MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220, PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230
4. Communication
OED 151, 251, SLG 101, 102, 201, 202, 203, SPE 120, WRT 100, 101, 102, 150, 154

2. College Reading Requirement:

In order to graduate, a student must also meet the college reading requirement. Minimum college-defined competency in reading is a minimum score of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment.

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

3. Program Requirements:

Grades of "C" or better are required in core courses to fulfill graduation requirements. Core courses are designated in each college program. See Programs section of this catalog for program requirements.

4. Graduation Application:

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

Degrees and Certificates

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

These requirements involve curriculum and course specifications.

Faculty and staff are available to help students understand and arrange to meet these requirements, but students are responsible for fulfilling them. If the requirements have not been satisfied at the end of the student's course of study, the degree, certificate, or course credit will not be granted. For this reason, it is important that each student throughout his or her college career be knowledgeable of all regulations, keep currently informed, and be responsible for completing these requirements.

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

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

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

DEGREES—Pima Community College offers 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 programs do not carry the two-year (60-credit hour) minimum for the associate degrees. Certificates are granted upon the completion of a

prescribed program 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, 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 subject area. More than 40 of these exams are available, and credit may be earned for one or more Pima Community College courses upon completing an appropriate subject examination with a standard score of 50 or better.

DEFENSE ACTIVITY FOR NON-TRADITIONAL EDUCATIONAL SUPPORT (DANTES)—Students who successfully complete DANTES subject standardized tests may be eligible to receive credit by examination for appropriate Pima Community College courses. An official transcript of test results can be obtained by writing to DANTES, Box 2819, Princeton, N.J. 08540.

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

Graduation with Honors

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

Graduation with Honors—3.500 to 3.799 grade point average.

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

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

Student Records

Grading Policies

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

A—Superior (4 grade points per credit hour)

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

C—Average (2 grade points per credit hour)

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

F—Failure (0 grade point per credit hour)

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

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

Y—General Withdrawal (This grade may be given by the instructor at the end of the term when circumstances dictate that none of the other grades is appropriate.)

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

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

Graduation requirements 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.

Effective Fall Semester of 1988, students may request a grade of "W" (Official Withdrawal) only during the first two-thirds of the calendar days of any session based upon beginning and ending dates for classes as contained in the College Schedule of Classes. For Open Entry/Open Exit classes, the two-thirds deadline is based upon calendar days between the date of a student's initial registration and the last day of the semester or session. In classes of two or less calendar days, instructor approval will be required if the "W" grade is requested after the class begins.

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

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

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

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

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

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

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

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

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

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

The Academic Alert system:

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

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

1. Does not raise his/her cumulative GPA to the required Standards of Progress. (Exception: if the student earns a 2.00 GPA or higher for the current semester he/she will be permitted to continue on academic alert status.)
2. Record 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. Specific procedures for appeal will be outlined within the notification letter that is provided to students who are disqualified.

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

Reinstatement—For reinstatement after academic disqualification:

1. Students must not enroll at PCC for one regular semester (excluding summer school) following their academic disqualification.
2. Students disqualified at the end of the spring semester may enroll for the summer session. Providing the student earned a 2.00 GPA in 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 Equivalencies

An assessment equivalency has been adopted to facilitate the admission of students who have previously demonstrated adequate competencies in the basic skill areas. This equivalency consists of an earned degree or advanced certificate from an accredited college. Students with this equivalency are not required to take assessment tests. The equivalency may not be used to meet Pima Community College General Education Requirements or other specified program entrance requirements. Documentation of a degree or advanced certificate as an assessment equivalency must be recorded with the Admissions Office by the time of registration.

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

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

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

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

Family Educational Rights and Privacy Act

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

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

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

Student Information Excluded from Coverage by the Act

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

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

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

Pima Community College assumes that failure on the part of any student to specifically request the withholding of "public or directory information" indicates individual approval for disclosure.

College Programs

Service Members Opportunity Colleges

Pima Community College has been designated as an institutional member of Service members Opportunity Colleges (SOC), a group of over 400 colleges and universities providing voluntary postsecondary education to members of the military throughout the world. As a SOC member, Pima Community College recognizes the unique nature of the military lifestyle and has committed itself to easing the transfer of relevant course credits, providing flexible academic residency requirements, and crediting learning from appropriate military training and experiences. SOC has been developed jointly by educational representatives of each of the Armed Services, the Office of the Secretary of Defense and a consortium of thirteen leading national higher education associations; it is sponsored by the American Association of State Colleges and Universities (AASCU) and the American Association of Community and Junior Colleges (AACJC).

Veterans Administration Benefits

Pima Community College is approved for the enrollment of veterans, survivors, and dependents under Title 38 of the U.S. Code, and Selected Reservists under Title 10 of the U.S. Code. 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. Note 1: Students enrolled in TV, self-paced or independent study type courses will be paid for a maximum of 5 credits of these courses, provided they are enrolled in at least 1 credit of classroom training. Note 2: Students enrolled in a non-degree certificate program (that is not part of a degree program in the College Catalog) will be certified to the VA on a clock-hour basis and rates of payment may vary. Note 3: Active duty students will be paid for tuition and fees not to exceed \$376.00.

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 VA benefits under Title 10 or Title 38 U.S. 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 training. Upon doing so, Pima Community College will award appropriate credit for previous education where applicable and report this to the Veterans Administration Regional Office. The VA normally pays educational benefits for one semester pending receipt of the evaluation. If transcripts are not furnished, and Pima Community College cannot provide "Credit Allowed for Prior Training" by the end of the semester, the VA will retroactively terminate benefits for that semester. The student is then placed in Over Paid Status and no further action will be taken by the VA until the evaluation is submitted.

Restricted Status: Students who have accumulated 45 credits must apply for a Long Coursework Evaluation. Enrollment certification for students in Restricted Status cannot be submitted to the VA until the Long Coursework Evaluation is completed. Students in General Studies must, upon completion of 45 credits (including transfer of credits, if applicable), select a specific program of study contained in the College Catalog, request a Long Coursework Evaluation and complete a VA Change of Program before they can be certified to the VA for enrollment.

Educational benefits will not be paid for courses unless they are used in computing graduation requirements. Eligible persons receiving the grade of Unofficial Withdrawal, Official Withdrawal, or Incomplete (which has been changed to an Unofficial Withdrawal after one year from the receipt of the Incomplete) 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 which are approved by the VA Regional Office.

All persons approved for VA Educational Benefits will be required to comply with the Academic Standards of progress required for all students as indicated in the College Catalog.

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 practical education for those employed.

Evening and Weekend Classes

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

Summer School Program

Three terms of school are offered each summer with courses determined by student demand. Two terms are seven weeks long each and one term is ten weeks long.

Disabled Student Resources

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

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 Another Language Are Used

Bilingual program courses are taught in English with assistance in another language, in most cases Spanish. Bilingual instructors help students to understand and learn better by using English and providing assistance to the student in their native language when answering questions or at any other time when assistance is needed. If students need more help in English, or in their native language, 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 course work in the field which interests them because these courses are taught using English with assistance in their native language. While they are taking these bilingual courses some students need to take English as a Second Language (ESL) classes, 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 only in English; thus, it is most important for students to take ESL, reading, and writing courses to attain proficiency in English.

Students Fluent in English Also Take Bilingual Courses

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

Programa Bilingüe

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

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

El estudiante que estudia inglés

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

El estudiante que desea destrezas en español

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

International/Intercultural Education

By virtue of its mixed cultural heritage and its proximity to Mexico, the Tucson area is an international/intercultural community. The need for international/intercultural education is recognized by the College and is embodied in the 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 foster 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 offers some sections of courses which have been modified to include international studies content, through several United States Department of Education

grants. The modified courses, in addition to the regular subject material outlined in the course descriptions in this catalog, contain material to help students understand the course content on an international level. Students who take these courses can expect to gain a better understanding of other cultures and/or to be better informed about international events which affect their daily lives.

The following is a list of these courses:

BUS	051	Mathematics of Business
BUS	100	Introduction to Business
BUS	200	Business Law I
BUS	210	International Business
ECO	101	Introduction to Macroeconomics
FRE	210	Intermediate French I
GEO	103	Cultural Geography
GRA	101	Graphic Technology I
HCA	154	Introduction to Health Care
HUM	110	Humanities I
HUM	111	Humanities II
HUM	252	Western Humanities II
MAN	110	Human Relations in Business and Industry
MAN	122	Supervision
MAN	124	Small Business Management
MAN	278	Labor/Management Relations
MAN	280	Business Organization and Management
MKT	111	Marketing
OED	251	Business Communications
OED	271	Office Procedures
PSY	120	Introduction to Social Psychology
PSY	240	Futures: A Psychological Perspective
PSY	296	Individual Studies in Psychology
REL	130	Comparative Religions: Oriental
SPA	110	Elementary Spanish I
SPA	217	El Español Para Los Negocios (Spanish for Business Communications)
SPE	120	Business and Professional Communication
WRT	102	Writing II
WRT	106	Writing Fundamentals for International Students

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

In addition, the College offers a basic certificate and an associate degree in International Business Communications Studies. (See the program section of this catalog.)

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

Yaqui Family Literacy Partnership Program

This program offers educational opportunities for Yaqui adults and out-of-school youth to improve English reading and writing skills. The program is especially intended to serve family members of children enrolled in bilingual education. The program unites the efforts of three educational agencies: the Pascua Yaqui Tribe, the Tucson Unified School District (TUSD), and Pima Community College (PCC) in a collaborative effort to create a family literacy program for the Yaqui people served by these agencies.

Honors Program

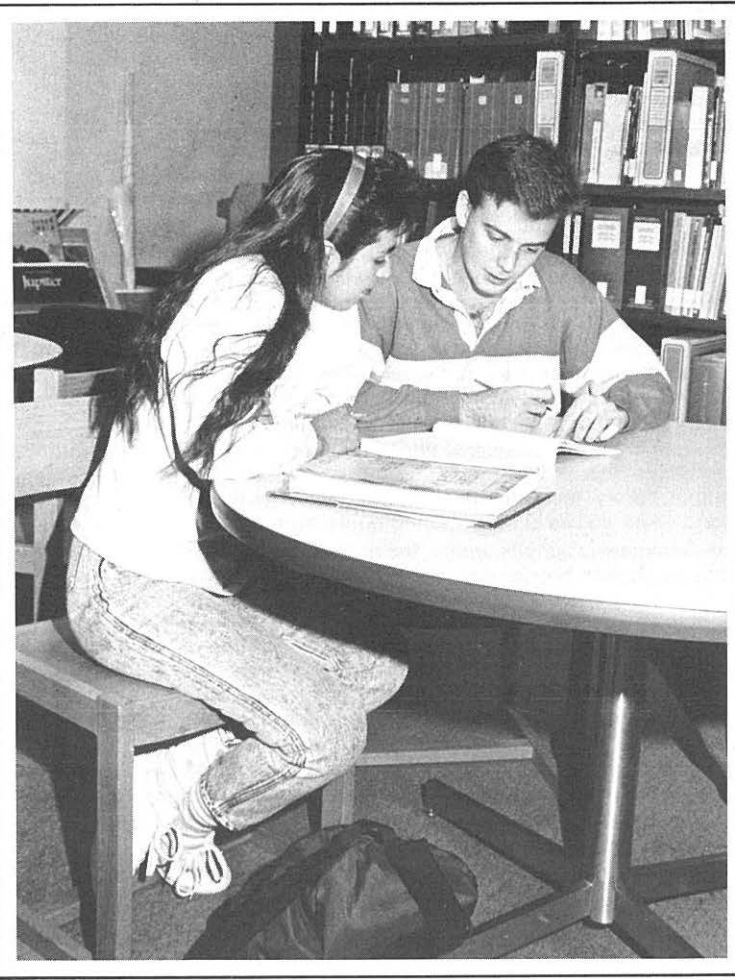
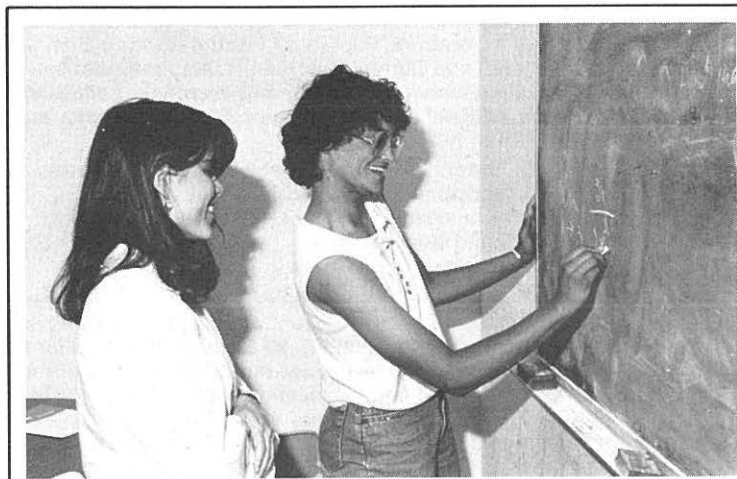
The Honors Program of Pima Community College offers challenging educational opportunities for students with excellent academic records.

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

1. Continuing Pima students must have a GPA of 3.5 in at least 12 hours of college level courses (normally courses numbered 100 or above).
2. New students should show evidence of a GPA of 3.5 on previous academic records if available, and have Pima assessment scores that qualify them for two of the following: WRT 101, MTH 130, or Reading 112.
3. Continuing college students (from other than Pima) must have a GPA of 3.5 in at least 12 hours of college level courses (normally courses numbered 100 or above).

Students who meet the criteria may obtain application forms from the Downtown Campus Career Center, East Campus Career Center, and West Campus Career Center. Selection will be made by the Honors Program Screening Committee which meets four times a year: January, April, August, and November.

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



Library and Learning Centers

Campus Libraries

Library Services for all Pima Community College students, faculty and staff members, as well as our larger community of Pima and Santa Cruz Counties, are available at the Downtown Campus, East Campus, and West Campus Libraries. Library resources are shared District-wide and are listed in our "COM Cat." An intercampus library service permits materials to be shared among all College sites.

All three campus libraries have microform collections of college catalogs, and national phone directories.

The public services staff at all libraries is available to answer reference questions and assist in locating and utilizing materials in the District-wide collection. The staff also provides bibliographic service, access to automated databases, student and faculty manuals, and referral to other community resources. Campus libraries may also provide a self-paced library skills workbook, a self-paced audio tour, and the use of calculators and typewriters.

Community Campus students taking courses at locations throughout the college district are urged to use library sources at their closest campus library. Instructors often place reserve material at these locations as well as at participating public libraries.

The Downtown Campus library, located on the second floor of the Campus Center, houses a collection numbering approximately 30,000 items of print and non-print materials for reference, curriculum support and personal interest. This library specializes in the areas of automotive technology, 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.

The East Campus library has a collection of over 20,000 items of print and non-print materials for reference, and personal interest. This library specializes in the area of wastewater technology/operator training as well as the area of water resources.

The West Campus Library, located on the second and third floors of the Library/Administration Building, has a total collection of interrelated books and audio visual materials numbering almost 300,000 items. This total includes books, periodicals, 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 West Campus Library features six separate collections of materials: Spanish-Language, Children's Literature, Paperback Leisure Reading, Film and Video, Periodicals, and Current Best Sellers. Also available for use in the Library are phonograph records and microfiche collections of college catalogs, national phone directories, ERIC documents, and "Search Helper."

The West Campus Library contains study tables, equipped carrels, and lounge areas to accommodate over 300 students. In addition, classes can view films or videotapes. The Library also displays art work done by faculty and students.

WHO MAY BORROW FROM THE LIBRARY?

Pima Community College students with a current photo identification card may check out materials at any library. A Pima photo ID card is also required for use of reserve materials. ID cards are available for a fee at the time of registration, or as needed during the year. Check at the campus of your choice to find the location of photo ID production. A Special Borrower Card may be granted to library patrons who are not registered as students. The library loan period is for three weeks. Special loan periods are available for faculty, staff, and Honors Program students.

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

Lost library materials may be paid for at their replacement cost plus a non-refundable processing fee of \$10.00 per item.

Learning Centers

DOWNTOWN CAMPUS—The Alternative Learning Center (ALC), located on the second floor of the Campus Center provides students with three major services: (1) Courses for credit in math, reading and writing; (2) Supplemental tutorial assistance; and (3) Assessment 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.
2. Tutoring in math, reading, and writing is offered to students enrolled in ALC. Students may drop in during regularly scheduled tutoring hours in the ALC.

3. Four assessment tests are administered in the ALC: math, reading, writing, and ESL. 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 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.

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

Tutorial assistance and supplemental resources materials are available in math, writing, physics, chemistry, engineering, and electronics. Help is available on a walk-in basis.

The Instructional Testing Center provides an alternative to classroom testing. Extended hours of operation offer students increased flexibility in meeting their classroom testing requirements.

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

Student Life



Student Life

Student Affairs

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

Counseling

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

Human Development

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

Special Programs

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

Student Housing

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

Office of Minority Education

The Office of Minority Education provides for the planning, offering, and monitoring of a college-wide minority educational program. One of the major responsibilities is to coordinate the necessary

educational and student support services 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 by consulting the Student Activities office on any campus.

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

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

A job information hot line is available after business hours by calling 884-6815. For more information and assistance on finding a job visit a campus Career Center or call the Career and Job Placement Office at 884-6815.

Student Leadership

Students have a voice in College functions through recognized student body associations at each of the campuses, the Board of Governors, and appropriate student groups and committees at each of the campuses. Student body representatives also sit on various task forces and committees that make recommendations to the President. Students are also elected to an Intercampus Student Network comprised of 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. For information on these activities, consult the Student Activities office on any campus.



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

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 on the second floor of the gymnasium. 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), archery (men and women) and rodeo (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

First aid is available at all Campus Police offices. Accident insurance is provided for Pima Community College students enrolled for credit courses without additional cost under a blanket policy. The policy covers students for injuries incurred during College activities. Details of the coverage are available to students at the time of registration. Supplementary accident and sickness medical expense insurance may be purchased by students. Forms and information are available in the Student Services area of each campus.

Student Publications

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

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

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

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

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 eligible students pay for college. The College does not discriminate against qualified individuals on the basis of sex, race, color, national origin or handicaps when awarding financial aid. Early application for financial aid is essential. Contact a campus financial aid office for information and application.

For all types of Federal financial aid, students must be committed to educational programs which lead to a degree, certificate, or a university transfer program.

Types

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

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

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 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
- William A. Barnes Memorial Scholarship
Source: William A. Barnes Estate
Eligibility: Demonstrated proficiency in math, mechanical trades, electronics and drafting, or pursuit of RN or LPN.
Value: Amount varies, number of award varies.
- Chef's Association of Southern Arizona
Source: The association
Eligibility: Promising students in hospitality/culinary arts
Value: Amount varies, number of awards varies
- Delta Nu Alpha Scholarship
Source: Delta Nu Alpha Organization
Eligibility: Promising full-time students in the Transportation and Traffic Management Program
Value: \$150, number of awards varies
- Margaret Ernst Memorial Scholarship
Source: Family and friends
Eligibility: Promising and needy students
Value: Amount 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

- Golden Plate Scholarship
Source: Educational Foundation of the National Restaurant Association
Eligibility: Full-time student in Hospitality Education Program
Value: \$750, number varies
- Hughes Aircraft Company Scholarship
Source: Hughes Aircraft Company, TMD
Eligibility: Promising and needy students pursuing a four-year degree program
Value: \$500, two awards each year
- International Association of Hospitality Accountants, Inc., Greater Tucson Chapter
Source: The Association
Eligibility: Hospitality education majors
Value: Amount and number vary
- 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 in the records management sequence of office education.
Value: \$500
- Mary Macon Memorial Scholarship for Office Education Students
Source: Family and friends
Eligibility: Promising and needy students in Office Education
Value: 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
- 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 Community College Hospitality Department Transfer Student Scholarship
Source: Northern Arizona University School of Hotel and Restaurant Management
Eligibility: Graduates from the Hospitality Department
Value: \$500, one award per year.
- Pima County Sheriff's Posse—Law Enforcement Scholarship
Source: Pima County Sheriff's Posse
Eligibility: Career oriented in law enforcement and show economic need
Value: \$1,000, two or more awards per year

- Andrew J. Pizzini Memorial Fund
Source: The estate
Eligibility: Promising and needy students
Value: 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
- Resource Exchange Scholarship
Source: Resource Exchange
Eligibility: A re-entry woman who is an Arizona resident.
Value: \$900, one award per year.
- Rodeo Club Scholarship
Source: Various
Eligibility: Active participation in Rodeo Club
Value: Varies, number of awards varies
- 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
- David Scott Memorial Scholarship for Handicapped Students
Source: Family and Friends
Eligibility: Promising and needy handicapped students
Value: Varies, number varies
- Southern Arizona Chapter of A.C.U.L.
Source: Southern Arizona Credit Unions
Eligibility: Credit Union members pursuing the credit union degree program
Value: \$408 per year, number of awards varies
- Southern Arizona Restaurant Association
Source: The Association
Eligibility: Promising Pima County resident in Foodservice
Value: \$600, one award per year
- Southern Arizona Tucson Innkeepers Association Scholarship
Source: The Association
Eligibility: Promising second-year students in the hospitality/tourism program
Value: \$400, two awards per year
- Margaret L. Stockham Memorial Scholarship
Source: Faculty, staff and friends of Pima Community College
Eligibility: Tuition assistance for student striving for advancement in the hospitality industry
Value: Amount varies, number of awards varies
- Suburban Women's Club Scholarship
Source: Suburban Women's Club of Tucson
Eligibility: Promising and needy students
Value: \$120, number of awards varies
- Tucson Airport Authority Scholarship
Source: Tucson Airport Authority
Eligibility: Dependents of T.A.A. Employees or Tenants, full or part-time students
Value: Tuition and up to \$100 for books, three one semester awards, renewable
- Tucson Electric Power Scholarship
Source: Tucson Electric Power Company
Eligibility: Children of Tucson Electric Power Company employees
Value: \$400, four awards per year, renewable
- Tucson Jaycee-ettes Scholarship
Source: Tucson Jaycee-ettes
Eligibility: Full-time needy students in RN Program or Allied Health Program
Value: \$250, two awards per year
- Tucson Medical Center Scholarship
Source: Tucson Medical Center Auxiliary
Eligibility: Employees enrolled in Health Fields
Value: \$600, number varies
- Tucson Transportation Club Scholarship
Source: Tucson Transportation Club
Eligibility: Promising, full-time students in the Transportation and Traffic Management Program
Value: \$150, number of awards varies
- 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 Student Data form 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



Degrees and Certificates

Offered by Pima Community College

Degrees	Programs	Certificates
AAS	Accounting	A
AA, AAS	Administration of Justice	
AAS	Advertising Art	B, A
AAS	Air Conditioning	B, T
	Allied Health	B
AA	Anthropology	
AAA	Applied Design	B, A
AAS	Apprentice Related Instruction	
	Archaeology	B, A
AAA	Arts, Applied	
AA	Arts, Fine	
AS, AAS	Automotive Technology	B, T
	Aviation Mechanics	B, T
	Bilingual Business Administration	B
AS	Biology	
AAS	Building Technology	B, T
AS, AAS	Business Administration	B, A
AS	Chemistry	
	Communication Workers Technology	B
AAS	Computer Science	B, A
AAS	Construction Related Instruction	B, A, T
	Dental Assisting Education	A
AAS	Dental Laboratory Technology	
AAS	Drafting Technology	T
AA	Drama	
AAS	Early Childhood Education	A
AS	Education	
AAS	Electronics	B
AAS	Electronics-Microelectronic	A
	Emergency Medical Technology	B, A, T
AS	Engineering	
AS	Engineering, Manufacturing Technology	
AAS	Environmental Technology	A
AAS	Finance	B, A
AS, AAS	Fire Science	B, A
AA	Fitness and Sport Sciences	A
AGS	General Studies	
AS	Geology	

AAS	Graphic Technology	B, A
AAS	Home Economics	A
AAS	Hospitality Education	B, A
	Institutional Food Service	B, A
AAS	International Business Communication	B
AAA	Interpreter Training (Sign Language)	B
AAS	Landscape Technician	A
AAS	Legal Assistant	
AA, AS	Liberal Arts	
AAS	Machine Tool Technology	B, T
AA	Mathematics	
AA, AAS	Media Communication	B
AA	Music	
AAS	Nursing	
	Nursing Assistant	B
	Practical Nursing	A
AAS	Office Education	B, A
AAS	Ophthalmic Dispensing Technology	
AAS	Pharmacy Technology	B
AAS	Physical Therapist Assistant	
AS	Physics	
AAS	Postal Service Management	B, A
AAS	Production and Inventory Management	B, A
AS	Public Administration	
AAS	Public Transportation Maintenance	B, T
AAS	Quality Control Technology	B, A
AAS	Radiologic Technology	
AAS	Real Estate	B, A
AAS	Respiratory Therapist	A
AA, AAS	Social Services	B
AA	Speech Communication	
AAS	Training for Special Education	B, A
AAS	Transportation and Traffic Management	B, A
AAS	Welding	B, T
AA, AAS	Youth Care	A

AA - Associate of Arts

AS - Associate of Science

AAA - Associate of Applied Arts

AAS - Associate of Applied Science

AGS - Associate of General Studies

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

Accounting

The accounting degree program trains students in the theory, systems and basic problems of business accounting. The student will have the background for a beginning career in areas such as private, public and government accounting. Students who plan to become Certified Public Accountants should take the courses required for the business administration transfer program.

Accounting—Advanced Certificate For Direct Employment

REQUIRED COURSES (34-37 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACC 050	Practical Accounting Procedures	3	
ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101*
ACC 200	Accounting Practice on the Microcomputer	3	ACC 050*
ACC 204	Individual Tax Accounting	4	
General Education and Support Courses:			
BUS 100	Introduction to Business	3	
BUS 200	Business Law I	3	
BUS 105	Survey of Microcomputer Uses		
or CSC 105	Survey of Microcomputer Uses		
or CSC 100	Introduction to Computers	3	MTH 070
OED 111	Typing I or equivalent proficiency	0-3	
MAN 110	Human Relations in Business and Industry	3	
MTH 070	Algebra I	3	MTH 060*
OED 151	Business English		WRT 100*
or WRT 101	Writing I	3	WRT 100*

Suggested Course Sequence (Read down.)

OED 151 or WRT 101	BUS/CSC 105 or 100
MTH 070	ACC 102
ACC 050	ACC 204
BUS 100	ACC 200
ACC 101	BUS 200
OED 111	MAN 110

*For additional prerequisite information, check Course Section.

Accounting—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (61-69 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101*
ACC 200	Accounting Practice on the Microcomputer	3	ACC 050*
ACC 201	Intermediate Accounting I	3	ACC 102
ACC 202	Intermediate Accounting II	3	ACC 201
ACC 203	Cost Accounting	3	ACC 102
ACC 204	Individual Tax Accounting	4	
General Education and Support Courses:			
BUS 100	Introduction to Business	3	
BUS 200	Business Law I	3	
BUS 105	Survey of Microcomputer Uses		
or CSC 105	Survey of Microcomputer Uses		
or CSC 100	Introduction to Computers	3	MTH 070
MAN 280	Business Organization and Management	3	BUS 100*
ECO 101	Introduction to Macroeconomics	3	MTH 070
MAN 110	Human Relations in Business and Industry	3	
MTH 070	Algebra I or higher level math course	3	MTH 060*
OED 151	Business English		WRT 100*
or WRT 101	Writing I	3	WRT 100*
SPE 120	Business and Professional Communication	3	
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives		
	Complete one of the following: (Check individual course descriptions.)	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

ELEC**Other Electives:**

Complete three of the following courses (other courses may be substituted with the consent and written approval of accounting instructors or the department chairperson)

9-12

ANT 101, 102
 ECO 100
 HUM 110, 111
 MTH 130 or MTH 150
 PHI 101, 120
 POS 110, 130
 PSY 100, 101
 REA 100
 SOC 100, 101
 SPA 050, 051,
 WRT 154

Suggested Course Sequence (Read down.)

Reading requirement	ACC 204	ECO 101
OED 151 or WRT 101	BUS/CSC 105 or 100	Other Elective
MTH 070	SPE 120	ACC 202
ACC 101	Other Elective	MAN 280
BUS 100	ACC 203	ACC 200
MAN 110	ACC 201	Humanities Elective
ACC 102	BUS 200	Other Elective

*For additional prerequisite information, check Course Section.

Administration of Justice

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

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

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

Students who enter an administration of justice program MUST SEE ONE OF THE INSTRUCTORS IN THE AREA FOR ADVISEMENT AND COUNSELING.

Corrections—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (64-75 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AJS 101	Introduction to Administration of Justice Systems	3	
AJS 109	Criminal Law	3	
AJS 115	Criminal Procedures	3	AJS 101*
AJS 123	Corrections as a System	3	
AJS 201	Rules of Evidence	3	AJS 109*
AJS 212	Juvenile Justice Procedures	3	
AJS 225	Crime and Delinquency	3	
AJS 290	Administration of Justice Field Experience	3	*

General Education and Support Courses:

ECO 100	Introduction to Microeconomics	3	MTH 070
POS 110	American National Government and Politics	3	
POS 130	American State and Local Governments and Politics	3	
PSY 110	Introduction to Psychology		
or			
PSY 100	Psychology I		
and PSY 101	Psychology II	4-6	
SOC 100	Introduction to Sociology	3	
SPE 120	Business and Professional Communication	3	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives		
	Complete one of the following:	3-4	*
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 251, 252, 253		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 102, 120		
SCI/MTH	Science and Mathematics Electives		
	Complete two of the following:	6-10	*
	ACC 050, 101, 102		
	AST 101, 102, 111, 112		
	BUS 051		
	BIO 101, 102, 160, 190, 195, 201, 202, 204, 205, 242, 243		
	CHM 121, 130, 140, 141, 151, 152		
	ECE 124		
	ENV 203		
	GEO 101, 102		
	GLG 101, 102		
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220		
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230		

ELEC**Other Electives**

Complete six credit hours from the following list: 6
 (At least three credit hours must be chosen from these: AJS 146, 163, 240, or 245. Other courses may be taken as electives with the approval of an AJS advisor.)
 AJS 012, 204, 210, 220
 ANT or HIS (ethnic studies courses)
 FSN 114
 PSY 130, 140
 FSS 191
 SSE 133, 134, 135, 218, 234, 236

Suggested Course Sequence

See an administration of justice faculty advisor.

*For additional prerequisite information, check Course Section.

Corrections—Associate of Arts Degree For Transfer

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

REQUIRED COURSES (61-69 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AJS 101	Introduction to Administration of Justice Systems		
and/ or 123	Corrections as a System	3-6	
AJS 109	Criminal Law	3	
AJS 115	Criminal Procedures	3	AJS 101*
AJS 212	Juvenile Justice Procedures	3	
AJS 225	Crime and Delinquency	3	
Support Courses:			
PAD 105	Introduction to Public Administration	3	
PAD 204	Introduction to the Analysis of Data for Decision Making	3	
REA	Reading requirement	0-4	*

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

English Composition	6
Humanities and Fine Arts	9
Biological and Physical Sciences	8
Mathematics (MTH150 or above)	3
Social and Behavioral Sciences	9
Other Requirements	5-6

Suggested Course Sequence

See an administration of justice faculty advisor.

*For additional prerequisite information, check Course Section.

Criminal Justice—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (64-75 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AJS 101	Introduction to Administration of Justice Systems	3	
AJS 109	Criminal Law	3	
AJS 115	Criminal Procedures	3	AJS 101*
AJS 201	Rules of Evidence	3	AJS 109*
AJS 210	Police Community and Human Relations	3	AJS 101*
AJS 225	Crime and Delinquency	3	
AJS 290	Administration of Justice Field Experience	3	*
General Education and Support Courses:			
ECO 100	Introduction to Microeconomics	3	MTH 070
POS 110	American National Government and Politics	3	
POS 130	American State and Local Governments and Politics	3	
PSY 110	Introduction to Psychology		
or			
PSY 100	Psychology I		
and PSY 101	Psychology II	4-6	
SOC 100	Introduction to Sociology	3	

SPE 120	Business and Professional Communication	3	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives		
	Complete one of the following:	3-4	*
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 251, 252, 253		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 102, 120		
SCI/MTH	Science and Mathematics Electives		
	Complete two of the following:	6-10	*
	ACC 050, 101, 102		
	AST 101, 102, 111, 112		
	BUS 051		
	BIO 101, 102, 160, 190, 195, 201, 202, 204, 205, 242, 243		
	CHM 121, 130, 140, 141, 151, 152		
	ECE 124		
	ENV 203		
	GEO 101, 102		
	GLG 101, 102		
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220		
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230		

ELEC	Other Electives	
	Complete nine credit hours from the following list:	9
	(Other courses may be taken as electives with approval of an AJS advisor.)	
	AJS 012, 071, 106, 123, 146, 163, 204, 208, 212, 214, 218, 220, 240, 245, 273, 276, 277, 299 (Co-op Related Class in AJS) and 299 (Co-op Work in AJS)	
	ECE 107	
	HIS or ANT (ethnic study courses)	
	OED 111	
	PAD 105	
	PSY 140	
	SSE 115, 127, 133, 134, 236	

Suggested Course Sequence

See an administration of justice faculty advisor.

*For additional prerequisite information, check Course Section.

Criminal Justice—Associate of Arts Degree For Transfer

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

REQUIRED COURSES (61-66 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AJS 101	Introduction to Administration of Justice Systems	3	
AJS 109	Criminal Law	3	
AJS 115	Criminal Procedures	3	AJS 101*
AJS 201	Rules of Evidence	3	AJS 109*
AJS 210	Police Community and Human Relations	3	AJS 101*
Support Courses:			
PAD 105	Introduction to Public Administration	3	
PAD 204	Introduction to the Analysis of Data for Decision Making	3	
REA	Reading requirement	0-4	*

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

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

Suggested Course Sequence

See an administration of justice faculty advisor.

*For additional prerequisite information, check Course Section.

Corrections Rehabilitation Option—Associate of Arts Degree For Transfer

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

This program is designed for students seeking higher-level positions and more sophisticated skills. In this program, students' courses of study are individually planned to fit the first two years of a four-year program at a university of their choice. Field experience is highly recommended for this program.

A strong reading background is helpful in this program. Students are required to have achieved a 12th-grade reading level, as determined by the reading department, in order to graduate. The student is urged to take the reading assessment test at the beginning of the program and to correct any reading deficiency early. The math requirement, in order to be transferable for general education credit at the University of Arizona, must be MTH 150 (College Algebra) or above. The student is urged to take this course if an equivalent course was not taken. MTH 150 will be helpful as a background course for upper division statistical methods courses after transfer to the University of Arizona or another university of choice.

Students who are transferring to the Rehabilitation program at the University of Arizona must take BIO 201 and 202. Students transferring to other programs may substitute 8 credit hours of another transferable science. Prior to taking BIO 201 or 202, students should have had either high school chemistry or CHM 130 (Fundamentals of Chemistry) or an equivalent course. The student is urged to correct any deficiency

in this area early in the program. (See General Education Requirements under the Graduation section of this catalog.)

REQUIRED COURSES (61-69 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AJS 101	Introduction to Administration of Justice Systems	3-6	
and/ or 123	Corrections as a System	3	
AJS 109	Criminal Law	3	
AJS 115	Criminal Procedures	3	AJS 101*
AJS 201	Rules of Evidence	3	AJS 109*
AJS 212	Juvenile Justice Procedures	3	
AJS 225	Crime and Delinquency	3	
AJS 245	Treatment of the Offender: Institutional and Field	3	AJS 101*

Support Courses:

REA	Reading requirement	0-4	*
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General Education Requirements (See Graduation section of this catalog for associate of arts degree course lists):

English Composition	6
Humanities and Fine Arts	9
Biological and Physical Sciences	8
BIO 201-202 satisfies the general education requirement for rehabilitation majors only at the University of Arizona. For other associate of arts degree majors, see the course list in the Graduation section of this catalog.	
Mathematics (MTH 150 or above)	3
Social and Behavioral Sciences	9
Other Requirements	5-6

Suggested Course Sequence

See an administration of justice faculty advisor.

*For additional prerequisite information, check Course Section.

Advertising Art

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

- Basic Certificate for Direct Employment
- Associate of Applied Science Degree for Direct Employment
- Computer Art Option—Associate of Applied Science Degree For Direct Employment
- Desk Top Publishing Option—Associate of Applied Science Degree For Direct Employment
- Graphic Artist Option—Associate of Applied Science Degree For Direct Employment
- Production Artist Option—Associate of Applied Science Degree For Direct Employment
- Technical Illustration Option—Advanced Certificate For Direct Employment
- Technical Illustration Option—Associate of Applied Science Degree for Direct Employment.

Program courses and advising are offered on the Downtown Campus.

Advertising Art—Basic Certificate For Direct Employment

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

REQUIRED COURSES (18 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ADA 101	Advertising Art I	3	
ADA 102	Advertising Design I	3	
ADA 103	Advertising Drawing I	3	
ADA 111	Production Techniques and Processes I	3	MTH 060*
ADA 211	Production Techniques and Processes II	3	ADA 111*

General Education and Support Courses:

Math	Determined by assessment test	3	*
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Suggested Course Sequence (Read down.)

ADA 101	Math Course
ADA 102	ADA 111
ADA 103	ADA 211

*For additional prerequisite information, check Course Section.

Advertising Art—Associate of Applied Science Degree For Direct Employment

This program trains students for entry-level positions as layout, graphic, advertising or production artists.

REQUIRED COURSES (60-61 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ADA 101	Advertising Art I	3	
ADA 102	Advertising Design I	3	
ADA 103	Advertising Drawing I	3	
ADA 106	Advertising Drawing II	3	ADA 103
ADA 111	Production Techniques and Processes I	3	MTH 060*
ADA 120	Advertising Design II	3	ADA 102*
ADA 205	Advertising Drawing III	3	ADA 106*
ADA 207	Advertising Drawing IV	3	ADA 205
ADA 210	Advertising Design III	3	ADA 120
ADA 211	Production Techniques and Processes II	3	ADA 111*
ADA 212	Production Techniques and Processes III	3	ADA 211
ADA 220	Advertising Design IV	3	ADA 210
GRA 101	Graphic Technology I	3	
ADA 100	Applied Computer Graphics	3	
General Education and Support Courses:			
MAN 110	Human Relations in Business and Industry	3	
MTH	Determined by assessment test	3	*
MTH	Second course in sequence	3	*
SPE 120	Business and Professional Communication	3	
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I		WRT 100*
or 102	Writing II		WRT 101*
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

Suggested Course Sequence (Read down.)

Reading requirement	ADA 111	SPE 120
WRT 100 or 101	ADA 120	ADA 207
WRT 101 or 102 or	ADA 106	ADA 212
WRT 154	ADA 210	ADA 220
Math Course	ADA 211	MAN 110
ADA 101	ADA 205	Math Course
ADA 102	Humanities and	ADA 100
ADA 103	Fine Arts Elective	
GRA 101		

*For additional prerequisite information, check Course Section.

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

REQUIRED COURSES (66-67 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ADA 101	Advertising Art I	3	
ADA 102	Advertising Design I	3	
ADA 103	Advertising Drawing I	3	
ADA 106	Advertising Drawing II	3	ADA 103
ADA 111	Production Techniques and Processes I	3	MTH 060*
ADA 120	Advertising Design II	3	ADA 102*
ADA 131	Computer Art I	3	ADA 100*
ADA 205	Advertising Drawing III	3	ADA 106*
ADA 207	Advertising Drawing IV	3	ADA 205
ADA 215	Desk Top Publishing I for Advertising Art	3	ADA 100*
ADA 232	Computer Art II	3	
ADA 233	Computer Art III	3	
ADA 100	Applied Computer Graphics	3	
TIL 103	Visual Arts Production	3	ADA 111*

General Education and Support Courses:

GRA 101	Graphic Technology I	3	
MAN 110	Human Relations in Business and Industry	3	
MTH	Determined by assessment test	3	*
MTH	Second course in sequence	3	*
SPE 120	Business and Professional Communication	3	

WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I	3	WRT 100*
WRT 101	Writing I		WRT 100*
or 102	Writing II		WRT 101*
or 154	Technical Communications I	3	WRT 100*
HUM/ART	Humanities and Fine Arts Electives		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135,		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

Suggested Course Sequence

See an advertising art faculty advisor.

*For additional prerequisite information, check Course Section.

Advertising Art—Desk Top Publishing For Advertising Art Option—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (66-71 CREDIT HOURS)

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

ADA 101	Advertising Art I	3	
ADA 102	Advertising Design I	3	
ADA 103	Advertising Drawing I	3	
ADA 106	Advertising Drawing II	3	ADA 103
ADA 111	Production Techniques and Processes I	3	MTH 060*
ADA 120	Advertising Design II	3	ADA 102*
ADA 131	Computer Art I	3	ADA 100*
ADA 205	Advertising Drawing III	3	ADA 106*
ADA 207	Advertising Drawing IV	3	ADA 205
ADA 211	Production Techniques and Processes II	3	ADA 111*
ADA 212	Production Techniques and Processes III	3	ADA 211
ADA 215	Desk Top Publishing I for Advertising Art	3	ADA 100*
ADA 216	Desk Top Publishing II for Advertising Art	3	
ADA 100	Applied Computer Graphics	3	

General Education and Support Courses:

GRA 101	Graphic Technology I	3	
MAN 110	Human Relations in Business and Industry	3	
MTH	Determined by assessment test	3	*
MTH	Second course in sequence	3	*
SPE 120	Business and Professional Communication	3	
WRT 100 or 101	Writing Fundamentals	3	WRT 070*
WRT 101 or 102	Writing I	3	WRT 100*
or 154	Writing II	3	WRT 100*
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*

HUM/ART	Humanities and Fine Arts Electives	
	Complete one of the following:	3-4
	ART 130, 131, 132, 135	
	DRA 140, 141	
	ECE 108, 112	
	HUM 110, 111	
	Foreign Language	
	LIT 260, 265	
	MUS 151, 201, 202	
	PHI 101, 120	

Suggested Course Sequence

See an advertising art faculty advisor.

*For additional prerequisite information, check Course Section.

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

This option prepares students to work in print shops and in-house graphic departments where both art and printing skills are required. They are then qualified for employment as layout, graphics and fine arts or production artist trainees.

REQUIRED COURSES (61-65 CREDIT HOURS)

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

ADA 101	Advertising Art I	3	
ADA 102	Advertising Design I	3	
ADA 103	Advertising Drawing I	3	
ADA 106	Advertising Drawing II	3	ADA 103
ADA 111	Production Techniques and Processes I	3	MTH 060*
ADA 120	Advertising Design II	3	ADA 102*
ADA 211	Production Techniques and Processes II	3	ADA 111*
GRA 101	Graphic Technology I	3	
GRA 102	Graphic Technology II	3	GRA 101
GRA 104	Offset Photography-Stripping and Platemaking	3	
GRA 201	Color Theory and Practice	3	GRA 104
GRA 202	Offset Presswork	3	GRA 102
GRA 221	Advanced Stripping and Platemaking for Color	3	GRA 104*

General Education and Support Courses:

ADA 199	Co-op Related Class in ADA	1	ADA 102*
ADA 199	Co-op Work in ADA	2	ADA 102*
HUM 110	Humanities I	4	
MAN 110	Human Relations in Business and Industry	3	
MTH	Determined by assessment test	3	*
MTH	Second course in sequence	3	*
SPE 120	Business and Professional Communication	3	
WRT 150	Practical Communications	3	
REA	Reading requirement	0-4	*

Suggested Course Sequence (Read down.)

Reading requirement	Math Course	GRA 201
WRT 150	SPE 120	GRA 202
Math Course	ADA 120	MAN 110
ADA 101	ADA 211	GRA 221
ADA 102	ADA 106	ADA 199
ADA 103	GRA 102	ADA 199
GRA 101	HUM 110	
ADA 111	GRA 104	

*For additional prerequisite information, check Course Section.

Advertising Art—Production Artist Option— Associate of Applied Science For Direct Employment

REQUIRED COURSES (63-68 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ADA 101	Advertising Art I	3	
ADA 102	Advertising Design I	3	
ADA 103	Advertising Drawing I	3	
ADA 106	Advertising Drawing II	3	ADA 103
ADA 111	Production Techniques and Processes I	3	MTH 060*
ADA 120	Advertising Design II	3	ADA 102*
ADA 205	Advertising Drawing III	3	ADA 106
ADA 207	Advertising Drawing IV	3	ADA 205
ADA 211	Production Techniques and Processes II	3	ADA 111*
ADA 212	Production Techniques and Processes III	3	ADA 211
ADA 213	Production Techniques and Processes IV	3	ADA 212
TIL 103	Visual Arts Production	3	ADA 111*

General Education and Support Courses:

GRA 101	Graphic Technology I	3	
GRA 102	Graphic Technology II	3	GRA 101
MAN 110	Human Relations in Business and Industry	3	
MTH	Determined by assessment test	3	*
MTH	Second course in sequence	3	*
SPE 120	Business and Professional Communication	3	
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I	3	WRT 100*
WRT 101	Writing I		WRT 100*
or 102	Writing II		WRT 101*
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*

HUM/ART	Humanities and Fine Arts
	Electives
	Complete one of the following: 3-4
	ART 130, 131, 132, 135
	DRA 140, 141
	ECE 108, 112
	HUM 110, 111
	Foreign Language
	LIT 260, 265
	MUS 151, 201, 202
	PHI 101, 120

Suggested Course Sequence

See an advertising art faculty advisor.

*For additional prerequisite information, check Course Section.

Advertising Art—Technical Illustration Options

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

Advertising Art—Technical Illustration Option—Advanced Certificate For Direct Employment

REQUIRED COURSES (36 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ADA 103	Advertising Drawing I	3	
TIL 100	Applied Computer Graphics	3	
ADA 111	Production Techniques and Processes I	3	MTH 060*
ADA 106	Advertising Drawing II	3	ADA 103
TIL 102	Technical Illustration I	4	DFT 101*

General Education and Support Courses:

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

Suggested Course Sequence (Read down.)

DFT 101	Math Course	WRT 102 or 154
ADA 103	ADA 111	TIL 100
DFT 150	ADA 106	TIL 102
WRT 100 or 101	GRA 101	

*For additional prerequisite information, check Course Section.

Advertising Art—Technical Illustration Option—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (64-70 credit hours)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ADA 103	Advertising Drawing I	3	
TIL 100	Applied Computer Graphics	3	
ADA 111	Production Techniques and Processes I	3	MTH 060*
ADA 106	Advertising Drawing II	3	ADA 103
TIL 102	Technical Illustration I	4	DFT 101*
ADA 105	Airbrush Techniques I	3	
ADA 211	Production Techniques and Processes II	3	ADA 111*
ADA 205	Advertising Drawing III	3	ADA 106
ADA 207	Advertising Drawing IV	3	ADA 205
TIL 103	Visual Arts Production	3	ADA 111*

General Education and Support Courses:

DFT 101	Blueprint Reading and Sketching	4	
DFT 150	Technical Drafting I	4	
GRA 101	Graphic Technology I	3	
DFT 180	Computer Aided Drafting I	4	DFT 150*
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I	3	WRT 100*
WRT 102	Writing II		WRT 101*
or 154	Technical Communications I	3	WRT 100*
MTH	Determined by assessment test	6	*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts		
	Electives		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
SOC/BEH	Social & Behavioral Science		
	Electives		
	Complete one of the following:	3-4	
	ANT 101, 102, 200, 210, 215, 225		
	ECE 107, 117		
	ECO 100, 101		
	GEO 103		
	HIS 101, 102, 141, 142, 147		
	MAN 110		
	POS 100, 110, 112, 120, 130		
	PSY 100, 101, 130		
	SOC 100, 101		

Suggested Course Sequence (Read down.)

TIL 100	ADA 111	ADA 211
DFT 101	TIL 102	ADA 205
ADA 103	ADA 106	TIL 103
DFT 150	GRA 101	Math Course
WRT 100 or 101	WRT 102 or 154	Social Science
Math Course	DFT 180	Elective
Reading requirement	ADA 105	ADA 207
		Humanities Elective

*For additional prerequisite information, check Course Section.

Air Conditioning

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

Air Conditioning—Basic Certificate For Direct Employment

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

REQUIRED COURSES (18 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACD 101	Principles and Psychometrics	3	
ACD 120	Electricity, Circuitry and Controls	4	
ACD 125	Troubleshooting and Service	4	
General Education and Support Courses:			
DFT 101	Blueprint Reading/Sketching	4	
MTH 110	Technical Mathematics I	3	MTH 060*
Suggested Course Sequence (Read down.)			
ACD 101			
DFT 101			
MTH 110			
ACD 120			
ACD 125			

*For additional prerequisite information, check Course Section.

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

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

REQUIRED COURSES (31-32 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACD 101	Principles and Psychometrics	3	
ACD 120	Electricity, Circuitry and Controls	4	
ACD 125	Troubleshooting and Service	4	
ACD 126	Pneumatic HVAC Controls	4	ACD 120*
General Education and Support Courses:			
DFT 101	Blueprint Reading and Sketching	4	
MTH 110	Technical Mathematics I	3	MTH 060*
MTH 120	Technical Mathematics II	3	MTH 110
WRT 100	Writing Fundamentals		WRT 070*
or WRT 154	Technical Communications I	3	WRT 100*
TECH ELEC	Technical Electives		
	Complete 3-4 credit hours from the following:	3-4	*
	DFT 150, 151, 180		
	MRE 112		
	MAC 110		
	PHY 101, 102		
	SET 100, 101, 102, 103		
	SML 110, 120, 130		
	WLD 110, 150		
	ACD 199, 299		

Suggested Course Sequence (Read down.)

ACD 101	MTH 120
ACD 120	WRT 100 or 154
ACD 125	DFT 101
ACD 126	Technical Elective
MTH 110	

*For additional prerequisite information, check Course Section.

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

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

REQUIRED COURSES (60-66 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACD 101	Principles and Psychometrics	3	
ACD 120	Electricity, Circuitry and Controls	4	
ACD 125	Troubleshooting and Service	4	
ACD 126	Pneumatic HVAC Controls	4	ACD 120*
ACD 210	Commercial Refrigeration	4	
ACD 220	Load Calculation and Air Distribution	4	
ACD 250	Estimating	3	
General Education and Support Courses:			
DFT 101	Blueprint Reading and Sketching	4	
MTH 110	Technical Mathematics I	3	MTH 060*
MTH 120	Technical Mathematics II	3	MTH 110
WRT 100	Writing Fundamentals		WRT 070*
or WRT 154	Technical Communications I	3	WRT 100*
SPE 120	Business and Professional Communication		
or WRT 101	Writing I		WRT 100*
or WRT 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*

HUM/ART Humanities and Fine Arts
Electives
Complete one of the following: 3-4
ART 130, 131, 132, 135
DRA 140, 141
ECE 108, 112
HUM 110, 111
Foreign Language
LIT 260, 265
MUS 151, 201, 202
PHI 101, 120

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

TECH ELEC Technical Electives
Complete 12 credit hours from
the following: 12
ACD 199, 299
CSC 105
DFT 150, 151, 180
MRE 112
MAC 110
PHY 101, 102
SET 100, 101, 102, 103
SML 110, 120, 130, 135, 210, 220
WLD 110, 150, 160

Suggested Course Sequence (Read down.)

Reading requirement	ACD 210	Humanities and Fine
WRT 100 or WRT 154	ACD 220	Arts Elective
ACD 101	ACD 250	Social and Behavioral
ACD 120	DFT 101	Science Elective
ACD 125	MTH 110	SPE 120 or WRT 101
ACD 126	MTH 120	or WRT 154
		Technical Electives

*For additional prerequisite information, check Course Section.

Allied Health

The allied health program offers training for men and women in health-related fields. Programs are from one semester to 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 allied health programs, students must apply to the selections committee by March 1. The student will know about his/her acceptance by May 1 for classes starting in the fall.

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

Admission Policies:

Students who want to enroll in programs should:

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

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

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

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

Admission Procedure:

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

Downtown Campus

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

East Campus

- Emergency Medical Technology

West Campus

- Associate Degree Nursing
- Dental Assisting Education
- Dental Laboratory Technology
- Emergency Medical Technology
- Ophthalmic Dispensing
- Optical Laboratory Technician
- Pharmacy Technician
- Physical Therapist Assistant
- 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 obtain 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.

Allied Health Services—Basic Certificate For Direct Employment

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

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

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

Acceptance Into Program:

1. The student must be accepted by the college.
2. The student must complete the special application for the program.
3. The student must complete placement examinations in mathematics and reading. (Note: Students must read at the 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 documentation of current immunizations if she/he is accepted into the program.

General Requirements:

Total credits—12 semester hours.

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

REQUIRED COURSES (12 CREDIT HOURS)

Course Number	Course Titles	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BIO 160	Introduction to Human Anatomy and Physiology	4	
NRS 050	Nursing Assistant	5	
HCA 154	Introduction to Health Care	3	

Suggested Course Sequence (Read down.)

BIO 160
HCA 154
NRS 050

Anthropology

(See Also Archaeology)

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

The associate of arts degree in anthropology provides a global understanding of the nature of humankind as well as developing the student's awareness of the biological and cultural development of humanity. Emphasis is placed on the heritage and cultural diversity of the Southwest. The program prepares students for upper division study in anthropology at a major university. The curriculum generally parallels the lower division anthropology and liberal arts requirements at the state universities.

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

Anthropology—Associate of Arts Degree For Transfer

After successfully completing this program students may be eligible to transfer to upper class levels in anthropology at a four-year college or university. Students should consult the catalog for the institution to which they plan to transfer in order to establish the graduation and anthropology major requirements and determine the transferability of Pima Community College courses.

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

REQUIRED COURSES (66-72 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ANT 101	Human Origins and Prehistory	3	
ANT 102	Introduction to Cultural Anthropology and Linguistics	3	
ANT 200	Biological Anthropology	3	**
ANT 210	Cultural Anthropology	3	ANT 102**
ANT 215	The Nature of Language	3	**
ANT 225	Archaeology	3	**

Support Courses:

FSS 191	Survival	2	
REA	Reading requirement	0-4	*
NON-WEST CIV	Complete one of the following:	3	
ANT 121	Contemporary Indian Groups of the Southwest or		
ANT/ARC 141	Introduction to Southwestern Prehistory		
ANT ELEC	Complete one of the following options:	6-8	
	OPTION 1:		
	For physical anthropology or archaeology emphasis:		
	Complete BIO 226 and 3-4 credit hours of electives after consultation with an anthropology faculty advisor or continue with the second year of a transferable foreign language.		

OPTION 2:

For cultural anthropology or linguistics emphasis:

Complete 6 credit hours of electives after consultation with an anthropology faculty advisor or continue with the second year of a transferable foreign language.

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

English Composition	6
Humanities and Fine Arts	9
See an anthropology faculty advisor for recommended courses.	
Biological and Physical Sciences	8
Mathematics (MTH 150 or above)	3
Social and Behavioral Sciences	9
ANT 101 and ANT 102 satisfy six credit hours of this requirement. To satisfy the remaining three credit hours, complete either SOC 201 or SOC 204.	
Other Requirements	5-6
For this requirement, anthropology majors are required to complete two semesters (eight credit hours) of a single transferable foreign language.	

Suggested Course Sequence (Read down.)

First Year:

Reading Requirement
ANT 101
ANT 102
English Composition
Foreign Language
SOC 201 or SOC 204
ANT 200 level core course
ANT 200 level core course
English Composition
Foreign Language
Humanities & Fine Arts
Requirement

Second Year:

Biological and Physical Sciences Req.
Humanities & Fine Arts Requirement
Mathematics Requirement
ANT 121 or ANT/ARC 141
ANT Option Elective
FSS 191
ANT 200 level core course
ANT 200 level core course
Biological and Physical Sciences Req.
Humanities & Fine Arts Requirement
ANT Option Elective

*For additional prerequisite information, check Course Section.

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

Applied Design

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

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).

These programs are designed to prepare students for positions as functional or industrial designers, commercial artists, or interior designers or decorators. Functional or industrial designers combine artistic talents with the development of materials and methods of production to improve the appearance and usability of products. Commercial artists create art work for newspapers, magazines, advertising agencies, billboards, catalogs, flyers, brochures and television commercials. 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 for 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 graphics and design skills of drafting students.

Functional Design—Basic Certificate

REQUIRED COURSES (15-16 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
DES 111	Industrial Graphics	3	
DES 150	Functional Design	3	
DES 156	Design for Living		
or FDC 126	Textiles	3	
DES 250	Industrial Functional Design	3	

General Education and Support Courses:

CON 112	Construction Drafting I		
or DFT 150	Technical Drafting I		
or DES 211	Commercial Graphics	3-4	

Suggested Course Sequence (Read down.)

DES 111
DES 150
DES 156 or FDC 126
DES 250
CON 112 or DFT 150
or DES 211

*For additional prerequisite information, check Course Section.

Interior Design—Basic Certificate

REQUIRED COURSES (19 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
DES 155	Home Furnishings	3	
DES 156	Design for Living		
or FDC 126	Textiles	3	
DES 255	Spatial Design	3	
DES 256	Interior Environmental Design	3	

General Education and Support Courses:

CON 112	Construction Drafting I		
or DFT 150	Technical Drafting I	4	
WRT 150	Practical Communications	3	

Suggested Course Sequence (Read down.)

WRT 150
DES 155
DES 156 or FDC 126
DES 255
DES 256
CON 112 or DFT 150

*For additional prerequisite information, check Course Section.

Interior/Functional Design—Advanced Certificate

REQUIRED COURSES (37-40 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
DES 111	Industrial Graphics	3	
DES 150	Functional Design	3	
DES 151	Lightweight Structure Design	3	
DES 155	Home Furnishings		
or DES 211	Commercial Graphics	3	
DES 250	Industrial Functional Design	3	
DES 255	Spatial Design	3	
DES 256	Interior Environmental Design	3	

General Education and Support Courses:

DES 156	Design for Living		
or FDC 126	Textiles	3	
CON 112	Construction Drafting I		
or DFT 150	Technical Drafting I	4	
DES 222	Advanced Commercial Graphics		DES 211
or LTP 215	Interior Plantscape Design/Maintenance	3-4	
COMM/ELEC	Communication Elective		
	Complete one of the following:	3	
	OED 151, 251		
	SLG 101, 102, 201, 202, 203		
	SPE 120		
	WRT 100, 101, 102, 150, 154		

SCI/MTH	Science and Mathematics	
	Elective	
	Complete one of the following:	3-5
	ACC 050, 101, 102	
	AST 101, 102	
	BIO 101, 102, 160, 184, 190, 195,	
	201, 202, 204, 205	
	BUS 051	
	CHM 121, 130, 140, 141, 151, 152	
	ECE 124	
	GEO 101, 102	
	GLG 101, 102	
	MTH 060, 065, 070, 090, 110, 115,	
	120, 125, 130, 135, 140, 145, 150,	
	155, 160, 170, 175, 180, 185, 210,	
	215, 219, 220	
	PHY 101, 102, 105, 121, 122, 131,	
	132, 210, 216, 221, 230	

Suggested Course Sequence (Read down.)

DES 111	Communication	DES 255
DES 150	Elective	DES 256
DES 155 or 211	DES 151	Science and
DES 156 or FDC 126	DES 222 or LTP 215	Mathematics Elective
CON 112 or DFT 150	DES 250	

*For additional prerequisite information, check Course Section.

Interior Design—Associate of Applied Arts

REQUIRED COURSES (62-70 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
DES 111	Industrial Graphics	3	
DES 150	Functional Design	3	
DES 151	Lightweight Structure Design	3	
DES 155	Home Furnishings	3	
DES 250	Industrial Functional Design	3	
DES 255	Spatial Design	3	
DES 256	Interior Environmental Design	3	

Support Courses:

DES 080	Applied Design		*
or 299	Co-op Related Class in DES		
and 299	Co-op Work in DES	3-4	*
DES 156	Design for Living		
or FDC 126	Textiles	3	
CON 112	Construction Drafting I		
or DFT 150	Technical Drafting I	4	
DES 211	Commercial Graphics	3	
DES 222	Advanced Commercial Graphics	4	DES 211
LTP 215	Interior Plantscape Design		
	/Maintenance		
or DFT 149	Independent Study in Drafting	3	
DES 140**	Design Concepts Review	1-3	*
DES 210	Marketing for Designers	3	

General Education and Support Courses:

MAN 110	Human Relations in Business and Industry	3	
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts		
	Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

SCI/MTH	Science and Mathematics Electives	
	Complete two of the following:	6-8
	ACC 050, 101, 102	
	AST 101, 102	
	BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205	
	BUS 051	
	CHM 121, 130, 140, 141, 151, 152	
	ECE 124	
	GEO 101, 102	
	GLG 101, 102	
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220	
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230	

Suggested Course Sequence (Read down.)

Reading requirement	WRT 102 or 154	DES 256
WRT 101 or WRT 150	Humanities and Fine Arts Elective	MAN 110
DES 111	DES 250	LTP 215 or DFT 149
DES 156 or FDC 126	DES 255	DES 080 or DES 299 (Class and Work)
CON 112 or DFT 150	DES 222	Science and Mathematics Elective
DES 211	DES 210	
DES 151	Science and Mathematics Elective	
DES 150		
DES 155		

*For additional prerequisite information, check Course Section.

**Elective, not required for graduation.

Apprentice Related Instruction

Pima Community College works jointly with local and state apprenticeship groups to offer related instruction in a number of apprenticeship programs. Most programs require one year or more of on-the-job training to learn a skilled craft or trade. Students also receive classroom instruction which explains the principles and procedures used on the job.

Before students may enroll for apprentice related instruction, they must be tested, selected, signed up (indentured) and registered with the U.S. Department of Labor's Bureau of Apprenticeship and Training, and the

organization operating a specific training program. Apprentice related instruction at Pima Community College is presently offered in these areas:

Cableman	Machinist
Carpentry	Masonry
Electric Distribution Developer	Meterman
Engineering Technician	Painting and Decorating
General Construction	Pipe Fitting
Heating, Ventilating	Plumbing
Air Conditioning	Roofing
Inside Electrical Wireman	Sheet Metal
Ironworking	Shop Electrician
Lineman	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. Students may also work toward an associate degree while enrolled in apprentice programs or after completing these apprenticeships.

Degree Program: Those working to gain an associate of applied science degree (trade and industrial technology option) must meet the minimum degree requirement of 64 credit hours. Students must have earned 46 credit hours of apprentice-related instruction, and/or must have completed college technical courses as well as satisfy the college reading requirement. The specific requirements are shown below.

General Education	Cr. Hrs.
Communications Electives	6
Science and Mathematics Electives	6
Social and Behavioral Science Electives	3
Humanities and Fine Arts Electives	3
Reading requirements	0-4

Trade and Industrial Technology—Associate of Applied Science Degree

REQUIRED COURSES (64-73 CREDIT HOURS)

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

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

Reading requirement	0-4	*
COMM/ELEC Communications Electives		
Complete two of the following:	6	
OED 151, 251		
SLG 101, 102, 201, 202, 203		
SPE 120		
WRT 100, 101, 102, 150, 154		
HUM/ART Humanities and Fine Arts Electives		
Complete one of the following:	3	
ART 130, 131, 132, 135		
DRA 140, 141		
ECE 108, 112		
HUM 110, 111		
Foreign Language		
LIT 260, 265		
MUS 151, 201, 202		
PHI 101, 120		
SCI/MTH Science and Mathematics Electives		
Complete two of the following:	6-10	
AST 101, 102, 111, 112		
BUS 051		
CHM 121, 130, 140, 141, 151, 152		
ECE 124		
ENV 203		
GEO 101, 102		
GLG 101, 102		
BIO 101, 102, 160, 190, 195, 201, 202, 204, 205, 242, 243		
MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 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		

SOC/BEH	Social & Behavioral Science Electives	
	Complete one of the following:	3-4
	ANT 101, 102, 200, 210, 215, 225	
	ECE 107, 117	
	GEO 103	
	HIS 101, 102, 141, 142, 147	
	MAN 110	
	POS 100, 110, 112, 120, 130	
	PSY 100, 101, 130	
	SOC 100, 101	

Suggested Course Sequence (Read down.)

Apprenticeship related instruction
 Reading requirement
 College technical courses
 Communication electives
 Science and Mathematics electives
 Social and Behavioral Science elective
 Humanities and Fine Arts elective

Archaeology

(See also Anthropology)

Field Archaeology

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

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

Field Archaeology—Basic Certificate

REQUIRED COURSES (19 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ANT/ARC 101	Human Origins and Prehistory	3	
ANT 102	Introduction to Cultural Anthropology and Linguistics	3	
ANT/ARC 141	Introduction to Southwestern Prehistory	3	
ARC 180	Artifact Identification	1	
ANT/ARC 225	Archaeology	3	
ANT/ARC 275	Archaeological Excavation	3	
ANT/ARC 276	Archaeological Exploration I	3	ARC 180*

Suggested Course Sequence

See an archaeology faculty advisor.

*For additional prerequisite information, check Course Section.

Archaeological Fieldwork—Advanced Certificate

REQUIRED COURSES (44 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate		19	
Core Courses - A grade of C or better is required for graduation.			
ANT/ARC 250	Archaeology Laboratory	3	ARC 180
ANT/ARC 287	Field Equipment and Techniques	3	ANT/ARC 275
ANT/ARC 288	Archaeological Exploration II	3	ANT/ARC 276*
BUS/CSC 105	Survey of Microcomputer Uses	3	
ENG 110	Construction Surveying		MTH 110
or 130	Elementary Surveying	3	MTH 150*
GLG 101	Introductory Geology I	4	
WRT 101	Writing I	3	WRT 100*
MTH 110	Technical Mathematics I		MTH 060*
or 150	College Algebra	3	MTH 130*

Suggested Course Sequence

See an archaeology faculty advisor.

*For additional prerequisite information, check Course Section.

Arts, Applied

This program gives students the opportunity either to gain experience in several media or to concentrate on a single area of interest. Instruction is offered in basic design, color, drawing, painting, photography, weaving, fibers, ceramics, metalwork, printmaking, screenprinting, art history, and sculpture. All art classes in the program are taught by professional working artists. Students are encouraged to become involved in the art community through extracurricular activities such as the Pima Community College Art Gallery and the Visiting Artist program. Students select art electives and support courses according to their major areas of interest. Applied arts faculty advisors are located on the West Campus.

Applied Arts—Associate of Applied Arts Degree

REQUIRED COURSES (60-70 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ART 100	Basic Design	3	
ART 110	Drawing I	3	ART 100
ART 115	Color and Design	3	ART 100
ART 120	Sculptural Design	3	ART 100
ART 130	Art and Culture I	3	
ART 131	Art and Culture II	3	
General Education and Support Courses:			
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
REA	Reading requirement	0-4	*
ART ELEC	Art Electives: Complete eight courses from any of the following categories:	24	
Arts and Crafts:			
ART 160	Ceramics I	3	ART 100*
ART 170	Metalwork I: Jewelry	3	ART 100
ART 179	Weaving I: Back-strap and Tapestry Looms	3	ART 100
ART 180	Weaving I: Four-Harness Loom	3	ART 100
ART 181	Fiber Structures	3	ART 100
ART 211	Commercial Graphics	3	
ART 260	Ceramics II	3	ART 160

ART 261	Ceramics III	3	ART 160*
ART 270	Metalwork II: Jewelry	3	ART 100*
ART 271	Metalwork II: Smithing and Casting	3	ART 170
ART 280	Weaving II	3	ART 180

Photography:

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

Art History and Art Education:

ART 132	Modern Art Survey	3	
ART 135	Pre-Columbian Art	3	
ART 136	Masks	3	
ART 225	Foundation in Art Education	3	*
ART 231	History, Philosophy and Psychology of Art and Design	3	*

Drawing and Sculpture:

ART 210	Drawing II	3	ART 110
ART 212	Printmaking I	3	ART 100
ART 213	Life Drawing	3	ART 110*
ART 214	Printmaking II	3	ART 100*
ART 215	Painting I	3	ART 110*
ART 216	Screenprinting I	3	ART 100
ART 217	Painting II	3	ART 110*
ART 218	Screenprinting II	3	ART 100*
ART 220	Sculpture II	3	ART 120

HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

SCI/MTH	Science and Mathematics Electives		
	Complete two of the following:	6-10	
	ACC 050, 101, 102		
	AST 101, 102		
	BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205		
	BUS 051		
	CHM 121, 130, 140, 141, 151, 152		
	ECE 124		
	GEO 101, 102		
	GLG 101, 102		
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220		
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230		

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

Suggested Course Sequence (Read down.)

Reading requirement	ART 120
WRT 101	ART 131
ART 100	Art Electives
ART 110	WRT 102
ART 130	Social and Behavioral Science Elective
Humanities and Fine Arts Elective	Science and Mathematics Electives
ART 115	

*For additional prerequisite information, check Course Section.



Fine Arts

Fine Arts—Associate of Arts Degree For Transfer

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

REQUIRED COURSES (67-72 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ART 100	Basic Design	3	
ART 110	Drawing I	3	ART 100
ART 115	Color and Design	3	ART 100
ART 120	Sculptural Design	3	ART 100
ART 130	Art and Culture I	3	
ART 131	Art and Culture II	3	
ART 210	Drawing II		ART 110
or 213	Life Drawing	3	ART 100*
Support Courses:			
REA	Reading requirement	0-4	*
ART ELEC	Art Electives		
	Complete five courses from any of the following categories:	15	
Art in the Craft Media:			
ART 160	Ceramics I	3	ART 100*
ART 170	Metalwork I: Jewelry	3	ART 100
ART 179	Weaving I: Back-strap and Tapestry Looms	3	ART 100
ART 180	Weaving I: Four-Harness Loom	3	ART 100
ART 181	Fiber Structures	3	ART 100
ART 211	Commercial Graphics	3	
ART 260	Ceramics II	3	ART 160
ART 261	Ceramics III	3	ART 160*
ART 270	Metalwork II: Jewelry	3	ART 100*
ART 271	Metalwork II: Smithing and Casting	3	ART 170
ART 280	Weaving II	3	ART 180
Photography:			
ART 140	Photography I	3	ART 100
ART 141	Photography II	3	ART 140
ART 143	Commercial Photography	3	ART 141
ART 230	History of Photography	3	

Art History:

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

Drawing, Painting, and Sculpture:

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

Printmaking:

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

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

English Composition	6
Humanities and Fine Arts	9
Nine credit hours from ART 100, 110, 130 and 131 may be used to satisfy this requirement.	
Biological and Physical Sciences	8
Mathematics (MTH 150 or above)	3
Social and Behavioral Sciences	9
Other Requirements	5-6

Suggested Course Sequence (Read down.)

Reading requirement	English Composition
English Composition	Social and Behavioral
ART 100	Science Requirements
ART 110	Other General Education
ART 130	Requirements
Humanities and Fine	Biological and Physical
Arts Requirement	Sciences Requirements
ART 115	ART 210 or ART 213
ART 120	Arts Electives
ART 131	Mathematics Requirement

*For additional prerequisite information, check Course Section.

Automotive Technology

The automotive classes on the Downtown Campus are offered in an open-entry/open-exit, self-paced format. Students may enter classes any time of the year including summer and complete the work at their own speed according to a schedule of their own choice. Further information on course scheduling should be obtained from an automotive technology faculty advisor on the Downtown Campus.

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

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

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

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

Automotive Engine Repair and Overhaul—Basic Certificate For Direct Employment

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

REQUIRED COURSES (17 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AUT 120	Internal Combustion Engines	4	
AUT 122	Automotive Engine Service Repair	3	
AUT 125	Automotive Engine Tune-up	4	
AUT 128	Automotive Electrical Fundamentals	3	
General Education Course:			
MAN 110	Human Relations in Business and Industry	3	

Suggested Course Sequence

See an automotive technology faculty advisor.

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

Students seeking training in engine tune-up and/or adjustment beyond that offered in this program may take AUT 124 Automotive Diesel Engine Tune-up (3 credit hours) and/or AUT 126 Emission Certification Training (1 credit hour).

REQUIRED COURSES (20 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AUT 120	Internal Combustion Engines	4	
AUT 125	Automotive Engine Tune-up	4	
AUT 128	Automotive Electrical Fundamentals	3	
AUT 129	Automotive Electrical Component Repair and Adjustment	3	
AUT 142	Automotive Air Conditioning	3	
General Education Course:			
MAN 110	Human Relations in Business and Industry	3	

Suggested Course Sequence

See an automotive technology faculty advisor.

Power Transmission—Basic Certificate For Direct Employment

REQUIRED COURSES (15 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AUT 132	Automotive Transmission Removal, Replacement and In-Car Repair	4	
AUT 133	Automotive Transmission Rebuilding	4	
AUT 136	Automotive Driveline	4	
General Education Course:			
MAN 110	Human Relations in Business and Industry	3	

Suggested Course Sequence

See an automotive technology faculty advisor.

Suspension and Brakes—Basic Certificate For Direct Employment

REQUIRED COURSES (15 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AUT 136	Automotive Driveline	4	
AUT 138	Automotive Chassis	4	
AUT 140	Automotive Brakes	4	
General Education Course:			
MAN 110	Human Relations in Business and Industry	3	

Suggested Course Sequence

See an automotive technology faculty advisor.

Automotive Mechanics—Technical Certificate For Direct Employment

Students seeking training in engine tune-up and/or adjustment beyond that offered in this program may take AUT 124 Automotive Diesel Engine Tune-up (3 credit hours) and/or AUT 126 Emission Certification Training (1 credit hour).

REQUIRED COURSES (52 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AUT 120	Internal Combustion Engines	4	
AUT 122	Automotive Engine Service Repair	3	
AUT 125	Automotive Engine Tune-up	4	
AUT 128	Automotive Electrical Fundamentals	3	
AUT 129	Automotive Electrical Component Repair and Adjustment	3	
AUT 132	Automotive Transmission Removal, Replacement and In-car Repair	4	
AUT 133	Automotive Transmission Rebuilding	4	
AUT 136	Automotive Driveline	4	
AUT 138	Automotive Chassis	4	
AUT 140	Automotive Brakes	4	
AUT 142	Automotive Air Conditioning	3	

General Education and Support Courses:

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

Suggested Course Sequence

See an automotive technology faculty advisor.

*For additional prerequisite information, check Course Section.

Automotive Technology—Associate of Applied Science Degree for Direct Employment

Students seeking training in engine tune-up and/or adjustment beyond that offered in this program may take AUT 124 Automotive Diesel Engine Tune-up (3 credit hours) and/or AUT 126 Emission Certificate Training (1 credit hour).

REQUIRED COURSES (64-69 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AUT 120	Internal Combustion Engines	4	
AUT 122	Automotive Engine Service Repair	3	
AUT 125	Automotive Engine Tune-up	4	
AUT 128	Automotive Electrical Fundamentals	3	
AUT 129	Automotive Electrical Component Repair and Adjustment	3	
AUT 132	Automotive Transmission Removal, Replacement and In-Car Repair	4	
AUT 133	Automotive Transmission Rebuilding	4	
AUT 136	Automotive Driveline	4	
AUT 138	Automotive Chassis	4	
AUT 140	Automotive Brakes	4	
AUT 142	Automotive Air Conditioning	3	

General Education and Support Courses:

MAN 110	Human Relations in Business and Industry	3	
MTH 110	Technical Mathematics I	3	MTH 060*
MTH 120	Technical Mathematics II	3	MTH 110
PHY 101	Technical Physics I	3	MTH 060*
PHY 102	Technical Physics II	3	MTH 070*
WRT 150	Practical Communications	3	
WRT 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

Suggested Course Sequence

See an automotive technology faculty advisor.

*For additional prerequisite information, check Course Section.

Automotive Technology—Associate of Science Degree For Transfer

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

For this program, 28-34 credit hours of general education courses are required. They must be taken at Pima College but should be checked against a catalog of the college or university to which the student plans to transfer.

Students seeking training in engine tune-up and/or adjustments beyond that offered in this program may take AUT 124 Automotive Diesel Engine Tune-up (3 credit hours) and/or AUT 126 Emission Certification Training (1 credit hour).

REQUIRED COURSES (68-78 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AUT 120	Internal Combustion Engines	4	
AUT 122	Automotive Engine Service Repair	3	
AUT 125	Automotive Engine Tune-up	4	
AUT 128	Automotive Electrical Fundamentals	3	
AUT 129	Automotive Electrical Component Repair and Adjustment	3	
AUT 132	Automotive Transmission Removal, Replacement and In-Car Repair	4	
AUT 133	Automatic Transmission Rebuilding	4	
AUT 136	Automotive Driveline	4	
AUT 138	Automotive Chassis	4	
AUT 140	Automotive Brakes	4	
AUT 142	Automotive Air Conditioning	3	

General Education and Support Courses:

REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives Complete six to nine credit hours from the following:	6-9	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
SCI/MTH	Science and Mathematics Electives Complete ten credit hours from the following:	10	
	ACC 050, 101, 102		
	AST 101, 102, 111, 112		
	BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205		
	BUS 051		
	CHM 121, 130, 140, 141, 151, 152		
	ECE 124		
	ENV 203		
	GEO 101, 102		
	GLG 101, 102		
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220		
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230		
SOC/BEH	Social & Behavioral Science Electives Complete six to nine credit hours from the following:	6-9	
	ANT 101, 102, 200, 210, 215, 225		
	ECE 107, 117		
	ECO 100, 101		
	GEO 103		
	HIS 101, 102, 141, 142, 147		
	MAN 110		
	POS 100, 110, 112, 120, 130		
	PSY 100, 101, 130		
	SOC 100, 101		

COMM/ELEC	Communications Electives	6
	Complete six credit hours from the following:	
	OED 151, 251	
	SPE 120	
	WRT 100, 101, 102, 150, 154	

Suggested Course Sequence

See an automotive technology faculty advisor.

*For additional prerequisite information, check Course Section.

Aviation Mechanics

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

Airframe Mechanics—Basic Certificate For Direct Employment

REQUIRED COURSES (16 CREDIT HOURS)

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

Suggested Course Sequence (Read down.)

AVM 120
AVM 220
AVM 221

*For additional prerequisite information, check Course Section.

Airframe and Powerplant Mechanics—Technical Certificate For Direct Employment

REQUIRED COURSES (31 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
AVM 120	Aviation Electricity I	4	
AVM 220	Airframe Structures	6	*
AVM 221	Airframe Systems and Components	6	*
AVM 230	Powerplant Mechanics	6	*
General Education and Support Courses:			
WLD 110	Combination Welding	3	
WRT 100	Writing Fundamentals	3	WRT 070*
MTH	Math course (MTH 110 or higher)	3	

Suggested Course Sequence (Read down.)

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

*For additional prerequisite information, check Course Section.

Bilingual Business Administration

In order to receive a basic certificate in bilingual business administration, ACC 050, BUS 051, BUS 100, and MAN 110 must be taken in a bilingual mode. Only students who have a command of both Spanish and English may register for these bilingual courses.

Bilingual Business Administration—Basic Certificate For Direct Employment

REQUIRED COURSES (15 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACC 050	Procedimientos Prácticos de Contabilidad	3	
BUS 051	Matemáticas Comerciales	3	
BUS 100	Introducción a los Negocios	3	
MAN 110	Relaciones Humanas en los Negocios	3	
WRT	Una clase de inglés, la cual será determinada por medio de un examen.	3	

*English version of above course titles are listed below.

ACC 050	Practical Accounting Procedures
BUS 100	Introduction to Business
BUS 051	Business Math
MAN 110	Human Relations in Business and Industry
WRT	Writing class determined by assessment.

Programa Bilingüe

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

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

El estudiante que estudia inglés

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

El estudiante que desea destrezas en español

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

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 Another Language Are Used

Bilingual program courses are taught in English with assistance in another language, in most cases Spanish. Bilingual instructors help students to understand and learn better by using English and providing assistance to the student in their native language when answering questions or at any other time when assistance is needed. If students need more help in English, or in their native language, 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 course work in the field which interests them because these courses are taught using English with assistance in their native language. While they are taking these bilingual courses some students need to take English as a Second Language (ESL) classes, 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 only in English; thus, it is most important for students to take ESL, reading, and writing courses to attain proficiency in English.

Students Fluent in English Also Take Bilingual Courses

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

Programa Bilingüe

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

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

El estudiante que estudia inglés

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

El estudiante que desea destrezas en español

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

International/Intercultural Education

By virtue of its mixed cultural heritage and its proximity to Mexico, the Tucson area is an international/intercultural community. The need for international/intercultural education is recognized by the College and is embodied in the 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 foster 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 offers some sections of courses which have been modified to include international studies content, through several United States Department of Education grants. The modified courses, in addition to the regular subject material outlined in the course descriptions in this catalog, contain

material to help students understand the course content on an international level. Students who take these courses can expect to gain a better understanding of other cultures and/or to be better informed about international events which affect their daily lives.

The following is a list of these courses:

BUS 051	Mathematics of Business
BUS 100	Introduction to Business
BUS 200	Business Law I
BUS 210	International Business
ECO 101	Introduction to Macroeconomics
FRE 210	Intermediate French I
GEO 103	Cultural Geography
GRA 101	Graphic Technology I
HCA 154	Introduction to Health Care
HUM 110	Humanities I
HUM 111	Humanities II
HUM 252	Western Humanities II
MAN 110	Human Relations in Business and Industry
MAN 122	Supervision
MAN 124	Small Business Management
MAN 278	Labor/Management Relations
MAN 280	Business Organization and Management
MKT 111	Marketing
OED 251	Business Communications
OED 271	Office Procedures
PSY 120	Introduction to Social Psychology
PSY 240	Futures: A Psychological Perspective
PSY 296	Individual Studies in Psychology
REL 130	Comparative Religions: Oriental
SPA 110	Elementary Spanish I
SPA 217	El Español Para Los Negocios (Spanish for Business Communications)
SPE 120	Business and Professional Communication
WRT 102	Writing II
WRT 106	Writing Fundamentals for International Students

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

In addition, the College offers a basic certificate and an associate degree in International Business Communications Studies. (See the program section of this catalog.)

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

Yaqui Family Literacy Partnership Program

This program offers educational opportunities for Yaqui adults and out-of-school youth to improve English reading and writing skills. The program is especially intended to serve family members of children enrolled in bilingual education. The program unites the efforts of three educational agencies: the Pascua Yaqui Tribe, the Tucson Unified School District (TUSD), and Pima Community College (PCC) in a collaborative effort to create a family literacy program for the Yaqui people served by these agencies.

Información adicional del colegio:

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

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

La legislación del Estado de Arizona define el "community college" diciendo que será institución educativa donde se proporcionaran 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 tienen como fin satisfacer las aspiraciones vocacionales o académicas de la población;

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

Biology

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

Pre-Agriculture	Pre-Medical Technology and Microbiology
Pre-Dental	Pre-Pharmacy
Pre-Medical	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 Community College.

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

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

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

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

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

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

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

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

REQUIRED COURSES (66-78 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BIO 190	Animal Biology	4	*
BIO 195	Biology of Cells	4	CHM 151*
BIO 242	General Genetics	3	BIO 190*
CHM 151	General Chemistry I	5	MTH 130*
CHM 152	General Chemistry II	5	CHM 151
CHM 235	General Organic Chemistry I	5	CHM 152
CHM 236	General Organic Chemistry II	5	CHM 235
MTH 175 or 180	Topics in Calculus Analytic Geometry and Calculus I	3-4	MTH 150
MTH 185	Analytic Geometry and Calculus II		MTH 180
or 210	Introductory Statistics	3	MTH 130*
MTH, PHY or Foreign Language	Select one option from the following:	8-10	*
	1. MTH 215 and PHY 121, 122		
	2. Foreign Language (two transferable semesters in a single foreign language)		
	3. PHY 121 and 122		
	4. PHY 131 and 132		

General Education and Support Courses:

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives		
	Complete two of the following: (Check individual course descriptions.)	6-10	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
SOC/BEH	Social & Behavioral Science Electives	6-7	
	Complete two of the following:		
	ANT 101, 102, 200, 210, 215, 225		
	ECE 107, 117		
	ECO 100, 101		
	GEO 103		
	HIS 101, 102, 141, 142, 147		
	MAN 110		
	POS 100, 110, 112, 120, 130		
	PSY 100, 101, 130		
	SOC 100, 101		
ELEC	Other Electives:	3	
	Complete one transferable elective course. (Consult the catalog of the dental, medical, or veterinary school to which you plan to apply.)		

Suggested Course sequence (Read down.)

Reading requirement	CHM 152	BIO 190
WRT 101	BIO 195	CHM 235
MTH 175 or 180	Social and Behavioral Science Elective	BIO 242
Humanities and Fine Arts Elective	Humanities and Fine Arts Elective	CHM 236
CHM 151	MTH 215 or Physics Elective or	Physics Elective or Foreign
Social & Behavioral Science Elective	Foreign Language	Language Elective
WRT 102	Elective	
MTH 185 or 210		

*For additional prerequisite information, check Course Section.

Pre-Agriculture—Associate of Science Degree For Transfer

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

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

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

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

REQUIRED COURSES (73-82 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BIO 184	Plant Biology	4	BIO 101*
BIO 190	Animal Biology	4	*
BIO 195	Biology of Cells	4	CHM 151*
CHM 151	General Chemistry I	5	MTH 130*
CHM 152	General Chemistry II	5	CHM 151
GLG 101	Introductory Geology I	4	
MTH 150	College Algebra	3	MTH 130*
MTH 155	Trigonometry	3	MTH 150*
PHY 121	Introductory Physics I	5	*
General Education and Support Courses:			
ECO 100	Introduction to Microeconomics	3	MTH 070
SPE 102	Introduction to Oral Communication	3	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
WRT 254	Technical Communications	3	WRT 154*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives	6-10	
	Complete two of the following:		
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
SOC/BEH	Social & Behavioral Science Electives	6-7	
	Complete two of the following:		
	ANT 101, 102, 200, 210, 215, 225		
	ECE 107, 117		
	ECO 100, 101		
	GEO 103		
	HIS 101, 102, 141, 142, 147		
	MAN 110		
	POS 100, 110, 112, 120, 130		
	PSY 100, 101, 130		
	SOC 100, 101		

ELEC

Other Electives:

9

Complete three transferable elective courses. (Consult the catalog of the agricultural school to which you plan to apply.)

Suggested Course Sequence (Read down.)

Reading requirement	MTH 155	BIO 195
WRT 101	Other Elective	BIO 184
MTH 150	BIO 190	Humanities and Fine Arts Electives
CHM 151	PHY 121	Arts Electives
GLG 101	WRT 254	Social and Behavioral Science Electives
Other Elective	Humanities and Fine Arts Elective	ECO 100
WRT 102	Arts Elective	Other Elective
CHM 152	Social and Behavioral Science Electives	
SPE 102		

*For additional prerequisite information, check Course Section.

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

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

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

REQUIRED COURSES (69-78 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BIO 201	Human Anatomy and Physiology I	4	BIO 100*
BIO 202	Human Anatomy and Physiology II	4	BIO 201
BIO 205	Microbiology I	4	*
CHM 151	General Chemistry I	5	MTH 130*
CHM 152	General Chemistry II	5	CHM 151
CHM 235	General Organic Chemistry I	5	CHM 152
CHM 236	General Organic Chemistry II	5	CHM 235
MTH 150	College Algebra	3	MTH 130*
MTH 155	Trigonometry	3	MTH 150*
MTH 210	Introductory Statistics	3	MTH 130*
PHY 121	Introductory Physics I	5	*
PHY 122	Introductory Physics II	5	PHY 121
General Education and Support Courses:			
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives		
	Complete two of the following:	6-10	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
SOC/BEH	Social & Behavioral Science Electives		
	Complete two of the following:	6-7	
	ANT 101, 102, 200, 210, 215, 225		
	ECE 107, 117		
	ECO 100, 101		
	GEO 103		
	HIS 101, 102, 141, 142, 147		
	MAN 110		
	POS 100, 110, 112, 120, 130		
	PSY 100, 101, 130		
	SOC 100, 101		

Suggested Course Sequence (Read down.)

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

*For additional prerequisite information, check Course Section.

Pre-Pharmacy—Associate of Science Degree For Transfer

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

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

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

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

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

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

REQUIRED COURSES (69-73 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BIO 184	Plant Biology	4	*
BIO 190	Animal Biology	4	*
BIO 205	Microbiology I	4	*
CHM 151	General Chemistry I	5	MTH 130*
CHM 152	General Chemistry II	5	CHM 151
CHM 235	General Organic Chemistry I	5	CHM 152*
CHM 236	General Organic Chemistry II	5	CHM 235
MTH 175	Topics in Calculus	3	MTH 150
PHY 121	Introductory Physics I	5	*
PHY 122	Introductory Physics II	5	PHY 121
General Education and Support Courses:			
ECO 100	Introduction to Microeconomics		MTH 070*
or 101	Introduction to Macroeconomics	3	MTH 070
HIS 101	Introduction to Western Civilization I	3	
HIS 102	Introduction to Western Civilization II	3	
LIT ELEC	LIT 260 or above	3	*
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101*
REA	Reading requirement	0-4	*
SOC/BEH	See Graduation section of this catalog for Social & Behavioral Sciences electives	6	

Suggested Course Sequence (Read down.)

First Semester	Third Semester
WRT 101	PHY 121
CHM 151	CHM 235
BIO 184	ECO 100 or 101
MTH 175	SOC/BEH Science Elective
HIS 101	CHEM 322/323 (at U of A)
Second Semester	Fourth Semester
WRT 102	PHY 122
CHM 152	CHM 236
BIO 190	BIO 205
HIS 102	LIT Elective
SOC/BEH Science Elective	

*For additional prerequisite information, check Course Section.

Building Technology

The purpose of this program area is to prepare students for beginning level jobs in the construction trades, such as carpenter's helper, plumber's helper, electrician's helper, painter's helper, building maintenance person, and drywall installer. The following program options are offered: basic certificates in building maintenance, drywall, and painting; technical certificates in building maintenance and drywall/painting; and an associate of applied science degree in building technology. Building technology program advisors are located at the Community Campus.

Building Maintenance—Basic Certificate For Direct Employment

This program is designed to prepare students for entry-level positions in the construction trades. It provides an overview of carpentry, plumbing and electricity for the person who has not previously worked in the field and is interested in exploring career opportunities. Students learn the basics of blueprint reading; installing steel, copper and vinyl pipes; AC and DC current; and gas and arc welding. Good basic reading and writing skills are important for success in the program.

REQUIRED COURSES (24 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BLT 050	Plumbing	3	
BLT 055	Carpentry 1	3	MTH 060
GTC 010	Basic Electricity	3	
GTC 060	Building Materials	3	
WLD 110	Combination Welding	3	
General Education and Support Courses:			
HSK 150	Executive Housekeeping I	3	
MTH 060	Introductory Mathematics	3	
WRT 150	Practical Communications	3	
Suggested Course Sequence (Read down.)			
MTH 060	WLD 110		
WRT 150	BLT 055		
GTC 060	GTC 010		
BLT 050	HSK 150		

Drywall—Basic Certificate

This program introduces students to the basics of estimating and installing drywall. It is designed primarily for inmates at the Arizona State Prison. Ability to do hard physical work is important in this field.

REQUIRED COURSES (21 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BLT 090	Drywall I	3	MTH 060
BLT 092	Drywall Taping	3	MTH 060
BLT 094	Drywall II	3	BLT 090
GTC 099	Blueprint Reading	3	

General Education and Support Courses:

MAN 110	Human Relations in Business and Industry	3
MTH 060	Introductory Mathematics	3
WRT 150	Practical Communications	3

Suggested Course Sequence (Read down.)

MTH 060	BLT 092
WRT 150	GTC 099
BLT 090	MAN 110
BLT 094	

Painting—Basic Certificate For Direct Employment

The painting certificate program is designed to train inexperienced persons to paint building exteriors and interiors and to qualify as painter's helpers on large construction jobs.

REQUIRED COURSES (24 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BLT 070	Painting I	3	
BLT 072	Painting II	3	BLT 070*
BLT 080	Color and Color Harmony	3	
BLT 092	Drywall Taping	3	MTH 060
GTC 099	Blueprint Reading	3	

General Education and Support Courses:

MAN 110	Human Relations in Business and Industry	3
MTH 060	Introductory Mathematics	3
WRT 150	Practical Communications	3

Suggested Course Sequence (Read down.)

MTH 060	BLT 080
WRT 150	GTC 099
BLT 070	MAN 110
BLT 072	BLT 092

*For additional prerequisite information, check Course Section.

Building Maintenance—Technical Certificate For Direct Employment

This program trains technicians to do simple, routine maintenance and minor repairs in large structures such as office buildings and apartment complexes. Mechanical aptitude is important for success in this field.

REQUIRED COURSES (49 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate Requirements in Building Maintenance		24	
Core Courses - A grade of C or better is required for graduation.			
ACD 101	Principles and Psychrometrics	3	
BLT 057	Carpentry II	3	BLT 055*
BLT 060	Masonry	3	MTH 060
BLT 062	Glazing	3	MTH 060
GTC 061	Building and Materials Cost Estimating	3	GTC 060
GTC 065	Basic Construction Principles	3	
GTC 099	Blueprint Reading	3	

General Education and Support Courses:

CON 112	Construction Drafting I	4
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Suggested Course Sequence (Read down.)

Basic Certificate Requirements	BLT 060
ACD 101	GTC 065
GTC 099	BLT 057
CON 112	GTC 061
	BLT 062

*For additional prerequisite information, check Course Section.

Drywall/Painting—Technical Certificate

This program is designed to train students in the basic skills of estimating and installing drywall and in painting drywall and other surfaces. It is intended primarily for inmates at the Arizona State Prison. Ability to do hard physical work is important in this field.

REQUIRED COURSES (48 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate Requirements in Drywall and Painting		30	
Core Courses - A grade of C or better is required for graduation.			
BLT 074	Conventional and Airless Spray Painting	3	
BLT 076	Advanced Blueprint Reading	3	GTC 099
BLT 082	Wall Coverings	3	MTH 160*
General Education and Support Courses:			
MAN 122	Supervision	3	
MTH 110	Technical Mathematics I	3	MTH 060*
WRT 154	Technical Communications I	3	WRT 100*

Suggested Course Sequence (Read down.)

Basic Certificate Requirements	BLT 074
MTH 110	BLT 076
WRT 154	BLT 082
	MAN 122

*For additional prerequisite information, check Course Section.

Building Technology—Associate of Applied Science Degree For Direct Employment

The associate of applied science degree in building technology is designed to prepare students for beginning-level jobs in the construction trades as carpenter's helpers, plumber's helpers and electrician's helpers. While providing an overview of these trades, it also provides more specific training than do the basic certificates. In addition, this program offers students the opportunity to develop their skills and knowledge in reading, writing, math and general education.

REQUIRED COURSES (67-72 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
GEB 096	Applied Accounting	3	
GTC 060	Building Materials	3	
GTC 061	Building and Materials Cost Estimating	3	GTC 060
GTC 065	Basic Construction Principles	3	
GTC 099	Blueprint Reading	3	
General Education and Support Courses:			
CON 112	Construction Drafting I	4	
MAN 122	Supervision	3	
MAN 110	Human Relations in Business and Industry	3	
MTH 060	Introductory Mathematics	3	
MTH 110	Technical Mathematics I	3	MTH 060*
WRT 150	Practical Communications	3	
WRT 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
Other Electives			
	Complete one of the following options:	27	
Drywall/Painting Option:			
BLT 070	Painting I		
BLT 072	Painting II		
BLT 074	Conventional and Airless Spray Painting		
BLT 076	Advanced Blueprint Reading		
BLT 080	Color and Color Harmony		
BLT 082	Wall Coverings		
BLT 090	Drywall I		
BLT 092	Drywall Taping		
BLT 094	Drywall II		

Building Maintenance Option:

ACD 101	Principles and Psychrometrics
BLT 050	Plumbing
BLT 055	Carpentry I
BLT 057	Carpentry II
BLT 060	Masonry
BLT 062	Glazing
GTC 010	Basic Electricity
WLD 110	Combination Welding

Support Course:

HSK 150	Executive Housekeeping I
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Suggested Course Sequence (Read down.)

Reading requirement	GTC 065	MTH 110
MTH 060	GEB 096	Drywall/Painting
WRT 150	WRT 154	or Building
GTC 060	MAN 110	Maintenance
GTC 099	MAN 122	Option
CON 112	GTC 061	Humanities and Fine
		Arts Elective

*For additional prerequisite information, check Course Section.

Business Administration

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

Business Administration—Basic Certificate For Direct Employment

REQUIRED COURSES (15 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACC 050	Practical Accounting Procedures	3	
BUS 100	Introduction to Business	3	
BUS 051	Business Math	3	
MAN 110	Human Relations in Business and Industry	3	
WRT	Determined by assessment test score	3	

Suggested Course Sequence

See a business administration faculty advisor.

*For additional prerequisite information, check Course Section.

Business Administration—Advanced Certificate For Direct Employment

REQUIRED COURSES (39-44 CREDIT HOURS)

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

Business Administration—Associate of Applied Science Degree For Direct Employment

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

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

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

It is recommended that, before entering the program, students should be able to read at the 12th-grade level and have MTH 060 or the equivalent math skills. Skill assessment is available at each campus prior to registration. Students applying for graduation in this program must have demonstrated reading competency at the 12th-grade level in both the vocabulary and comprehension sections of the assessment test or have successfully completed REA 112.

REQUIRED COURSES (66-71 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101
MAN 110	Human Relations in Business and Industry	3	
MKT 111	Marketing	3	

General Education and Support Courses:

BUS 051	Mathematics of Business		
or MTH 070	Algebra I	3	MTH 060*
BUS 100	Introduction to Business	3	
BUS 105	Survey of Microcomputer Uses	3	
BUS 200	Business Law I	3	
MAN 280	Business Organization and Management	3	BUS 100*
OED 151	Business English	3	*
OED 251	Business Communications	3	OED 151
SPE 120	Business and Professional Communication	3	
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 133		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
BUS ELEC	Specialized Business Electives		
	Complete any six of the following courses:	18	
	BUS 295		
	ECO 101, 230		
	MAN 122, 124, 270, 276, 278		
	MKT 113, 125, 139, 150		

ELEC 9

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

Suggested Course Sequence (Read down.)

Reading requirement	OED 151	MAN 280
BUS 051 or MTH 070	OED 251	MKT 111
ACC 101	Humanities and Fine	BUS 200
ACC 102	Arts Elective	Specialized Business
MAN 110	BUS 105	Electives
SPE 120	BUS 100	Other Business
		Electives

*For additional prerequisite information, check Course Section.

Business Administration—Associate of Science Degree For Transfer

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

REQUIRED COURSES (62-74 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101
CSC 100	Introduction to Computers	3	MTH 070
ECO 200**	Principles of Economics	3	MTH 070
MTH 170	Finite Mathematics	3	MTH 150
MTH 175	Topics in Calculus	3	MTH 150
BUS 205	Statistics Methods in Economics and Business I	3	MTH 170
Support Courses:			
MTH 150	College Algebra	3	MTH 130*
READING REQUIREMENT	Minimum college-defined competency in reading of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment.	0-4	*
General Education Courses:			
BIO/PHY SCIENCE	Complete two semesters of introductory level science with/without lab. AST 101/111; AST 102/112 BIO 101, 102, 105, 109 CHM 121, 130, 140, 141, 151, 152 GEO 101, 102 GLG 101, 102 PHY 121, 122	8	
COMMUNICATION	Complete one of the following options: OPTION 1: WRT 101 and WRT 102 OPTION 2: WRT 107 and 108 (For international students)	6	
INTERNATIONAL MULTI-CULTURAL EXPERIENCE	Complete one of the following options: OPTION 1: Two courses in a single foreign language at the 110 level or above.	3-8	

	OPTION 2: POS 120	
HUM/WEST CIV	Complete two of the following courses: HIS 101, 102; HUM 251 252, 253	6
NON- WESTERN CIV	Complete one of the following courses: HIS 113, HIS 114, REL 125	3
ARTS/LIT/ ETHICS	Complete 3 credit hours from Option 1 (Ethics), AND 3 credit hours from Option 2 (Arts) OR Option 3 (Literature) for a total of 6 credits. If you have already completed an ethics course (PHI 101, PHI 130 or PSY 130), complete 3 credit hours from Option 2 (Arts) AND 3 credit hours from Option 3 (Literature) for a total of 6 credits.	6
	OPTION 1: Ethics: PHI 101, 130, or PSY 130	
	OPTION 2: Arts ART 130, 131, 135 DRA 140, 141 MUS 151	
	OPTION 3: Literature LIT 231, 260, 261, 265, 266, 267	
SOC/BEH	Complete one option:	3-6
	OPTION 1: Values, Culture and Change ANT 102, SOC 100	
	OPTION 2: Sociology and Organizations SOC 100, 101	
	OPTION 3: Basic Psychology PSY 110, 130	
	OPTION 4: Arizona and the Southwest ARC 141, ANT 121	
	OPTION 5: Political Institutions POS 110	

OPTION 6:
American Social Institutions
POS 160, and POS 110 or
POS 130

OPTION 7:
Concepts in Ethics
PHI 130

OPTION 8:
International Business
POS 140

ELECTIVE Transferable electives: 3-6
BUS 200
CSC 160 (required of students
intending to major in
management information
systems or operations
management)

Suggested Course Sequence

See a business administration program advisor.

*For additional prerequisite information, check Course Section.

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

Chemistry

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

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

Chemistry—Associate of Science Degree For Transfer

REQUIRED COURSES (69-82 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CHM 151	General Chemistry I	5	MTH 130*
CHM 152	General Chemistry II	5	CHM 151
CHM 235	General Organic Chemistry I	5	CHM 152*
CHM 236	General Organic Chemistry II	5	CHM 235
MTH 160	Precalculus	5	MTH 130*
MTH 180	Analytic Geometry and Calculus I	4	MTH 150*
MTH 185	Analytic Geometry and Calculus II	3	MTH 180
MTH 215	Analytic Geometry and Calculus III	4	MTH 185
PHY 121 or 131	Introductory Physics I Introductory Physics with Calculus I	5	MTH 180* PHY 121
PHY 122 or 132	Introductory Physics II Introductory Physics with Calculus II	5	PHY 131*
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

General Education and Support Courses:

CSC 140 or	FORTTRAN Programming Social and Behavioral Science Elective	3	CSC 100*
GER 110 or	Elementary German I Social and Behavioral Science Elective	3-4	
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives Select two of the following: ART 130, 131, 132, 135 DRA 140, 141 ECE 108, 112 HUM 110, 111 LIT 260, 265 MUS 151, 201, 202 PHI 101, 120	6-8	
FSS/ELEC	Fitness and Sport Sciences Electives: Select any two transferable courses in FSS.	2	
SOC/BEH	Social and Behavioral Science Electives Select one of the following if you select GER 110 and CSC 140; select two of the following if you select GER 110 or CSC 140; select three of the following if you select neither GER 110 nor CSC 140: ANT 101, 102, 200, 210, 215, 225 ECE 107, 117 ECO 100, 101 GEO 103 HIS 101, 102, 141, 142, 147 MAN 110 POS 100, 110, 112, 120, 130 PSY 100, 101, 130 SOC 100, 101	3-9	

Suggested Course Sequence (Read down.)

Reading Requirement	MTH 180	FSS Course
WRT 101	PHY 121 or 131	CHM 236
CHM 151	CSC 140 or	MTH 215
MTH 160	Social & Behavioral	Humanities and Fine
Social & Behavioral	Science Elective	Arts Elective
Science Elective	CHM 235	GER 110 or
FSS course	MTH 185	Social and Behavioral
WRT 102	PHY 122 or 132	Science Elective
CHM 152	Humanities and Fine	
	Arts Elective	

*For additional prerequisite information, check Course Section.

Communication Workers Technology

The basic certificate program in communication workers technology (CWT) is designed to provide students with knowledge and skills in the communication industry. These include a knowledge of communication systems, tools, equipment, color code, safety, health, electronics, digital electronics, applicable math, solid state devices, telephone systems and data transmission.

Upon satisfactory completion of the program, the student will possess skills necessary for employment in the communication industry at the entry level as a communications technician.

Communication Workers Technology—Basic Certificate For Direct Employment

REQUIRED COURSES (20 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CWT 100	Working in the Communications Systems Industry	1	
CWT 101	Communications Industry Tools and Equipment	1	
CWT 102	Color Code	1	
CWT 103	Safety and Health in the Communications Industry	1	
CWT 104	Communications Test Equipment	1	
CWT 110	Electronics	1	
CWT 112	Basic Circuit Reading	1	
CWT 120	Direct Current Fundamentals I	1	CWT 110*
CWT 121	Graphing and Linear Equations	2	CWT 110
CWT 130	Alternating Current Fundamentals I	2	CWT 120
CWT 140	Solid State Devices	2	CWT 130
CWT 142	Telephony Systems and Equipment I	2	CWT 130
CWT 144	Data Transmission I	2	CWT 130
CWT 150	Digital Electronics	2	CWT 140

Suggested Course Sequence (Read down.)

CWT 100	CWT 110	CWT 140
CWT 101	CWT 112	CWT 142
CWT 102	CWT 120	CWT 144
CWT 103	CWT 121	CWT 150
CWT 104	CWT 130	

*For additional prerequisite information, check Course Section.

Computer Science

These programs are designed both to prepare students for employment in the field, mainly as data entry operators and computer programmers, and to provide transfer courses for those wishing to enroll at a four-year college. In addition, they enable those already employed in the field to upgrade their skills, and they provide personal interest courses to meet the community's needs. The program options provide a full range of computer science skills, including computer literacy, data entry, programming, computer operations, and systems analysis and design. The following programs are offered: data entry operator basic certificate for direct employment, data entry operator advanced certificate for direct employment, systems programmer advanced certificate for direct employment, small business computer specialist associate of applied science degree for direct employment, and computer programmer/analyst associate of applied science degree for direct employment. The data entry faculty advisors are located on the Downtown Campus; the faculty advisors for the other programs are located on the East and West Campuses.

Data Entry Operator—Basic Certificate For Direct Employment

This program offers the student the skills needed to enter the market as an entry-level trainee for such jobs as data entry operator, on-line terminal operator, key-to-disk or key-to-tape operator, and data entry/microcomputer operator. Success in the program requires good typing and reading skills and the ability to understand and follow directions exactly.

REQUIRED COURSES (16-17 CREDIT HOURS)

Course Number	Course Title	Hours	Credit Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CSC 125	Data Entry Principles, Controls and Operations I	3	
CSC 126	Data Entry Principles, Controls and Operations II	3	CSC 125
CSC 195	Job Entry Procedures	1	
CSC 196	Work Standards and Job Attitudes	1	
CSC 198	Data Processing Projects	2	

General Education and Support Courses:

REA 100	Reading Series		*
or CSC 100	Introduction to Computers (if reading requirement is met by testing)	3-4	MTH 070 MTH 060*
BUS 051	Mathematics of Business		
or MTH 070	Algebra I or higher (based on assessment test if higher degree is being pursued)	3	MTH 060*

Suggested Course Sequence

See a data entry faculty advisor.

*For additional prerequisite information, check Course Section.

Data Entry Operator—Advanced Certificate For Direct Employment

The advanced certificate qualifies students to function independently without additional training as beginning level operators of data entry equipment, on-line terminals, key-to-disk and key-to-tape equipment and microcomputers. In addition, students are trained in word processing, and the use of spread sheets and data base. Good reading and listening skills are essential for success in this program.

REQUIRED COURSES (31-32 CREDIT HOURS)

Course Number	Course Title	Hours	Credit Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CSC 125	Data Entry Principles, Controls and Operations I	3	
CSC 126	Data Entry Principles, Controls and Operations II	3	CSC 125
CSC 127	Data Entry Principles, Controls and Operations III	3	CSC 126
CSC 105	Survey of Microcomputer Uses	3	
CSC 195	Job Entry Procedures	1	
CSC 196	Work Standards and Job Attitudes	1	
CSC 198	Data Processing Projects	2	

General Education and Support Courses:

ACC 050 or 101	Practical Accounting Procedures Financial Accounting (if higher degree is being pursued)	3	*
REA 100 or CSC 100	Reading Series Introduction to Computers (if reading requirement is met by testing.)	3-4	MTH 070 MTH 060*
BUS 051 or MTH 070 or higher	Mathematics of Business Algebra I (based on assessment test if higher degree is being pursued)	3	MTH 060*
WRT 100 or higher	Writing Fundamentals (based on assessment test)	3	WRT 070*
CSC 199	Co-op Related Class in CSC	1	*
CSC 199	Co-op Work in CSC	2	*

Suggested Course Sequence

See a data entry faculty advisor.

*For additional prerequisite information, check Course Section.

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

This program is designed to prepare students for employment in the microcomputer field. Students are trained to be able to select, install and use most small computer systems (both hardware and software). Before taking CSC 130, students must take or test out of CSC 100. (See a faculty advisor for further details regarding this requirement.) Good study habits and strong English skills are important for success in the program.

REQUIRED COURSES (64-74 CREDIT HOURS)

Course Number	Course Title	Hours	Credit Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CSC 108A	Microcomputer Operating Systems: Introduction	1	
CSC 108B	Microcomputer Operating Systems: Intermediate	1	CSC 108A
CSC 108C	Microcomputer Operating Systems: Advanced	1	CSC 108B
CSC 105	Survey of Microcomputer Uses	3	
CSC 106A	Data Base Concepts: Introduction	1	
CSC 106B	Data Base Concepts: Intermediate	1	CSC 106A*
CSC 106C	Data Base Concepts: Advanced	1	CSC 106B*
CSC 104A	Beginning Spreadsheets	1	
CSC 104B	Intermediate Spreadsheets	1	CSC 104A
CSC 104C	Advanced Spreadsheets	1	CSC 104B*
CSC 130	Programming Fundamentals	3	CSC 100*
CSC 136	Microcomputer Components	2	
CSC 195	Job Entry Procedures	1	
CSC 196	Work Standards and Job Attitudes	1	
CSC 198	Data Processing Projects I	1-3	
CSC 204	Comparative Spreadsheets	2	CSC 104C*
CSC 206	Data Base Projects	2	CSC 106C*
CSC 238	Integrated Package Project	4	CSC 204*
CSC 256	Microcomputer Software Applications	3	CSC 130*
CSC 280	Systems Analysis	3	CSC 160*
General Education and Support Courses:			
ACC 050	Practical Accounting Procedures	3	
ACC 200	Accounting Practice on the Microcomputer	3	ACC 050*
BUS 051	Mathematics of Business	3	MTH 060*
MAN 124	Small Business Management	3	
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*

CSC ELEC	Complete one of the following options:	6-8
	OPTION 1: A 100 and a 200 (or two 200's) course from within one of the following areas: ACC, AJS, ANT, ARC, AST, BIO, BUS, CHM, DFT, ECO, ENG, ETR, MAN, MEC, MKT, MTH, NRS, OED, PHY, SOC, SPA, SSE, WRT.	
	OPTION 2: Co-op Sequences: CSC 199, CSC 299.	
	OPTION 3: Business Computing Sequence Complete two of the six following CSC courses: 160, 170, 175, 230, 260, 275.	
	OPTION 4: Machine Language Sequence Complete two of the four following CSC courses: 250, 265, 270, 274.	
HUM/ART	Humanities and Fine Arts Electives Complete one of the following:	3-4
	ART 130, 131, 132, 135 DRA 140, 141 ECE 108, 112 HUM 110, 111 Foreign Language (100 or above or grammar) LIT 260, 265 MUS 151, 201, 202 PHI 101, 102, 120	

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

Suggested Course Sequence

See a computer science faculty advisor.

*For additional prerequisite information, see a computer science faculty advisor.

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

This program is designed to prepare students for direct employment as programmer/analysts, programmers, programmer trainees, computer sales staff and computer operators. Before taking CSC 130 or 135, students must take or test out of CSC 100. (See a faculty advisor for further details regarding this requirement.) Good study habits and strong logic and English skills are important for success in the program.

REQUIRED COURSES (65-75 CREDIT HOURS)

Course Number	Course Title	Hours	Credit Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CSC 130	Computers and Programming	3	CSC 100
CSC 135	Introduction to Computer Operations	3	CSC 100
CSC 140	FORTTRAN Programming		CSC 100*
or 170	RPG Programming		CSC 130
or 175	Advanced BASIC Programming		CSC 130*
or 190	Programming in PASCAL	3	CSC 130
CSC 160	COBOL Programming	3	CSC 130
CSC 195	Job Entry Procedures	1	
CSC 196	Work Standards and Job Attitudes	1	
CSC 198	Data Processing Projects I		
or 298	Data Processing Projects II	1-3	*
CSC 250	Introduction to Assembly Language	3	CSC 130*
CSC 260	Advanced COBOL/File Management	4	CSC 160*
CSC 270	IBM/310 Assembly Language (BAL)		CSC 250
or 274	DEC Assembly Language (MACRO)	4	CSC 250
CSC 280	Systems Analysis	3	CSC 160
CSC 281	Systems Design	3	CSC 280
General Education and Support Courses:			
ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101
MTH 130	Algebra II		MTH 070*
or 150	College Algebra	3	MTH 130*
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101*
REA	Reading requirement	0-4	*

HUM/ART

Humanities and Fine Arts
Electives
Complete one of the following: 3-4
ART 130, 131, 132, 135
DRA 140, 141
ECE 108, 112
HUM 110, 111
Foreign Language (grammar)
LIT 260, 265
MUS 151, 201, 202
PHI 101, 120

SOC/BEH

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

ELEC

Other Electives
Complete at least two of the following pairs: 12-14
1. ACC 203, BUS 200
2. CSC 200
3. CSC 199 Co-op Related Class in CSC,
CSC 199 Co-op Work in CSC,
CSC 299 Co-op Related Class in CSC,
CSC 299 Co-op Work in CSC
4. ECO 100, ECO 101
5. ETR Electronics courses
6. MTH 170, MTH 175

Suggested Course Sequence (Read down.)

Reading requirement	CSC 140, 170, 175	CSC 260
WRT 101	or 190	CSC 280
MTH 130 or 150	CSC 160	CSC 198 or 298
CSC 135	ACC 102	CSC 195
CSC 130	WRT 102	CSC 196
ACC 101	Humanities and Fine Arts Elective	CSC 270 or 274
Social and Behavioral Science Elective	CSC 250	CSC 281
		Other Electives

*For additional prerequisite information, check Course Section.

Systems Programmer—Advanced Certificate For Direct Employment

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

REQUIRED COURSES (30-31 CREDIT HOURS)

Course Number	Course Title	Hours	Credit Prerequisites
Completion of Computer Programmer/Analyst Associate of Applied Science Degree.			
Core Courses - A grade of C or better is required for graduation.			
CSC 290	Systems Programming Theory	3	CSC 274*
CSC 294	Current Topics in Computer Science	3-4	CSC 260*
CSC 296	Operating Systems	3	CSC 270*
CSC 298	Data Processing Projects II	3	*
General Education and Support Courses:			
CSC 140	FORTTRAN Programming	3	CSC 100*
CSC 270 or 274	IBM/370 Assembly Language (MACRO)		CSC 250*
or 275	Advanced Programming and File Management	4	CSC 175
MTH 180	Analytic Geometry and Calculus I	4	MTH 150*
MTH 185	Analytic Geometry and Calculus II	3	MTH 180
MTH 215	Analytic Geometry and Calculus III	4	MTH 185

Suggested Course Sequence (Read down.)

CSC 140	MTH 185
CSC 296	CSC 294
MTH 180	MTH 215
CSC 290	CSC 298
CSC 270 or CSC 274 or CSC 275	

*For additional prerequisite information, check Course Section.

Construction Related Instruction

The construction programs consist of construction skills and professional construction courses and are identified by the CON prefix.

There are four certificate and degree areas in construction professions:

- Construction Drafting
- Construction Technology: Residential and Light Commercial Option
- Construction Technology: Commercial and Building Option
- Construction Technology: Grading and Paving Option

In addition, Pima Community College offers the following programs, open to any student, which lead to a certificate(s) and/or degree(s):

Air Conditioning	Landscape Technician
Applied Design	Pre-Architecture
Engineering	Environmental Technology

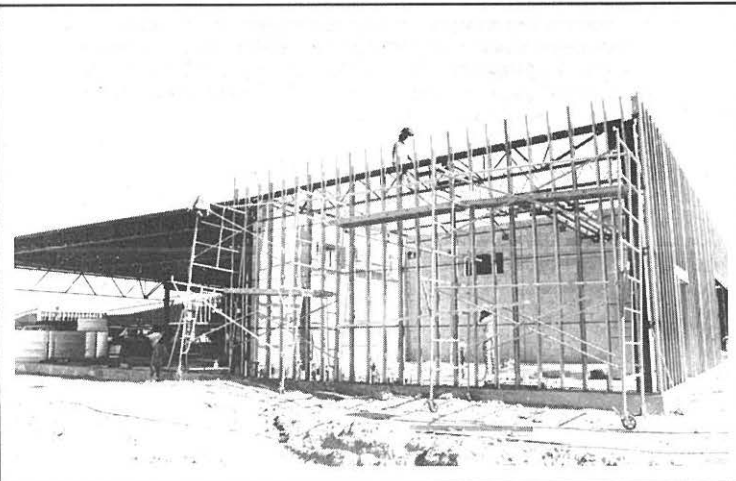
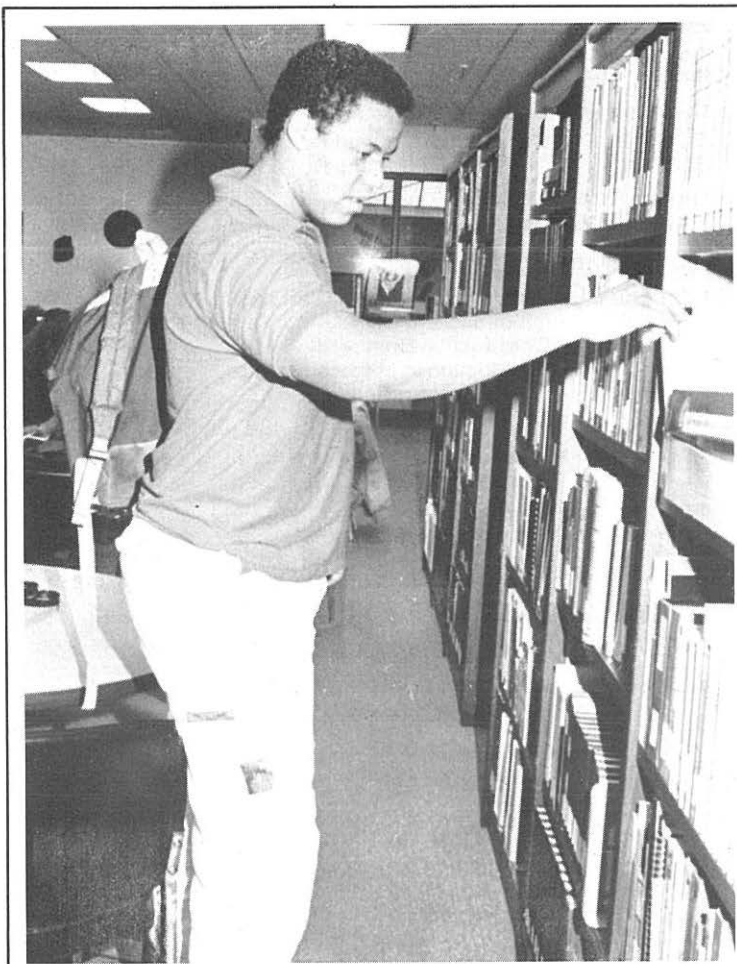
See Programs Section of this catalog for course requirements.

There are also areas with restricted enrollment, which include Apprentice Related Instruction, Building Technology, (taught at the Arizona Correctional Training Facility), and Fire Science courses (taught for local firefighters). The Skill Center also teaches building occupations.

In addition to those programs, individual courses are open to any student and are taught under the following prefixes:

BLT Building Technology	CON Construction/Underground
ENV Environmental Technology	Utilities
HSK Housekeeping, Executive	GTC General Technology
SET Solar Energy Technology	PBM Public Building Maintenance
	SML Sheet Metal

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



Construction Drafting

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

Construction Drafting—Basic Certificate For Direct Employment

REQUIRED COURSES (17 CREDIT HOURS)

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

CON 112	Construction Drafting I	4	
CON 162	Construction Drafting II	4	CON 112*

Support Courses:

Complete nine credit hours from the following:	9		
CON 100	Principles of Construction	4	
CON 119	Building Materials	3	CON 100*
CON 149	Independent Study in Drafting	1-3	*
CON 199	Co-op Work in CON	1-8	*
CON 212	Construction Drafting III	4	CON 162
CON 215	Introduction to Microcomputers for the Construction Industry	3	CON 100*
CON 222	Site Development Drafting	4	CON 162*
CON 262	Construction Drafting IV	4	CON 212*
CON 299	Co-op Work in CON	1-8	*
DES 151	Lightweight Structure Design	3	
DES 211	Commercial Graphics	3	
DFT 150	Technical Drafting I	4	
DFT 180	Computer Aided Drafting I	4	DFT 150*
ENG 110	Construction Surveying	3	MTH 110

Suggested Course Sequence (Read down.)

CON 112
Support Course
CON 162
Support Course
Support Course

*For additional prerequisite information, check Course Section.

Construction Drafting—Technical Certificate For Direct Employment

REQUIRED COURSES (29 CREDIT HOURS)

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

CON 112	Construction Drafting I	4	
CON 162	Construction Drafting II	4	CON 112*

Support Courses:

Complete nine credit hours from the following:	9		
CON 100	Principles of Construction	4	
CON 119	Building Materials	3	CON 100*
CON 149	Independent Study in Drafting	1-3	*
CON 199	Co-op Work in CON	1-8	*
CON 212	Construction Drafting III	4	CON 162
CON 215	Introduction to Microcomputers for the Construction Industry	3	CON 100*
CON 222	Site Development Drafting	4	CON 162*
CON 262	Construction Drafting IV	4	CON 212*
CON 299	Co-op Work in CON	1-8	*
DES 151	Lightweight Structure Design	3	
DES 211	Commercial Graphics	3	
DFT 150	Technical Drafting I	4	
DFT 180	Computer Aided Drafting I	4	DFT 150*
ENG 110	Construction Surveying	3	MTH 110

General Education Courses:

WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications	3	WRT 100*
MTH/ELEC	Mathematics Electives		
	Complete six credit hours from the following (take math assessment for placement):	6	
	MTH 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 225		

Suggested Course Sequence (Read down.)

CON 112	CON 162
Mathematics Elective	Mathematics Elective
WRT 101 or 150	WRT 102 or 154
Support Course	Support Course
Support Course	Support Course

*For additional prerequisite information, check Course Section.

Construction Drafting—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (60-74 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CON 100	Principles of Construction	4	
CON 112	Construction Drafting I	4	
CON 119	Building Materials	3	CON 100*
CON 162	Construction Drafting II	4	CON 112*
CON 212	Construction Drafting III		CON 162
or CON 199	Co-op Related Class in CON		*
and CON 199	Co-op Work in CON	4-8	*
CON 222	Site Development Drafting	4	CON 162*
CON 262	Construction Drafting IV		CON 212*
or 299	Co-op Work in CON	4-8	*
General Education and Support Courses:			
SPE 120	Business and Professional Communication	3	
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications	3	WRT 100*
REA	Reading requirement	0-4	*
CON 215	Introduction to Microcomputers for the Construction Industry	3	CON 100*
ENG 110	Construction Surveying		MTH 110
or 120	Engineering Graphics		DFT 150
or 130	Elementary Surveying	3	MTH 150*
ELEC	Complete any six credits from Art, Construction, Design, Drafting, Engineering or Landscape Technician	6	

HUM/ART	Humanities and Fine Arts Electives Complete one of the following: ART 130, 131, 132, 135 DRA 140, 141 ECE 108, 112 HUM 110, 111 Foreign Language LIT 260, 265 MUS 151, 201, 202 PHI 101, 102, 120	3-4
MTH/ELEC	Mathematics Electives Complete six credit hours from the following (take math assessment for placement): MTH 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 225	6
SOC/BEH	Social and Behavioral Science Electives Complete one of the following: ANT 101, 102, 200, 210, 215, 225 ECE 107, 117 ECO 100, 101, 117 GEO 103 HIS 101, 102, 141, 142, 147 MAN 110 POS 100, 110, 112, 120, 130 PSY 100, 101, 130 SOC 100, 101	3-4

Suggested Course Sequence

 (Read down.)

Reading requirement	ENG 110 or ENG 120
CON 100	or ENG 130
CON 112	CON 212 or CON 199
Mathematics Elective	CON 215
WRT 101 or WRT 150	CON 222
Elective	SPE 120
CON 119	CON 262 or CON 299
CON 162	Elective
Mathematics Elective	Humanities and Fine Arts Elective
WRT 102 or WRT 154	Social and Behavioral Science Elective

*For additional prerequisite information, check Course Section.

Construction Technology

The construction technology program is an occupational program leading to an advanced certificate (one year) and/or associate of applied science degree (two years). Students may follow one of three basic paths toward a certificate/degree: a residential and light commercial construction option, a commercial building construction option or a grading and paving construction option. The residential and light commercial construction option prepares the student for a variety of supervisory positions ranging from superintendent to project manager. The commercial building construction option and the grading and paving construction option provide the student with skill and supervisory training leading to positions at the superintendent level. Employment at these levels in the construction industry also requires job experience.

Construction Technology—Residential and Light Commercial Option—Advanced Certificate

REQUIRED COURSES (32 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CON 100	Principles of Construction	4	
CON 119	Building Materials	3	CON 100*
CON 130	Construction: Piping Systems	3	
CON 140	Construction Electricity	2	MTH 110*
General Education and Support Courses:			
CON 112	Construction Drafting I	4	
CON 162	Construction Drafting II	4	CON 112*
CON 111	Construction: Commercial Blueprint Reading	3	
SPE 120	Business and Professional Communication	3	
MTH ELEC	Mathematics Electives Six credit hours of math (MTH 120/155 level)	6	*

Suggested Course Sequence (Read down.)

CON 100	CON 119
Math Elective	Math Elective
CON 112	SPE 120
CON 130	CON 162
CON 111	CON 140

*For additional prerequisite information, check Course Section.

Construction Technology—Residential and Light Commercial Option—Associate of Applied Science Degree

REQUIRED COURSES (60-64 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CON 100	Principles of Construction	4	
CON 119	Building Materials	3	CON 100*
CON 130	Construction: Piping Systems	3	
CON 140	Construction: Electricity	2	MTH 110*
CON 150	Construction: Concrete/Masonry	3	CON 119
CON 200	Soil Mechanics	3	CON 119*
CON 210	Building and Material Cost Estimating	3	CON 119
CON 220	Construction: Management	3	CON 210
General Education and Support Courses:			
CSC 100	Introduction to Computers	3	MTH 070*
CON 112	Construction Drafting I	4	
CON 162	Construction Drafting II	4	CON 112*
ENG 110	Construction Surveying	3	MTH 110*
CON 111	Construction: Commercial Blueprint Reading	3	
REA	Reading requirement	0-4	*
MAN 110	Human Relations in Business and Industry	3	
SPE 120	Business and Professional Communication	3	
WRT 101 or 150	Writing I Practical Communications	3	WRT 100*

HUM/ART	Humanities and Fine Arts Electives	
	Complete one of the following:	3-4
	ART 130, 131, 132, 135	
	DRA 140, 141	
	ECE 108, 112	
	HUM 110, 111	
	Foreign Language	
	LIT 260, 265	
	MUS 151, 201, 202	
	PHI 101, 120	

MTH ELEC	Mathematics Electives	
	Six credit hours of math (MTH 120/155 level)	6

Suggested Course Sequence (Read down.)

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

*For additional prerequisite information, check Course Section.

Construction Technology—Commercial Building Option—Advanced Certificate for Direct Employment

REQUIRED COURSES (33 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CON 111	Construction: Commercial Blueprint Reading I	3	
CON 130	Construction: Piping Systems	3	
CON 140	Construction: Electricity	2	MTH 110*
CON 150	Construction: Concrete/Masonry	3	CON 119*
CON 160	Construction: Carpentry I	3	
CON 170	Construction: Carpentry II	3	CON 160

General Education and Support Courses:

MAN 110	Human Relations in Business and Industry	3	
REA 100	Reading Series	4	*
SPE 120	Business and Professional Communication	3	
MTH	Mathematics Electives		
	Six credit hours of mathematics (MTH 110 or higher)	6	

Suggested Course Sequence

 (Read down.)

REA 100	SPE 120
CON 160	CON 170
CON 111	CON 130
Math Elective	Math Elective
CON 140	MAN 110
CON 150	

*For additional prerequisite information, check Course Section.

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

REQUIRED COURSES (63-67 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Commercial Building Construction Option			
Advanced Certificate requirements.		33	
Core Courses - A grade of C or better is required for graduation.			
BUS 100	Introduction to Business	3	
ECO 100	Introduction to Microeconomics	3	MTH 070
CON 200	Soil Mechanics	3	CON 119*
CON 206	Construction: Commercial Blueprint Reading II	3	CON 111
CON 210	Building and Material Cost Estimating	3	CON 119*
CON 220	Construction: Management	3	CON 210
General Education and Support Courses:			
CSC 100	Introduction to Computers	3	MTH 070
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*

HUM/ART	Humanities and Fine Arts Electives	
	Complete one of the following:	3
	ART 130, 131, 132, 135	
	DRA 140, 141	
	ECE 108, 112	
	HUM 110, 111	
	Foreign Language	
	LIT 260, 265	
	MUS 151, 201, 202	
	PHI 101, 120	

Suggested Course Sequence (Read down.)

Reading requirement	CON 220
WRT 101 or 150	WRT 102 or 154
CON 200	Humanities and Fine Arts Elective
CON 206	Arts Elective
CON 210	ECO 100
BUS 100	CSC 100

*For additional prerequisite information, check Course Section.

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

REQUIRED COURSES (29-33 CREDIT HOURS)

Course Number	Course Title	Credit Hour	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CON 110	Construction: Civil Blueprint Reading I	3	
CON 130	Construction: Piping Systems	3	
CON 140	Construction: Electricity	2	MTH 110*
CON 150	Construction: Concrete/Masonry	3	CON 119*
CON 160	Construction: Carpentry I	3	
CON 170	Construction: Carpentry II	3	CON 160

General Education and Support Courses:

MAN 110	Human Relations in Business and Industry	3	
REA	Reading requirement	0-4	*
SPE 120	Business and Professional Communication	3	
MTH ELEC	Mathematics Electives Six credit hours of math (MTH 110 or higher)	6	

Suggested Course Sequence

 (Read down.)

Reading requirement	SPE 120
CON 160	CON 170
CON 110	CON 130
Math Elective	Math Elective
CON 140	MAN 110
CON 150	

*For additional prerequisite information, check Course Section.

Construction Technology—Grading and Paving Option—Associate of Applied Science Degree

REQUIRED COURSES (63-64 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Grading and Paving Construction Option			
Advanced Certificate requirements		33	
Core Courses - A grade of C or better is required for graduation.			
BUS 100	Introduction to Business	3	
ECO 100	Introduction to Microeconomics	3	MTH 070
CON 200	Soil Mechanics	3	CON 119*
CON 205	Construction: Civil Blueprint Reading II	3	CON 110
CON 210	Building and Material Cost Estimating	3	CON 119*
CON 220	Construction: Management	3	CON 210

General Education and Support Courses:

CSC 100	Introduction to Computers	3	MTH 070
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*

HUM/ART Humanities and Fine Arts
Electives
Complete one of the following: 3-4
ART 130, 131, 132, 135
DRA 140, 141
ECE 108, 112
HUM 110, 111
Foreign Language
LIT 265, 272
MUS 151, 201, 202
PHI 101, 120

Suggested Course Sequence (Read down.)

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

*For additional prerequisite information, check Course Section.

Pre-Architecture—Advanced Technical Certificate

REQUIRED COURSES (30-31 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
WRT 101**	Writing I	3	WRT 100*
WRT 102**	Writing II	3	WRT 101
PHY 121	Introductory Physics I	5	*
HUM/SOC	Humanities and Social Sciences Electives Complete six credit hours from the following:	6	
	ART 130, 131, 132, 135, 230, 231; ESC 103; HUM 251, 252, 253; or any transferable course in ANT, FRE, GER, HIS, ITA, JPN, PHI, PSY, SOC, SPA, OR SPE.		
MTH**	Complete one of the following options.	5-6	
	OPTION 1: MTH 160		

OPTION 2:

MTH 150 and MTH 155

ELEC Complete one of the following
options. 8

OPTION 1: Drafting.

Recommended for students who
wish to prepare for techniques in
drafting.

CON 112 and CON 162.

OPTION 2:

Science and Technology.

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

ARCH ARCH 112, ARCH 114, ARCH
118, and ARCH 124 are pre-
professional courses at the
University of Arizona which
should be taken concurrently
with the above courses at Pima
Community College. See a
drafting advisor for additional
information.

Suggested Course Sequence

 (Read down.)

Drafting or Science Option	Drafting or Science Option
WRT 101	WRT 102
Humanities and Social Sciences Elective	Humanities and Social Sciences Elective
Math Option	PHY 121
ARCH (U of A)	ARCH (U of A)
ARCH (U of A)	ARCH (U of A)

*For additional prerequisite information, check Course Section.

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

Dental Assisting Education

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

The total program may be completed within two semesters. A minimum of 336 hours of clinical procedures in affiliated dental clinics and/or private dental offices will be completed during the second semester of study. Students who complete this program will graduate with an advanced certificate from Pima Community College and will be eligible to take the national certification examination and state oral radiography licensure examination.

Acceptance Into Program:

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

General Requirements:

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

Restrictions:

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

Minimal Grade Achievement:

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

Dental Assisting Education—Advanced Certificate For Direct Employment

Students in this program should enroll in a special section of HCA 154. This course should be taken during the first semester of this program.

REQUIRED COURSES (38-40 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
DAE 060	Orientation to Dental Care	1	*
DAE 061	Biomedical Dental Science	3	*
DAE 062	Dental Assisting I	3	*
DAE 063	Oral Radiography	3	*
DAE 064	Dental Materials	3	*
DAE 065	Pre-Clinical Procedures	2	*
DAE 066	Dental Assisting II	3	DAE 060*
DAE 067	Dental Assisting III	3	DAE 061*
DAE 068	Clinical Procedures	8	DAE 061*
HCA 154	Introduction to Health Care	3	

General Education Courses:

WRT 150	Practical Communications	3	
SCI/MTH	Science and Mathematics Electives		
	Complete at least three credit hours from the following:	3-5	
	ACC 050, 101, 102		
	AST 101, 102, 111, 112		
	BIO 101, 102, 160, 184, 190, 195		
	201, 202, 204, 205		
	BUS 051		
	CHM 121, 130, 140, 141, 151, 152		
	ECE 124		
	ENV 203		
	GEO 101, 102		
	GLG 101, 102		
	MTH 060, 065, 070, 090, 110, 115,		
	120, 125, 130, 135, 140, 145, 150,		
	155, 160, 170, 175, 180, 185, 210,		
	215, 219, 220		
	PHY 101, 102, 105, 121, 122, 131,		
	132, 210, 216, 221, 230		

Suggested Course Sequence (Read down.)

WRT 150	DAE 064
HCA 154	DAE 065
DAE 060	DAE 066
DAE 061	DAE 067
DAE 062	DAE 068
DAE 063	Science and Mathematics Elective

*For additional prerequisite information, check Course Section.

Dental Laboratory Technology

The total program is made up of four semesters of classes. It includes 1,492 clock hours of laboratory practice. Graduates will receive an associate of applied science degree with a major in dental laboratory technology. Graduates will be allowed to take the National Board for Certification in Dental Laboratory Technology's Recognized Graduate Exam. After two years of practical work experience, the recognized graduate will be allowed to take the Certified Dental Technician practical exam given by the National Board for Certification in Dental Laboratory Technology.

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

1. Complete Pima Community College application.
2. Complete program application.
3. Submit high school transcript or GED and, if applicable, official college transcripts. Candidates must be high school graduates to meet the requirements of the Council on Education and Accreditation of the American Dental Association.
4. Complete general aptitude test battery, administered and interpreted in Student Development and the Reading Department.
5. When steps 1 through 4 are completed, a conference with the program facilitator is recommended to review the results and, if necessary, the alternatives available.
6. All completed applications will be dated and the first 16 who meet minimum established requirements of steps 4 and 5 above will be accepted.
7. 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.
8. Steps 1 through 5 must be completed by March 1 to be considered for enrollment in the program in the fall.

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

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

REQUIRED COURSES (73-78 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
DLT 101	Dental Morphology	3	*
DLT 102	Nonmetallic Dental Materials	3	*
DLT 103	Complete Dentures	4	*
DLT 104	Dental Laboratory I	4	DLT 101*
DLT 105	Partial Denture Construction	4	DLT 101*
DLT 106	Orthodontics and Maxillofacial Construction	3	DLT 101*
DLT 201	Dental Laboratory II	3	DLT 101*
DLT 202	Dental Metallurgy I	3	DLT 101*
DLT 203	Fixed Bridgework	4	DLT 101*
DLT 204	Dental Laboratory III	3	DLT 201*
DLT 206	Dental Ceramics	4	DLT 201*
DLT 207	Advanced Dental Laboratory Technology (select 3 specialty modules)	6	DLT 201*
General Education and Support Courses:			
HCA 154	Introduction to Health Care	3	
MAN 124	Small Business Management	6	
CHM 130	Fundamentals of Chemistry	5	
MAN 110	Human Relations in Business and Industry	3	
PHY 101	Technical Physics I	3	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

Suggested Course Sequence (Read down.)

Reading requirement	DLT 104	DLT 203
WRT 101	DLT 105	MAN 110
CHM 130	DLT 106	Humanities and Fine
PHY 101	WRT 102	Arts Elective
DLT 101	MAN 124	DLT 204
DLT 102	DLT 201	DLT 206
DLT 103	DLT 202	DLT 207
HCA 154		

*For additional prerequisite information, check Course Section.

Drafting Technology

Drafting, Electro-Mechanical/Mechanical

This two-year program, which leads to an associate of applied science degree, allows the students to develop skills which prepare them for careers in drafting as found in several types of industry. Also available is a one-year technical drafting certificate program.

Drafting, Electro-Mechanical/Mechanical— Technical Certificate

REQUIRED COURSES (32 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
DFT 150	Technical Drafting I	4	
DFT 151	Technical Drafting II	4	DFT 150*
DFT 154**	Electronic Drafting	4	ETR 001*
DFT 180	Computer Aided Drafting I	4	DFT 150*
DFT 240	Manufacturing Processes I	3	
General Education and Support Courses:			
ETR 001	Introduction to Electronics	4	MTH 070*
MTH 110	Technical Mathematics I	3	MTH 060*
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
MTH 120	Technical Mathematics II	3	MTH 110

Suggested Course Sequence (Read down.)

WRT 101 or 150	DFT 151
MTH 110	DFT 180
DFT 150	DFT 154
DFT 240	MTH 120
ETR 001	

*For additional prerequisite information, check Course Section.

**Drafting majors must complete DFT 150 and ETR 001 before taking DFT 154.

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

REQUIRED COURSES (60-64 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
DFT 150	Technical Drafting I	4	
DFT 151	Technical Drafting II	4	DFT 150*
DFT 154**	Electronic Drafting	4	ETR 001*
DFT 180	Computer Aided Drafting I	4	DFT 150*
DFT 240	Manufacturing Processes I	3	
DFT 245	Manufacturing Processes II	3	

Complete one of the following options:

OPTION 1:

For Electro-Mechanical Drafting Majors:

DFT 155	Electro-Mechanical Design I	4	DFT 151*
DFT 170	Microelectronic Drafting	4	DFT 155*

OPTION 2:

For Mechanical Drafting Majors:

DFT 256	Mechanical Design I	4	DFT 151
DFT 257	Mechanical Design II	4	DFT 256

General Education and Support Courses:

ETR 001	Introduction to Electronics	4	MTH 070*
MAN 110	Human Relations in Business and Industry	3	
MTH 110	Technical Mathematics I	3	MTH 060*
MTH 120	Technical Mathematics II	3	MTH 110
PHY 101	Technical Physics I	3	
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	

WRT 102 or 154 REA	Writing II Technical Communications I Reading requirement	3 0-4	WRT 101 WRT 100*
HUM/ART	Humanities and Fine Arts Elective Complete one of the following:	3-4	
	ART 130, 131, 132, 135 DRA 140, 141 ECE 108, 112 HUM 110, 111 Foreign Language LIT 260, 265 MUS 151, 201, 202 PHI 101, 120		
TECH/ELEC	Technical Elective Complete one of the following:	3-4	
	DES 111, 150 DFT Any course including Co-op MAC 110 ETR Any Course ENG Any Course		

Suggested Course Sequence (Read down.)

First Semester	Third Semester
Reading requirement	DFT 155
DFT 150	DFT 256
MTH 110	DFT 240
WRT 101 or WRT 150	PHY 101
ETR 001	
Second Semester	Fourth Semester
DFT 151	DFT 170
DFT 154	DFT 257
DFT 180	DFT 245
MTH 120	MAN 110
WRT 102 or WRT 154	Humanities and Fine Arts Elective Technical Elective

*For additional prerequisite information, check Course Section.

**Drafting majors must complete DFT 150 and ETR 001 before taking DFT 154.

Drama

The drama program, leading to an associate of arts degree, prepares students for transfer to a four-year college, leading to a bachelor of arts in drama production, drama education, or drama theory. This program provides extensive experience and training in performing and all other areas of drama production.

Drama—Associate of Arts Degree For Transfer

Verification of transfer courses should be established with the transfer university or college or with a Pima Community College counselor or faculty advisor. Because the University of Arizona will accept only 72 credit hours for transfer, transfer students should carefully plan their course work with a drama department faculty advisor.

REQUIRED COURSES (72-77 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
DRA 103	Voice and Movement for the Actor I	1	
DRA 104	Voice and Movement for the Actor II	1	DRA 103
DRA 111	Stagecraft	2	
DRA 112	Stagecraft Laboratory	1	*
DRA 113	Stagecraft Crew	1	*
DRA 115	Makeup	1	
DRA 140	History of Theater I	3	
DRA 141	History of Theater II	3	
DRA 149	Introduction to Acting I	3	
DRA 151	Introduction to Acting II	3	DRA 103*
DRA 220	Stage Lighting	2	*
DRA 221	Stage Lighting Laboratory	1	*
DRA 222	Stage Lighting Crew	1	*
DRA 245	Principles of Dramatic Structure	3	*
DRA ELEC	Complete one of the following options after consulting a drama department faculty advisor:	6	
OPTION 1:			
DRA 118	Basic Theater Graphics	2	
DRA 223	Scene Design	2	DRA 118*
DRA 224	Scene Design Laboratory	1	DRA 118*
DRA 225	Scene Design Crew	1	DRA 118*

OPTION 2:			
DRA 250	Intermediate Acting I	3	DRA 103*
DRA 251	Intermediate Acting II	3	DRA 104*

Support Courses:

REA	Reading requirement	0-4	*
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General Education Requirements (See Graduation section of this catalog for associate of arts degree course lists.):

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

Suggested Course Sequence

See a drama department faculty advisor.

*For additional prerequisite information, check Course Section.

Early Childhood Education

Two programs are offered in early childhood education for direct employment: teacher aide/assistant and teacher-director. Certificates are awarded to those successfully completing the teacher aide/assistant program. The teacher-director program leads to an associate of applied science degree.

Programs may also be arranged for transfer to either Arizona or out-of-state universities in the following areas: child development and family relations, elementary education, secondary education, special education and early childhood education. Students should first consult the catalog of the institution to which they plan to transfer to determine requirements for the first two years. They should arrange their transfer program with an advisor, using this catalog information. (See Education section.)

Teacher Aide/Assistant—Advanced Certificate For Direct Employment

REQUIRED COURSES (30-31 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ECE 106	The Growing Years		
or 117	Child Growth and Development	3	
ECE 108	Literature/Social Studies for Children	3	
ECE 110	Communication Skills for Children	3	
ECE 112	Music/Art for Children	3	
ECE 118	Introduction to Education	3	
ECE 124	Math/Science for Children	3	
ECE 126	Teaching Techniques	3	
ECE 128	Preschool Education	3	
ECE 199	Co-op Related Class in ECE	1	*
ECE 199	Co-op Work in ECE	2	*
General Education and Support Courses:			
WRT 100	Writing Fundamentals		WRT 070*
or REA 100	Reading Series	3-4	*

Suggested Course Sequence

See an early childhood education faculty advisor.

*For additional prerequisite information, check Course Section.

Teacher-Director—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (60-69 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ECE 106 or 117	The Growing Years Child Growth and Development	3	
ECE 107	Human Development and Relations	3	
ECE 108	Literature/Social Studies for Children	3	
ECE 110	Communication Skills for Children	3	
ECE 111	Techniques for the Special Child	3	
ECE 112	Music/Art for Children	3	
ECE 114	Effective Parenthood	3	
ECE 118	Introduction to Education	3	
ECE 120	Supervision and Administration	3	
ECE 124	Math/Science for Children	3	
ECE 126	Teaching Techniques	3	
ECE 128	Preschool Education	3	
ECE 130	Day Care Programs	3	
ECE 199	Co-op Related Class in ECE	1	*
ECE 199	Co-op Work in ECE	2	*
ECE 299	Co-op Related Class in ECE	1	ECE 199*
ECE 299	Co-op Work in ECE	2	ECE 199*
General Education and Support Courses:			
FSN 124	Nutrition for the Young Child	3	
WRT 101	Writing I	3	WRT 100*
REA	Reading requirement	0-4	*
COMM/ELEC	Communication Elective Complete one of the following:	3-4	
	OED 151, 251		
	SLG 101, 102, 210, 202, 203		
	SPE 120		
	WRT 100, 101, 102, 150, 154		

SCI/MTH

Science and Mathematics

Elective

Complete one of the following: 3-5

ACC 050, 101, 102

AST 101, 102

BIO 101, 102, 160, 184, 190, 195,
201, 202, 204, 205

BUS 051

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

ECE 124

GEO 101, 102

GLG 101, 102

MTH 060, 065, 070, 090, 110, 115,
120, 125, 130, 135, 140, 145, 150,
155, 160, 170, 175, 180, 185, 210,
215, 219, 220

PHY 101, 102, 105, 122, 131, 132,
210, 216, 221, 230

ELEC

Other Electives:

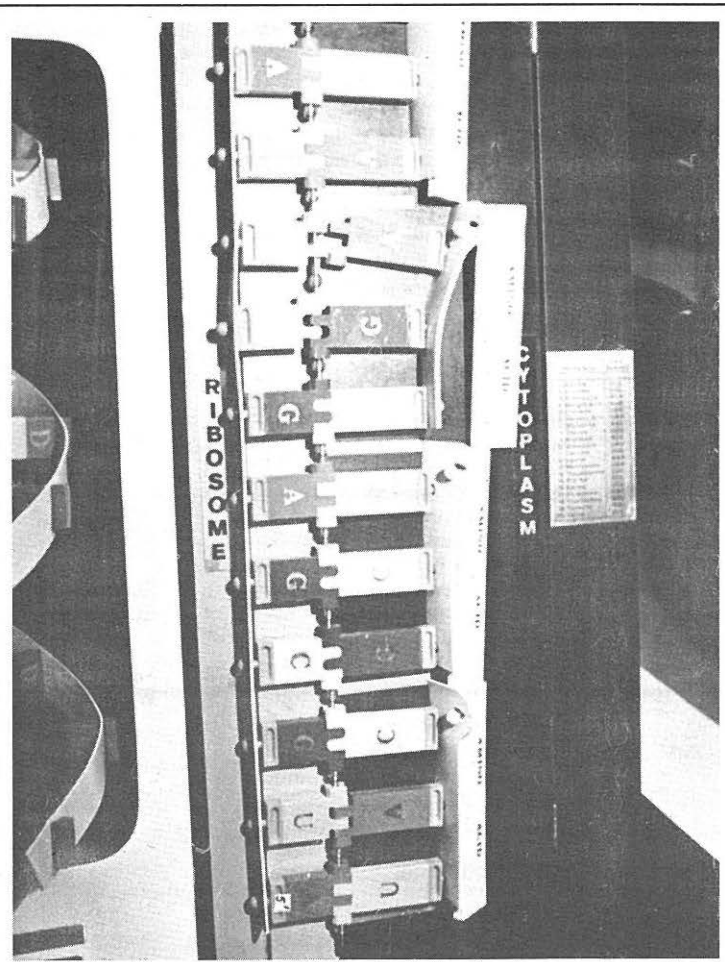
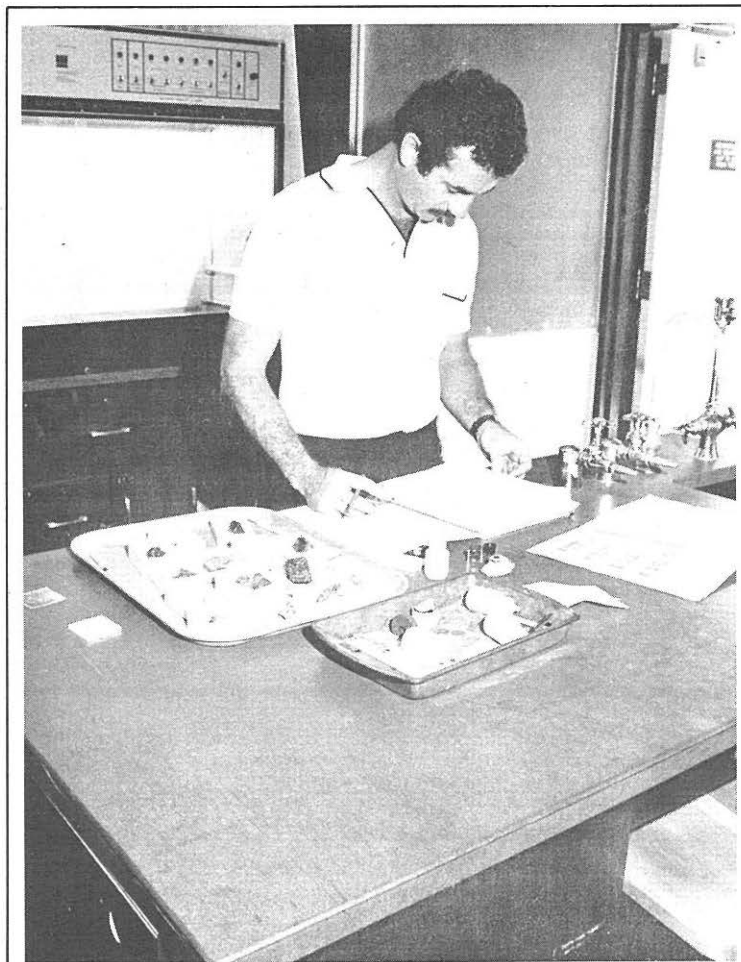
3-5

If necessary, select one
additional course from the
electives listed above to meet
minimum 60 credit hours for an
associate of applied science
degree.

Suggested Course Sequence

See an early childhood education faculty advisor.

*For additional prerequisite information, check Course Section.



Education

An associate of science degree is available for students planning to enter one of the fields of education: elementary, early childhood, special, or secondary (and, at the University of Arizona, rehabilitation). Students should, however, follow the requirements of the upper division school to which they plan to transfer. Students should meet with their advisor for correct course selection.

Students must plan courses to meet the general education requirements as listed under the Graduation section of this catalog for the associate of science degree at Pima Community College. These general education courses should be transferable.

Education—Associate of Science Degree For Transfer

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

REQUIRED COURSES

Course Number	Course Title	Credit Hours	Prerequisites
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In addition to the requirements explained above, students majoring in elementary or early childhood education who plan to receive an associate of science degree in pre-education are required to meet the minimum college reading requirement (See Graduation section of this catalog) and to take **one** of the following:

ECE 118	Introduction to Education	3	
ECE 126	Teaching Techniques	3	

Electronics Technology

The electronics technology program offers many opportunities for students. The certificate program enables students to develop basic electronic skills needed to enter the job market. These credits may later be applied to a degree program. The two-year associate of applied science degree programs are for present job skills, preparing for a job, and qualifying for a better job.

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

Students should plan to take their assessment tests in reading, mathematics, and writing prior to registration for courses in the program. Students not qualifying for MTH 115 or MTH 130, and WRT 101 or WRT 150 shall be considered to have pre-program status and may wish to consider ETR 001, Introduction to Electronics, as a complementary course during this period.

General Electronics—Basic Certificate for Direct Employment

REQUIRED COURSES (39 CREDIT HOURS)

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

ETR 100	Fundamentals of Electronics	6	MTH 115*
ETR 105	Electronic Circuits	6	ETR 100*
ETR 110	Digital Electronics	3	MTH 115*
ETR 122	Electronic Construction and Assembly	3	ETR 100*
ETR 124	Electronic Measurements	3	ETR 105*
ETR 160	Microcomputers and Programming Techniques	3	
ETR 180	Linear Integrated Circuits	6	ETR 105*

General Education and Support Courses:

MTH 115 or 130	Electronics Mathematics Algebra II	3	MTH 070*
MTH 125 or 150	Electronics Mathematics Applications College Algebra	3	MTH 115* MTH 130*

WRT 101 Writing I WRT 100*
or 150 Practical Communications 3

Suggested Course Sequence (Read down.)

WRT 101 or 150 ETR 160
MTH 115 or 130 MTH 125 or 150
ETR 100 ETR 124
ETR 105 ETR 180
ETR 110 ETR 122

*For additional prerequisite information, check Course Section.

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

Students should plan to take their assessment tests in reading, mathematics, and writing prior to registration for courses in the program. Students not qualifying for MTH 115 or MTH 130, and WRT 101 or WRT 150 shall be considered to have pre-program status and may wish to consider ETR 001, Introduction to Electronics, as a complementary course during this period. Students have until the end of their program to complete the College reading requirement (see Graduation section of this catalog). However, early completion of this requirement may improve grades in subsequent course work.

REQUIRED COURSES (66-70 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ETR 100	Fundamentals of Electronics	6	MTH 115*
ETR 105	Electronics Circuits	6	ETR 100*
ETR 110	Digital Electronics	3	MTH 115*
ETR 122	Electronic Construction Assembly	3	ETR 100*
ETR 124	Electronic Measurements	3	ETR 105*
ETR 160	Microcomputers and Programming Techniques	3	MTH 070*
ETR 180	Linear Integrated Circuits	6	ETR 105*
ETR 235	Fundamentals of Electronic Communications	4	ETR 110*
ETR 265	Communications/RF Microwave	4	ETR 235
ETR 266	Fiber Optics and Laser Communications	4	*

General Education and Support Courses:

DFT 154	Electronic Drafting	4	ETR 001*
MTH 115	Electronics Mathematics		MTH 070
or 130	Algebra II	3	MTH 130*
MTH 125	Electronics Applications Math II	3	MTH 115
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
ETR ELEC	Electronics Elective: Complete any electronics course other than those listed elsewhere in this program.	2-4	
HUM/ART	Humanities and Fine Arts Elective Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
SOC/BEH	Social and Behavioral Science Elective Complete one of the following:	3-4	
	ANT 101, 102, 200, 210, 215, 225		
	ECE 107, 117		
	ECO 100, 101		
	GEO 103		
	HIS 101, 102, 141, 142, 147		
	MAN 110		
	POS 100, 110, 112, 120, 130		
	PSY 100, 101, 130		
	SOC 100, 101		

Suggested Course Sequence (Read down.)

ETR 100	ETR 124	Social and Behavioral
WRT 101 or 150	ETR 180	Science Elective
MTH 125	ETR 122	ETR 265
ETR 105	ETR 235	ETR 266
ETR 110	WRT 102 or 154	DFT 154
ETR 160	Electronics Elective	Humanities and Fine
MTH 115 or 130		Arts Elective

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

Students should plan to take their assessment tests in reading, mathematics, and writing prior to registration for courses in the program. Students not qualifying for MTH 115 or MTH 130, and WRT 101 or WRT 150 shall be considered to have pre-program status and may wish to consider ETR 001, Introduction to Electronics, as a complementary course during this period. Students have until the end of their program to complete the College reading requirement (see Graduation section of this catalog). However, early completion of this requirement may improve grades in subsequent course work.

REQUIRED COURSES (68-70 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ETR 100	Fundamentals of Electronics	6	MTH 115*
ETR 105	Electronic Circuits	6	ETR 100*
ETR 110	Digital Electronics	3	MTH 115*
ETR 122	Electronic Construction Assembly	3	ETR 100*
ETR 124	Electronic Measurements	3	ETR 105*
ETR 160	Microcomputers and Programming Techniques	3	MTH 070*
ETR 180	Linear Integrated Circuits	6	ETR 105*
ETR 250	Digital Devices	4	ETR 105*
ETR 251	Analog Circuits	4	ETR 180*
ETR 255	Microcomputer Systems I	4	ETR 160*
ETR 256	Microcomputer Systems II	4	ETR 255
ETR 257	Computer Peripherals	4	ETR 251*
General Education and Support Courses:			
MTH 115 or 130	Electronics Mathematics Algebra II	3	MTH 070
MTH 125 or 150	Electronics Math Applications College Algebra	3	MTH 115
WRT 101 or 150	Writing I Practical Communications	3	MTH 130
WRT 102 or 154	Writing II Technical Communications I	3	WRT 100*

HUM/ART

Humanities and Fine Arts
Elective
Complete one of the following: 3-4
ART 130, 131, 132, 135
DRA 140, 141
ECE 108, 112
HUM 110, 111
Foreign Language
LIT 260, 265
MUS 151, 201, 202
PHI 101, 120

SOC/BEH

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

Suggested Course Sequence (Read down.)

WRT 101 or 150	ETR 124	Social and Behavioral
MTH 115 or 130	ETR 180	Science Elective
ETR 100	ETR 122	ETR 256
ETR 105	ETR 250	ETR 257
ETR 110	ETR 251	Humanities and Fine
ETR 160	ETR 255	Arts Elective
MTH 125 or 150	WRT 102 or 154	

*For additional prerequisite information, check Course Section.

Electronics Technology Instrumentation and Process Control—Associate of Applied Science Degree For Direct Employment

Students should plan to take their assessment tests in reading, mathematics, and writing prior to registration for courses in the program. Students not qualifying for MTH 115 or MTH 130, and WRT 101 or 150 shall be considered to have pre-program status and may wish to consider ETR 001, Introduction to Electronics, as a complementary course during this period. Students have until the end of their program to complete the College reading requirement (see Graduation section of this catalog). However, early completion of this requirement may improve grades in subsequent course work.

REQUIRED COURSES (69-73 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ETR 100	Fundamentals of Electronics	6	MTH 115*
ETR 105	Electronic Circuits	6	ETR 100*
ETR 110	Digital Electronics	3	MTH 115*
ETR 122	Electronic Construction Assembly	3	ETR 100*
ETR 124	Electronic Measurements	3	ETR 105*
ETR 160	Microcomputers and Programming Techniques	3	MTH 070*
ETR 180	Linear Integrated Circuits	6	ETR 105*
ETR 222	Transducers	3	ETR 180
ETR 270	Rotating Machines and Prime Movers	6	ETR 180
ETR 276	Industrial Electronic Systems	6	ETR 180
General Education and Support Courses:			
MAC 110	Machine Shop for Technicians I	4	
MTH 115	Electronics Mathematics		MTH 070
or 130	Algebra II	3	MTH 070*
MTH 125	Electronics Math Applications		MTH 115*
or 150	College Algebra	3	MTH 130
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
ETR ELEC	Electronics Elective: Complete any electronics course other than those listed elsewhere in this program.	2-4	

HUM/ART

Humanities and Fine Arts

Elective
Complete one of the following: 3-4
ART 130, 131, 132, 135
DRA 140, 141
ECE 108, 112
HUM 110, 111
Foreign Language
LIT 260, 265
MUS 151, 201, 202
PHI 101, 120

SOC/BEH

Social and Behavioral Science

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

Suggested Course Sequence (Read down.)

WRT 101 or 150	ETR 124	Humanities and Fine Arts Elective
MTH 115 or 130	ETR 180	ETR 276
ETR 100	ETR 122	ETR 270
ETR 105	ETR 222	Social and Behavioral Science Elective
ETR 110	MAC 110	
ETR 160	WRT 102 or 154	
MTH 125 or 150	Electronics Elective	

*For additional prerequisite information, check Course Section.

Microelectronic Technician

The microelectronic technician program area offers an occupational curriculum leading to an advanced certificate (one year), and/or an 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 microelectronic industry at one of two 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 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—Advanced Certificate

REQUIRED COURSES (36-38 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
DFT 170	Microelectronic Drafting	4	DFT 155*
ETR 100	Fundamentals of Electronics	6	MTH 115*
MRE 104	Introduction to Microelectronics	3	
MRE 150	Introduction to Microelectronics Materials	3	MRE 104*
MRE 160	Introduction to Microelectronic Equipment	4	MRE 104*
MTH 115	Electronics Mathematics		MTH 070
or 130	or Algebra II	3	MTH 070*
MTH 125	Electronics Mathematics II		MTH 115
or 160	Precalculus	3-5	MTH 130*
PHY 115	Physical Science	4	MTH 130*
General Education and Support Courses:			
SPE 120	Business and Professional Communication	3	
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	

Suggested Course Sequence (Read down.)

WRT 101 or 150	DFT 170
MTH 115 or 130	MTH 125 or 160
PHY 115	SPE 120
MRE 104	MRE 150
ETR 100	MRE 160

*For additional prerequisite information, check Course Section.

Microelectronic Technician—Associate of Applied Science Degree

REQUIRED COURSES (69-77 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Advanced Certificate requirements		36-38	
Core Courses - A grade of C or better is required for graduation.			
CSC 140	FORTAN Programming		CSC 100*
or 175	Advanced BASIC Programming	3	CSC 130*
MRE 200	Microelectronics		
	Photolithographic Processes	3	MRE 104*
MRE 210	Quality Control and Reliability for Microelectronics	3	MRE 150*
MRE 220	Microelectronics Packaging	3	MRE 150*
MRE 230	Microelectronic Circuit		
	Fabrication	4	MRE 220
PHY 115	Physical Science	4	MTH 130*
CHM ELEC	See advisor	4-5	
General Education and Support Courses:			
MAN 110	Human Relations in Business and Industry	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

Suggested Course Sequence (Read down.)

Advanced Certificate	MAN 110
Requirements	MRE 210
Reading requirement	MRE 230
WRT 102 or 154	Humanities and Fine
MRE 200	Arts Elective
MRE 220	CSC 140 or 175
PHY 115	CHM Elective

*For additional prerequisite information, check Course Section.

Emergency Medical Technology

This curriculum provides the theoretical and practical preparation to qualify graduates for three levels of service: (1) the basic certificate for the emergency medical technician, ambulance (EMT-A); (2) the technical certificate for the intermediate emergency technician (EMT); and (3) the advanced certificate for the paramedic.

Emergency Medical Technology—Basic Certificate For Direct Employment

Basic (EMT-A) Certificate, EMT 051 (5)

This five-credit course consists of 114 clock hours of instruction providing a solid introduction to the field of pre-hospital emergency medical care. Emphasis is placed on basic aspects of emergency disease conditions and the recognition and treatment of emergency medical and traumatic conditions.

Students who complete the program with a "C" or better will be issued a basic certificate by Pima Community College. Current Arizona Department of Health Services regulations allow program graduates to take the Arizona EMT Registry Examination. Program graduates with enough work experience may be eligible to take the national certifying examination through the National Registry of Emergency Medical Technicians.

Acceptance Into the Program:

- Completion of college admission requirements.
- CPR classes are provided through EMT 100 or non-credit courses. Students must enroll in one of these offerings or present a current CPR card (AHA course "C" or equivalent) to the instructor.

REQUIRED COURSE (5 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
EMT 051	Basic Emergency Medical Technology	5	*

*For additional prerequisite information, check Course Section.

Emergency Medical Technology—Technical Certificate For Direct Employment

Intermediate (IEMT) Certificate (18)

The intermediate level of education consists of four additional EMT courses, which increase the knowledge and skills of the EMT 051 graduate (Basic Certificate) to include I.V. therapy and treatment with drug therapy. Acceptance is dependent upon direct employment needs and prior completion of EMT 051. Students must be currently certified as EMT-A. Most training is held off campus under a contract with Tucson hospitals.

REQUIRED COURSES (18 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
EMT 101	Intermediate Emergency Medical Technology I	6	EMT 051
EMT 102	Intermediate Emergency Medical Technology II	4	EMT 101
EMT 103	Intermediate Emergency Medical Technology III	4	EMT 102
EMT 104	Intermediate Emergency Medical Technology IV	4	EMT 103

*For additional prerequisite information, check Course Section.

Emergency Medical Technology—Advanced Paramedic Certificate For Direct Employment

Advanced Paramedic Certificate (41)

The paramedic level of education consists of 15 additional EMT courses plus the IEMT courses, which increases the knowledge and skill of the IEMT graduate in advanced life support, including endotracheal intubation, cardiac arrhythmia recognition, drug therapy, and needle thoracostomy. Acceptance is dependent upon direct employment needs and completion of the basic EMT course. Students must be currently certified as EMT-A. Most training is held off-campus under a contract with Tucson hospitals.

To complete college requirements for the advanced certificate, in addition to the satisfactory completion of all EMT courses, students must document the completion of three credit hours in writing (WRT 101 or equivalent) and three credit hours in math (MTH 070 or higher equivalency) or science (see program advisor for acceptable science course credits).

REQUIRED COURSES (41-43 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
All of the core courses require acceptance into the Advanced Paramedic Program.			
EMT 201	Introduction to Paramedicine	4	
EMT 202	Paramedicine: Pharmacology	2	
EMT 203	Pathophysiology and Management of Respiratory Emergencies	2	
EMT 204	Advanced Life Support: Cardiology	4	
EMT 205	Pathophysiology and Management of Neurological Problems	2	
EMT 206	Pathophysiology and Management of Soft Tissue Injuries	2	
EMT 207	Pathophysiology and Management of Musculoskeletal Injuries	2	
EMT 208	Pathophysiology and Management of Medical Problems	2	

EMT 209	Pathophysiology and Management of Gynecologic Emergencies	2
EMT 210	Pathophysiology and Management of Pediatric and Neonatal Patient	2
EMT 211	Emotional Aspects of Illness and Injury	1
EMT 212	Extrication/Rescue Techniques	1
EMT 213	Telemetry and EMS Communications	1
EMT 214	Paramedic Procedures: Hospital	3
EMT 215	Paramedic Procedures: Ambulance	5

General Education and Support Courses:

WRT 101	Writing I	3	WRT 100*
SCI/MTH	Science and Mathematics Elective		
	Complete one of the following:	3-5	
	ACC 050, 101, 102		
	AST 101, 102		
	BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205		
	BUS 051		
	CHM 121, 130, 140, 141, 151, 152		
	ECE 124		
	GEO 101, 102		
	GLG 101, 102		
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220		
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230		

Suggested Course Sequence (Read down.)

WRT 101	EMT 204	EMT 210
Science and	EMT 205	EMT 211
Mathematics Elective	EMT 206	EMT 212
EMT 201	EMT 207	EMT 213
EMT 202	EMT 208	EMT 214
EMT 203	EMT 209	EMT 215

*For additional prerequisite information, check Course Section.

Engineering

Engineering—Associate of Science Degree for Transfer

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

This program is designed to prepare the student to transfer to a four-year institution to complete a four-year engineering program. Although it is not intended for direct employment, the associate of science degree is recognized by some employers when considering employees for advancement or applicants for entry-level technical positions. The associate of science degree provides a solid foundation in mathematics and physical science with some beginning applications in the analysis and design of engineering systems. The student is directed, with the guidance of an advisor, toward a specific engineering discipline (i.e., electrical, computer, aerospace, mechanical, civil, etc.) through the selection of technical electives. The engineering program presumes an aptitude for mathematical analysis and a strong high-school background in pre-calculus mathematics and physics. Students with deficiencies in these areas should take appropriate prerequisite courses prior to beginning the engineering program. Since most of the courses in the program must be taken sequentially, it is important for the student to maintain contact with an advisor to assure a logical progression and to keep abreast of frequent program modifications resulting from technological developments.

REQUIRED COURSES (68-72 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CHM 151	General Chemistry I	5	MTH 130*
MTH 180	Analytical Geometry and Calculus I	4	MTH 150*
MTH 185	Analytical Geometry and Calculus II	3	MTH 180
MTH 215	Analytical Geometry and Calculus III	4	MTH 185
MTH 219	Differential Equations	3	MTH 215
PHYSICS	Complete one of the following options:	10	
	OPTION 1:		
	PHY 131 and 132		

OPTION 2:
PHY 210, 216, and 221

General Education and Support Courses:

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
REA	Reading requirement	0-4	*
HUM/SOC	Humanities/Social Science Electives	12	
	The 12 credit hours of Humanities/Social Sciences Electives (HUM/SOC) are to be chosen by the student in consultation with an engineering advisor, from a list of approved HUM/SOC electives that may be obtained at the department office or Engineering Sciences Counseling Center.		
TECH/ELEC	Technical Electives	21	
	The 21 credit hours of technical electives are selected in consultation with an engineering advisor, to form a coherent program of study appropriate to the students specific engineering discipline.		
CHM 152	General Chemistry II		
CHM 235	General Organic Chemistry I		
CHM 236	General Organic Chemistry II		
CSC 130	Computers and Programming		
CSC 140	FORTTRAN Programming		
ENG 120	Engineering Graphics		
ENG 130	Elementary Surveying		
ENG 140	Introduction to Electrical Engineering		
ENG 220	Engineering Mechanics: Dynamics		
ENG 230	Mechanics of Materials		
ENG 240	Introduction to Digital Systems		
ENG 241	Microprocessors		
ENG 250	Numerical Analysis for Engineers		
ENG 260	Elements of Electrical Engineering		
ENG 261	Elements of Electronics Engineering		
ENG 280	Introduction to Circuits and Electronics I		

ENG 281	Introduction to Circuits and Electronics II
GLG 101	Introductory Geology I
GLG 102	Introductory Geology II
GLG 107	Mineralogy and Introduction to Petrology
MTH 210	Introductory Statistics
MTH 225	Linear Algebra

Suggested Course Sequence

See an engineering faculty advisor.

*For additional prerequisite information, check Course Section.

Manufacturing Engineering Technology—Associate of Science Degree For Transfer

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

This program is designed to meet the requirements for the first two years of a baccalaureate degree in manufacturing technology. Students receive instruction in mathematics, writing, machine tooling, drafting and metallurgy. Students in this program should check specific transferability requirements with the institution to which they plan to transfer. To transfer Pima College courses to a university, the student must have received a grade of C or better in those courses. Program advisors are located on the Downtown Campus.

REQUIRED COURSES (70-78 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
DFT 150	Technical Drafting I	4	
DFT 256	Mechanical Design I		DFT 151
or MAC 285	Physical Metallurgy	3-4	MAC 130
MAC 110	Machine Shop for Technicians I	4	
MAC 120	Machine Shop for Technicians II		MAC 103*
or DFT 151	Technical Drafting II	4	DFT 150*
MAC 130	Basic Metallurgy	3	
MAC 225	Manufacturing Concepts		MAC 130
or DFT 240	Manufacturing Processes I	3	
MAC 250	Introduction to Numerical Control		MTH 120*
or DFT 257	Mechanical Design II		DFT 256
or ETR 100	Fundamentals of Electronics	3-6	MTH 115*
MAC 280	Machine Shop for Technicians III		MAC 120
or DFT 180	Computer Aided Drafting I	3-4	DFT 150*
PHY 121	Introductory Physics I	5	*

PHY 122	Introductory Physics II	5	PHY 121
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General Education and Support Courses:

CSC 140	FORTAN Programming	3	CSC 100*
ECO 101	Introduction to Microeconomics	3	MTH 070*
MTH 160	Precalculus	5	MTH 130*
MTH 180	Analytical Geometry and Calculus I	4	MTH 150*
MTH 185	Analytical Geometry and Calculus II	3	MTH 180
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

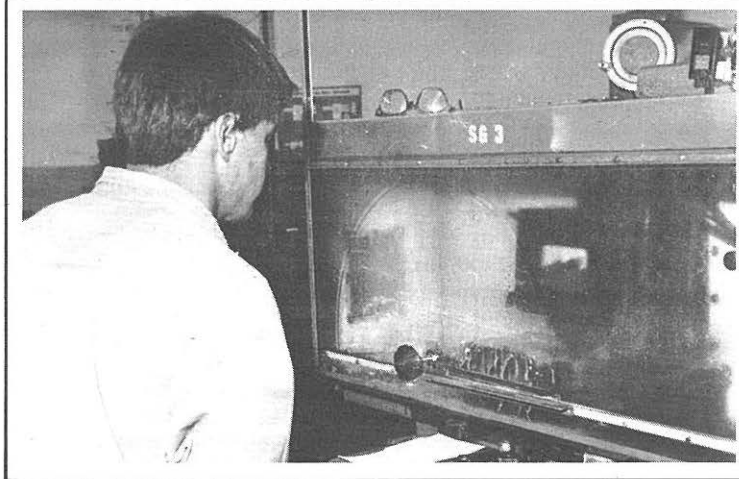
HUM/ART	Humanities and Fine Arts Electives		
	Complete two of the following:	6-8	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

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

Suggested Course Sequence (Read down.)

WRT 101	MAC 130	MAC 250 or ETR 100
MTH 160	MTH 185	or DFT 257
DFT 150	PHY 122	MAC 280 or DFT 180
MAC 110	DFT 256 or MAC 285	CSC 140
Humanities Elective	MAC 225 or DFT 240	ECO 101
WRT 102	Social and Behavioral Science Elective	Humanities Elective
MTH 180		
MAC 120 or DFT 151		
PHY 121		

*For additional prerequisite information, check Course Section.



Environmental Technology

Environmental technology is a rapidly expanding occupational area throughout the United States. Increasing populations, combined with more stringent state and federal environmental regulations, have created a rapidly growing need for trained environmental technicians. The environmental technology program includes both certificate and degree sequences designed to provide students with the necessary training to successfully compete in this growing area of employment. Training opportunities in the program are being continually expanded as new environmental technology needs emerge. Cooperative education experiences are available to enhance student learning and later employability.

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

Wastewater Technology—Advanced Certificate For Direct Employment

REQUIRED COURSES (33 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ENV 101	Introduction to Water and Wastewater Technology	3	
ENV 103	Small Treatment Plants	1	
ENV 105	Quality Monitoring	1	
ENV 107	Hydraulics of Water	2	MTH 110
ENV 110	Sewerage System Maintenance	1	
ENV 112	Chemical Control Processes	1	
ENV 114	Water Treatment Safety	1	
ENV 115	Intermediate Biological Wastewater Treatment	3	ENV 101
ENV 203	Applied Chemistry in Water and Wastewater	2	

ENV ELEC	Environmental Elective	6
	Complete six credits from the following:	
	ENV 130, 135, 199, 209, 230, 233	
	CON 130	
	CSC 100	
	GTC 010, 099	
	MRE 112	
	MAC 110	
	WLD 110	

General Education and Support Courses:

MAN 122	Supervision	3	
MTH	Complete one of the following options:	3	
MTH 110	OPTION 1: Technical Mathematics I	3	MTH 060*
	OPTION 2: For students planning to transfer to a four-year university.		
MTH 150	College Algebra	3	MTH 130*
WRT	Complete one of the following options:	6	
WRT 150	OPTION 1: Practical Communications	3	
WRT 154	Technical Communications I	3	WRT 100*
	OPTION 2: For students planning to transfer to a four-year university.		
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

Suggested Course Sequence (Read down.)

ENV 101	ENV 112
ENV 103	ENV 114
ENV 105	ENV 115
ENV 107	ENV 203
MTH 110 or 150	WRT 154 or 102
WRT 150 or 101	MAN 122
Environmental Elective	Environmental Elective
ENV 110	

*For additional prerequisite information, check Course Section.

Water Technology—Advanced Certificate for Direct Employment

REQUIRED COURSES (32 CREDIT HOURS)

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

ENV 101	Introduction to Water and Wastewater Technology	3	MTH 110
ENV 107	Hydraulics of Water	2	
ENV 114	Water Treatment Safety	1	
ENV 130	Introduction to Water Treatment	3	
ENV 135	Water Distribution Systems	3	
ENV 203	Applied Chemistry in Water and Wastewater	2	
ENV ELEC	Environmental Elective	6	
Complete six credits from the following: ENV 103, 105, 110, 112, 115, 199, 230, 233 CON 130 CSC 100 GTC 010, 099 MRE 112 MAC 110 WLD 110			

General Education and Support Courses:

MAN 122	Supervision	3	
MTH	Complete one of the following options: OPTION 1: OPTION 2:	3	
MTH 110	Technical Mathematics I	3	MTH 060*
MTH 150	College Algebra	3	MTH 130*
WRT	Complete one of the following options: OPTION 1: OPTION 2:	6	
WRT 150	Practical Communications	3	
WRT 154	Technical Communications I	3	WRT 100*
For students planning to transfer to a four-year university.			

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

Suggested course Sequence (Read down.)

ENV 101	ENV 114
ENV 107	ENV 135
ENV 130	ENV 203
MTH 110 or 150	WRT 154 or 102
WRT 150 or 101	MAN 122
Environmental Elective	Environmental Elective

*For additional prerequisite information, check Course Section.

Environmental Technology—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (67-73 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
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Advanced Certificate requirements 32-33

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

Select 26 credits from the following with the approval of advisor:			
ENV 103	Small Treatment Plants	1	
ENV 105	Quality Monitoring	1	
ENV 110	Sewerage System Maintenance	1	
ENV 112	Chemical Control Processes	1	
ENV 115	Intermediate Biological Wastewater Treatment	3	ENV 101
ENV 130	Introduction to Water Treatment	3	
ENV 135	Water Distribution Systems	3	
ENV 199	Co-op Related Class in ENV	1	*
ENV 199	Co-op Work in ENV	1-8	*
ENV 201	Advanced Biological Wastewater Treatment	3	ENV 115
ENV 205	Wastewater Treatment Processes	2	ENV 203
ENV 209	Wastewater Collection Systems	3	ENV 107
ENV 215	Applied Chemical and Microbiological Analysis	3	ENV 203
ENV 220	Wastewater Hydraulics	3	ENV 107
ENV 225	Physical-Chemical Sewage Treatment	3	ENV 201*
ENV 230	Water Treatment Processes	3	ENV 130
ENV 233	Cross Connection Control	3	

ENV 235	Wastewater Treatment Plant and Collection System Design and Construction	3	ENV 107*
ENV 299	Co-op Related Class in ENV	1	*
ENV 299	Co-op Work in ENV	1-8	*
CON 130	Construction: Piping Systems	3	
CSC 100	Introduction to Computers	3	MTH 070
GTC 010	Basic Electricity	3	
GTC 099	Blueprint Reading	3	
MRE 112	Electronics for Technical Careers	3	MTH 070
MAC 110	Machine Shop for Technicians I	4	
WLD 110	Combination Welding	3	

General Education and Support Courses:

MTH	Complete one of the following options:	6	
MTH 120	OPTION 1: Technical Mathematics II	3	MTH 110
	OPTION 2: For students planning to transfer to a four-year university.		
MTH 155	Trigonometry	3	MTH 150*
MAN 110	Human Relations in Business and Industry	3	
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 251, 252, 253		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 102, 120		

Suggested Course Sequence

See an environmental technology faculty advisor.

*For additional prerequisite information, check Course Section.

Finance

Pima Community College works jointly with many financial institutions in the Tucson area to offer two-year associate of applied science degrees. These programs allow for many specialty options within the finance industry, including banking, credit unions and savings banks. Basic and advanced certificate programs are also offered in the credit union and savings bank areas.

Banking—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (60-66 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACC 101	Financial Accounting	3	
ECO 101	Introduction to Macroeconomics	3	MTH 070
FIN 102	Principles of Bank Operations	3	
FIN 203	Bank Management		
or 208	Installment Credit		
or MAN 280	Business Organization and Management	3	BUS 100*
General Education and Support Courses:			
BUS 200	Business Law I	3	
MAN 122	Supervision	3	
ACC 102	Managerial Accounting	3	
ECO 100	Introduction to Microeconomics	3	MTH 070*
MAN 110	Human Relations in Business and Industry	3	
MTH	Determined by assessment test	3	*
WRT 100	Writing Fundamentals or above	3	WRT 070*
REA	Reading requirement	0-4	*
BANK ELEC	Banking Electives: Complete 12 credit hours from FIN courses and/or other courses relating to the banking industry.	12	

COMM/ELEC Communication Elective
Complete one of the following: 3-4
OED 151, 251
SLG 101, 102, 201, 202, 203
SPE 120
WRT 100, 101, 102, 150, 154

HUM/ART Humanities and Fine Arts
Elective
Complete one of the following: 3-4
ART 130, 131, 132, 135
DRA 140, 141
ECE 108, 112
HUM 110, 111
Foreign Language
LIT 260, 265
MUS 151, 201, 202
PHI 101, 120

ELEC Other Electives:
Complete nine credit hours from
anthropology, history,
humanities, philosophy,
psychology or sociology. 9

Suggested Course Sequence: (Read down.)

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

*For additional prerequisite information, check Course Section.

Credit Union—Basic Certificate For Direct Employment

REQUIRED COURSES (12 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FIN 131	Principles of Credit Unions	3	
FIN 139	Credit Union Accounting	3	
FIN 208	Installment Credit	3	

ELEC Other Elective:
Complete any course (other
than one of those listed
above) from Credit Union AAS
Degree. 3

Suggested Course Sequence (Read down.)

FIN 131
FIN 139
FIN 208
Other Elective

Credit Union—Advanced Certificate For Direct Employment

REQUIRED COURSES (27-28 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
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Basic Certificate requirements 12

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

FIN 239	Credit Union Financial Management	3	FIN 139*
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General Education and Support Courses:

ACC 101	Financial Accounting	3	
ECO 101	Introduction to Macroeconomics	3	MTH 070

COMM/ELEC	Communication Elective Complete one of the following: OED 151, 251 SLG 101, 102, 201, 202, 203 SPE 120 WRT 100, 101, 102, 150, 154	3-4	
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ELEC Other Elective:
Complete any course (other than
one of those listed above)
from Credit Union AAS Degree
program. 3

Suggested Course Sequence (Read down.)

Basic Certificate requirements
ECO 101
ACC 101
FIN 239
Other Elective
Communication Elective

*For additional prerequisite information, check Course Section.

Credit Union—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (57-63 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FIN 131	Principles of Credit Unions	3	
FIN 136	Investments and Family Financial Management	3	
FIN 139	Credit Union Accounting	3	
FIN 208	Installment Credit	3	
FIN 231	Credit Union Operations	3	FIN 131
FIN 239	Credit Union Financial Management	3	FIN 139*
General Education and Support Courses:			
ACC 102 or FIN	Managerial Accounting FIN course related to credit union	3	ACC 101*
BUS 200	Business Law I	3	
MAN 110	Human Relations in Business and Industry	3	
MAN 122	Supervision	3	
MKT 111	Marketing	3	
ACC 101	Financial Accounting	3	
ECO 100	Introduction to Microeconomics	3	MTH 070*
ECO 101	Introduction to Macroeconomics	3	MTH 070*
MTH	Determined by assessment test	3	*
WRT 100	Writing Fundamentals or above	3	WRT 070*
REA	Reading requirement	0-4	*
COMM/ELEC	Communication Elective Complete one of the following: OED 151, 251 SLG 101, 102, 201, 202, 203 SPE 120 WRT 100, 101, 102, 150, 154	3-4	
HUM/ART	Humanities and Fine Arts Elective Complete one of the following: ART 130, 131, 132, 135 DRA 140, 141 ECE 108, 112 HUM 110, 111 Foreign Language LIT 260, 265	3-4	

ELEC

MUS 151, 201, 202
PHI 101, 102, 120

Other Electives:
Complete one course from anthropology, history, philosophy, political science, psychology or sociology.

3

Suggested Course Sequence (Read down.)

Reading requirement	ECO 101	Communication
Math course	Humanities and Fine	Elective
WRT 100 or above	Arts Elective	FIN 136
FIN 131	FIN 239	FIN 231
FIN 208	ACC 101	ACC 102
MAN 110	ECO 100	Other Elective
FIN 139	BUS 200	
MAN 122	MKT 111	

*For additional prerequisite information, check Course Section.

Professional Financial Planning (PFP) Program—Associate of Applied Science Degree

The professional financial planning program includes risk management, investments, tax and retirement planning, employee benefits, estate planning, an integrated financial plan, case studies and work experience.

The PFP program enables the student to develop comprehensive financial plans; implement the plan with client approval; and monitor, maintain and modify the plans as changing economic, financial, and personal circumstances dictate.

REQUIRED COURSES (61-62 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FIN 121	Introduction to Financial Planning	3	
FIN 122	Personal Risk Management	3	FIN 121
FIN 123	Personal Investment Strategies	3	FIN 121
FIN 124	Tax Management and Planning	3	FIN 121
FIN 245	Retirement Planning and Employee Benefits	3	FIN 121
FIN 246	Estate Planning	3	FIN 121*

FIN 247	Financial Planning and Case Studies	3	FIN 121*
FIN 199	Co-op Related Work in FIN	2	*
FIN 199	Co-op Related Class in FIN	1	*
OED 298	Special Topics: Financial Planning Calculators	1	*

General Education and Support Courses:

ACC 101	Financial Accounting	3	
ACC 102	Accounting II	3	ACC 101*
BUS 200	Business Law I	3	
CSC 105	Survey of Microcomputer Uses		
or MAP 106	Introduction to Microcomputers		
or BUS 105	Survey of Microcomputer Uses	3	
MAN 124	Small Business Management	3	
MKT 113	Salesmanship	3	
BUS 051	Mathematics of Business		
or MTH 130	Algebra II	3	MTH 070*
SPE 120	Business and Professional Communications	3	
WRT 150	Practical Communications		
or 101	Writing I		WRT 100*
or OED 151	Business English	3	*
WRT 102	Writing II		WRT 101
or 154	Technical Communications I		WRT 101*
or OED 251	Business Communications	3	OED 151
SOC/BEH	Social and Behavioral Science Elective	3	
HUM/ART	Humanities and Fine Arts Elective	3-4	

Suggested Course Sequence (Read down.)

FIN 121	BUS 105	FIN 246
WRT 150 or	FIN 122	SPE 120
WRT 101 or	FIN 123	ACC 102
OED 151	FIN 124	BUS 200
BUS 051 or	WRT 102 or	FIN 247
MTH 130	WRT 154 or	FIN 199
OED 298	OED 251	Humanities and Fine Arts Elective
ACC 101	Social and Behavioral Science Elective	MAN 124
CSC 105 or	Science Elective	MKT 113
MAP 106 or	FIN 245	

*For additional prerequisite information, check Course Section.

Savings Bank—Basic Certificate For Direct Employment

REQUIRED COURSES (12 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FIN 106	Teller Operations	2	
FIN 108	Principles of Savings Institutions	2	
FIN 109	The Human Side of Savings Institutions	2	
FIN 113	Deposit Accounts and Services	2	
ELEC	Electives		
	Select four credit hours with the aid of a finance advisor.	4	

Suggested Course Sequence (Read down.)

FIN 106
FIN 108
FIN 109
FIN 113
Elective(s)

Savings Bank—Advanced Certificate For Direct Employment

REQUIRED COURSES (30 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FIN 108	Principles of Savings Institutions	2	
FIN 109	The Human Side of Savings Institutions	2	
FIN 111	Personal Investment Portfolio	2	
FIN 112	Economic Topics for Savings Institutions	2	
FIN 113	Deposit Accounts and Services	2	
FIN 114	Individual Retirement Accounts/KEOGH Plans	2	
FIN 141	Savings Bank Supervisor I	2	
FIN 143	Savings Institutions Operations	2	
FIN 226	Savings Bank Supervisor II	2	FIN 141
FIN 230	Managing Deposit Accounts and Services	2	FIN 108

COMM/ELEC	Communication Elective Complete one of the following:	3
	OED 151, 251	
	SLG 101, 102, 201, 202, 203	
	SPE 120	
	WRT 100, 101, 102, 150, 154	
SCI/MTH	Science and Mathematics Elective Complete one of the following:	3
	ACC 050, 101, 102	
	AST 101, 102, 111, 112	
	BUS 051	
	BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205	
	CHM 121, 130, 140, 141, 151, 152	
	ECE 124	
	ENV 203	
	GEO 101, 102	
	GLG 101, 102	
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220	
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230	
ELEC	Other Electives: Select four credit hours with the aid of a finance advisor.	4

Suggested Course Sequence

See a finance faculty advisor.

*For additional prerequisite information, check Course Section.

Saving Bank—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (60-64 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FIN 108	Principles of Savings Institutions	2	
FIN 109	The Human Side of Savings Institutions	2	
FIN 111	Personal Investment Portfolio	2	
FIN 112	Economic Topics for Savings Institutions	2	
FIN 113	Deposit Accounts and Services	2	
FIN 114	Individual Retirement Accounts/ KEOGH Plans	2	
FIN 141	Savings Bank Supervisor I	2	
FIN 143	Savings Institutions Operations	2	
FIN 226	Savings Bank Supervisor II	2	FIN 141
FIN 228	Residential Mortgage Lending	2	FIN 108
FIN 229	Statement Analysis for the Lender	2	ACC 050*
FIN 230	Managing Deposit Accounts and Services	2	FIN 108
COMM/ELEC	Communication Electives Complete two of the following:	6	
	OED 151, 251		
	SLG 101, 102, 201, 202, 203		
	SPE 120		
	WRT 100, 101, 102, 150, 154		
HUM/ART	Humanities and Fine Arts Elective Complete one of the following:	3	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 102, 120		

SCI/MTH	Science and Mathematics Electives Complete two of the following: 6 ACC 050, 101, 102 AST 101, 102, 111, 112 BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205 BUS 051 CHM 121, 130, 140, 141, 151, 152 ECE 124 ENV 203 GEO 101, 102 GLG 101, 102 MTH 060, 070, 090, 110, 115, 120, 125, 130, 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
SOC/BEH	Social and Behavioral Science Elective Complete one of the following: 3 ANT 101, 102, 200, 210, 215, 225 ECE 107, 117 ECO 100, 101 GEO 103 HIS 101, 102, 141, 142, 147 MAN 110 POS 100, 110, 112, 120, 130 PSY 100, 101, 130 SOC 100, 101
REA	Reading requirement (If the reading requirement is met by assessment, the student must complete an additional 4 credit hours of other electives.) 4 *
ELEC	Other Electives: Select 14 to 18 credit hours with a finance faculty advisor. 14-18

Suggested Course Sequence

See a finance faculty advisor.

*For additional prerequisite information, check Course Section.

Fire Science

The fire science program provides pre-service and in-service training in fire fighting. The program deals with the technical, managerial, and human aspects of fire fighting. It also teaches modern methods of fire prevention and suppression. More than half of the 60 credit hours required for a degree in fire science are in courses which relate to the field. These courses prepare the student to become fully qualified for service in municipal, rural, governmental, industrial, or private fire departments and other agencies in the fire protection field. It also prepares the student to move toward managerial and command positions.

Fire Science—Basic Certificate

REQUIRED COURSES (15 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FSC 049	Fire Operations I	3	
FSC 051	Introduction to Fire Science	3	
FSC 052	Fundamentals of Fire Prevention	3	
FSC 055	Fire Investigation: Origin and Recognition of Arson	3	
FSC 063	Fire Apparatus and Equipment	3	*

Suggested Course Sequence

See a fire science faculty advisor.

*For additional prerequisite information, check Course Section.

Fire Science—Advanced Certificate

REQUIRED COURSES (33 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate requirements		15	
Core Courses - A grade of C or better is required for graduation.			
FSC 050	Fire Operations	3	FSC 049
FSC 054	Advanced Fire Prevention	3	
FSC 056	Advanced Fire Investigation: Arson	3	
FSC 061	Hazardous Materials II	3	FSC 053
FSC 062	Hydraulics and Fire Suppression	3	MTH 070*
FSC 064	Fire Protection Systems	3	

Suggested Course Sequence

See a fire science faculty advisor.

*For additional prerequisite information, check Course Section.

Fire Science—Associate of Applied Science Degree for Direct Employment

REQUIRED COURSES (62-69 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FSC 049	Fire Operations I	3	
FSC 052	Fundamentals of Fire Prevention	3	
FSC 063	Fire Equipment	3	*
FSC 055	Fire Investigation: Origin and Recognition of Arson	3	
FSC 064	Fire Protection	3	
FSC 062	Hydraulics	3	MTH 070*
FSC 053	Hazardous Material	3	
EMT 051	Emergency Medical Technology	5	*
EMT 100	Basic Cardiac Life Support	1	
FSC 066	Suppression and Strategy	3	
HDE 170	Leadership	2	
FSC 065	Building Construction	3	

General Education and Support Courses:

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II		WRT 101
or 154	Technical Communications	3	WRT 100
MTH 070	Algebra I	3	MTH 060*
PHY 101	Technical Physics I	3	
REA	Reading requirement	0-4	*
ELEC	Electives		
	Complete three courses from the following:	9	
	FSC 050, 051, 054, 056, 057, 061, 068, 071, 155, 156		
	MAN 122		
HUM/ART	Humanities and Fine Arts Elective		
	Complete one course from the following:	3-5	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 251, 252, 253		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
SOC/BEH	Social and Behavioral Science Elective		
	Complete one course from the following:	3-4	
	ANT 101, 102, 200, 210, 215, 225		
	ECE 107, 117		
	ECO 100, 101		
	GEO 103		
	HIS 101, 102, 141, 142, 147		
	MAN 110		
	POS 100, 110, 130		
	PSY 100, 101, 130		
	SOC 100, 101		

Suggested Course Sequence

See a fire science faculty advisor.

*For additional prerequisite information, check Course Section.

Fire Science—Associate of Science Degree for Transfer

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

REQUIRED COURSES (62-74 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FSC 049	Fire Operations I	3	
FSC 052	Fundamentals of Fire Prevention	3	
FSC 063	Fire Equipment	3	*
FSC 055	Fire Investigation: Origin and Recognition of Arson	3	
FSC 064	Fire Protection	3	
FSC 062	Hydraulics	3	MTH 070*
FSC 053	Hazardous Material	3	FSC 052*
EMT 051	Emergency Technology	5	*
EMT 100	Basic Cardiac Life Support	1	
FSC 066	Suppression and Strategy	3	
HDE 170	Leadership	2	
FSC 065	Building Construction	3	
General Education and Support Courses:			
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives		
	Complete two courses from the following:	6-10	
	(Check individual course descriptions.)		
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 251, 252, 253		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

SOC/BEH

Social and Behavioral Science Electives

Complete two courses from the following:

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

ECE 107, 117

ECO 100, 101

GEO 103

HIS 101, 102, 141, 142, 147

MAN 110

POS 100, 110, 130

PSY 100, 101, 130

SOC 100, 101

6-7

SCI/MTH

Science and Mathematics

Electives

Complete three courses from the following:

ACC 050, 101, 102

AST 101, 102

BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205

BUS 051

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

ECE 124

GEO 101, 102

GLG 101, 102

MTH 060, 065, 070, 090, 110, 115,

120, 125, 130, 135, 140, 145, 150,

155, 160, 170, 175, 180, 185, 210,

215, 219, 220

PHY 101, 102, 105, 122, 131, 132,

210, 216, 221, 230

9-12

Suggested Course Sequence

See a fire science faculty advisor.

*For additional prerequisite information, check Course Section.

Fitness and Sport Sciences

The fitness and sport sciences department is based on the philosophy of physical fitness and leisure education for life through physical and cognitive skill development. The department offers courses in three areas of study: the fitness technician program, the associate of arts degree for transfer, and a general activity program for all students. The fitness technician program offers an advanced certificate. This program is intended primarily for students preparing for direct employment in commercial and corporate fitness facilities. The associate of arts degree for transfer is intended primarily for students planning a teaching major or minor in fitness and sport sciences. Such students should check the degree requirements of the college or university to which they intend to transfer. The activity program offers all students a wide variety of courses which include individual and dual sports, team sports, combative activities, fitness, dance, and aerobic exercise.

Fitness Technician—Advanced Certificate for Direct Employment

REQUIRED COURSES (36-37 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BIO 160	Introduction to Human Anatomy and Physiology	4	
FSS 276	Designed Exercise	3	
FSS 208	Aerobics	1	
FSS 218	Weight Training	1	
FSS 199	Co-op Related Class in Fitness	1	
FSS 199	Co-op Work in Fitness	3	
FSS 237	Fitness Facilities: Care and Maintenance	2	
FSS 238	Introduction to Sports Injury Management	2	
HED 140A	First Aid	1	
HED 140B	Cardiopulmonary Resuscitation	1	
FSS 236	Motivation and Human Relations in Motor Performance	3	
FSS 223	Racquetball	1	
or 230	Tennis	2	
FSS 299	Co-op Related Class in Fitness	1	
FSS 299	Co-op Work in Fitness	3	

General Education and Support Courses:

WRT 154	Technical Communications I	3	WRT 100*
or 150	Practical Communications	3	
SPE 120	Business and Professional Communication	3	
MKT 113	Salesmanship	3	

Suggested Course Sequence

See a fitness and sport sciences faculty advisor.

*For additional prerequisite information, check Course Section.

Fitness and Sport Sciences—Associate of Arts Degree for Transfer

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

REQUIRED COURSES (64-79 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FSS 288	History of Physical Education	2	
FSS 289	Philosophy of Sport in Physical Education	2	
FSS 208-233	Professional Activities (choose 7):		
FSS 208	Aerobics	1	
FSS 211	Badminton	1	
FSS 213	Basketball	2	
FSS 217	Folk and Square Dance	2	
FSS 218	Weight Training	1	
FSS 223	Racquetball	1	
FSS 224	Self Defense	1	
FSS 225	Soccer	2	
FSS 227	Softball	1	
FSS 230	Tennis	2	
FSS 231	Track and Field	2	
FSS 232	Volleyball	2	
FSS 233	Archery	1	

Support Courses:

REA	Reading requirement	0-4	*
Select a minimum of 21 credits from the following:			
BIO 201	Human Anatomy and Physiology I	4	BIO 100*
BIO 202	Human Anatomy and Physiology II	4	BIO 201
CHM 151	General Chemistry I	5	MTH 130*
CHM 152	General Chemistry II	5	CHM 151
POS 112	National and State Constitutions	3	
PSY 110	Introduction to Psychology	4	

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

English Composition	6
Humanities and Fine Arts	9
Biological and Physical Sciences	8
CHM 151 and 152 satisfy this requirement.	
Mathematics (MTH 150 or above)	3
Social and Behavioral Sciences	9
Other Requirements	5-6
Foreign language is highly recommended.	

FSS Electives:

FSS 236	Motivation and Human Relations in Motor Performance	3	
FSS 237	Fitness Facilities: Care and Maintenance	2	
FSS 238	Introduction to Sports Injury Management	2	
FSS 239	Introduction to Leisure Education	3	
FSS 240	Adaptive and Corrective Programs	3	
FSS 242	Elementary School Physical Education	3	
FSS 276	Designed Exercise	3	
FSS 279	Motor Development	2	
FSS 286	Sports Officiating	2	
FSS 290	Independent Studies in Fitness and Sport Science	3	
HED 140A	First Aid	1	**
HED 140B	Cardiopulmonary Resuscitation	1	**

Suggested Course Sequence

See a fitness and sport sciences faculty advisor.

*For additional prerequisite information, check Course Section.

**Required for K-12 certification.

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 three credit hours in communication, three credit hours in math/science and fulfillment of the college reading requirement. (See General Education Requirements under the Graduation section of this catalog for the reading requirement.) Students may transfer to another program at any time subject to exact course requirements of that program. Students with an associate of general studies degree who transfer to a four-year college or university may need more courses to complete a four-year degree.

Geology

Geology—Associate of Science Degree For Transfer

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

A foreign language may be required in lieu of, or in addition to, courses listed. For course electives in humanities and social sciences, consult the catalog of the college or university you plan to enter.

REQUIRED COURSES (67-75 CREDIT HOURS)

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

CHM 152	General Chemistry II	5	CHM 151
ENG 120	Engineering Graphics	3	DFT 150
ENG 130	Elementary Surveying	3	MTH 150*
GLG 102	Introductory Geology II	4	
PHY 122	Introductory Physics II	5	PHY 121
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101

General Education and Support Courses:

CSC 140	FORTTRAN Programming	3	CSC 100*
CHM 151	General Chemistry I	5	MTH 130*
GLG 101	Introductory Geology I	4	
MTH 150	College Algebra	3	MTH 130*
MTH 155	Trigonometry	3	MTH 150*
PHY 121	Introductory Physics I	5	*
REA	Reading requirement	0-4	*

HUM/ART	Humanities and Fine Arts Electives		
	Complete two of the following:	6-8	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

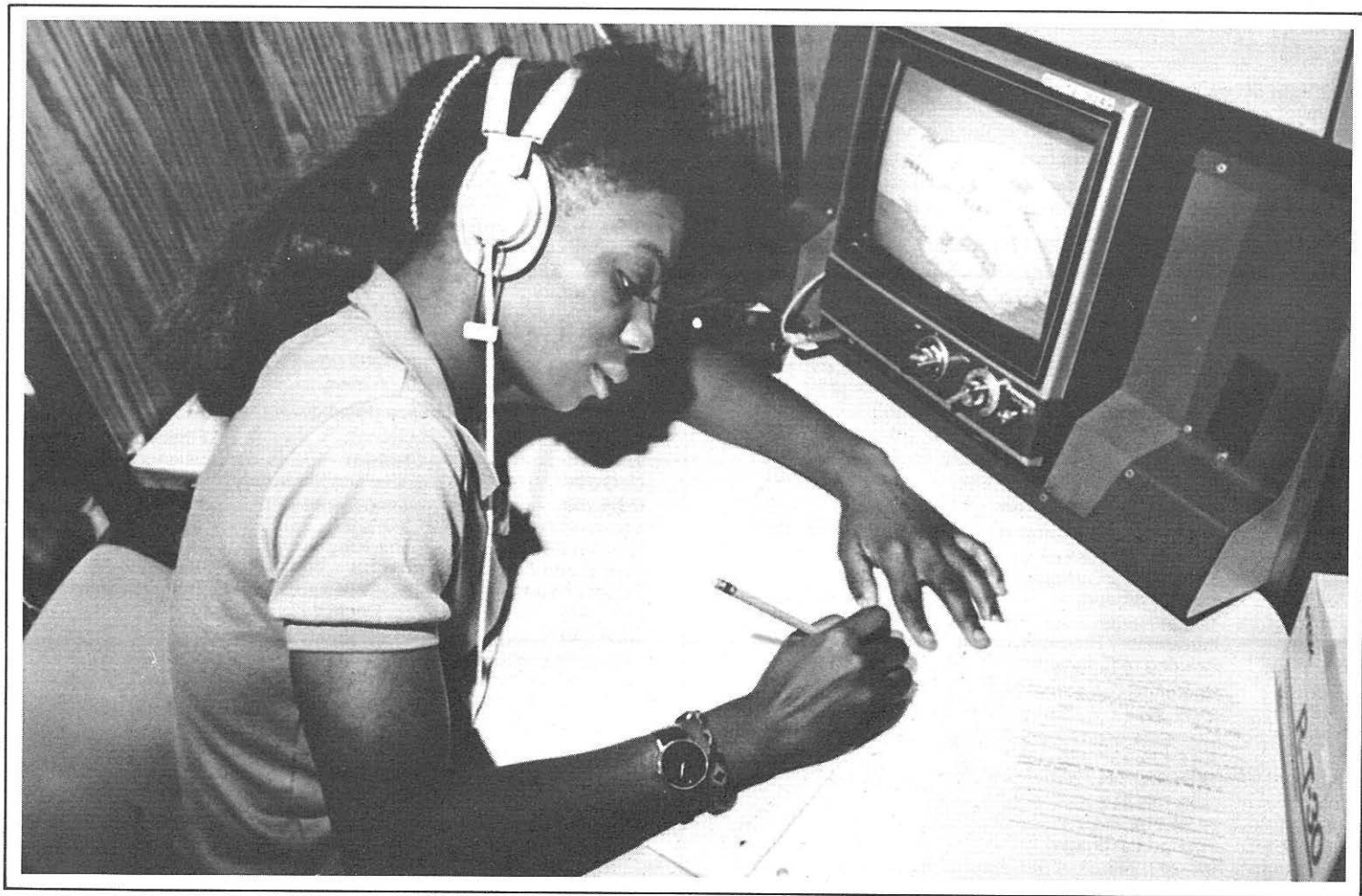
FSS ELEC	Fitness and Sport Sciences Electives		
	Complete any two transferable courses in fitness and sport sciences.	2	
SOC/BEH	Social and Behavioral Science Electives		
	Complete two of the following:	6-8	
	ANT 101, 102, 200, 210, 215, 225		
	ECE 107, 117		
	ECO 100, 101		
	GEO 103		
	HIS 101, 102, 141, 142, 147		
	MAN 110		
	POS 100, 110, 112, 120, 130		
	PSY 100, 101, 130		
	SOC 100, 101		

ELEC	Other Electives		
	Select four credit hours from GLG prefix courses.	4	

Suggested Course Sequence (Read down.)

Reading requirement	MTH 155	Fitness and Sport
WRT 101	CHM 151	Sciences Elective
GLG 101	Social and Behavioral	ENG 130
MTH 150	Science Elective	PHY 122
Social and Behavioral	ENG 120	CSC 140
Science Elective	CHM 152	Humanities and Fine
Fitness and Sport	PHY 121	Arts Elective
Sciences Elective	Humanities and Fine	Other Electives
WRT 102	Arts Elective	
GLG 102		

*For additional prerequisite information, check Course Section.



Graphic Technology

This program area provides training for entry-level positions in the printing industry and for upgrading the skills of those already employed in the field. Instruction is offered in paste up, process camera operation, stripping, plate making, offset press operation, binding and advertising art as it relates to printing. Four program options are available: graphic technology basic and advanced certificates for direct employment, graphic technology associate of applied science degree for direct employment, and graphic artist option associate of applied science degree for direct employment. Program courses and faculty advising are located on the Downtown Campus.

Graphic Technology (Offset Printing)—Basic Certificate For Direct Employment

This program provides training for entry-level positions in paste up, process camera operation, stripping and plate making, binding and finishing, and small offset press operation. Job placement for students completing this program has been good.

REQUIRED COURSES (18 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
GRA 101	Graphic Technology I	3	
GRA 102	Graphic Technology II	3	GRA 101
GRA 103	Binding and Finishing Process	3	
GRA 104	Offset Photography Stripping and Platemaking	3	
GRA 105	Phototypesetting	3	

General Education and Support Courses:

MTH	Determined by assessment test	3	*
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Suggested Course Sequence (Read down.)

Math course	GRA 104
GRA 101	GRA 103
GRA 102	GRA 105

*For additional prerequisite information, check Course Section.

Graphic Technology (Offset Printing)—Advanced Certificate for Direct Employment

REQUIRED COURSES (30 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate Requirements		18	
Core Courses - A grade of C or better is required for graduation.			
GRA 202	Offset Presswork	3	GRA 102
GRA 222	Advanced Offset Presswork	3	GRA 202
GRA 206	Phototypesetting II	3	GRA 105
WRT 100	Writing Fundamentals		WRT 070
or 101	Writing I	3	WRT 100*

Suggested Course Sequence (Read down.)

Basic Certificate Requirements	
WRT 100 or 101	
GRA 202	
GRA 222	
GRA 206	

*For additional prerequisite information, check Course Section.

Graphic Technology—Associate of Applied Science Degree For Direct Employment

This program provides a continuation of the training offered in the basic certificate program (paste up, process camera operation, stripping and plate making, binding and finishing, and small offset press operation). In addition, students learn offset press maintenance, color theory, estimating, and advanced stripping and plate making for color. The program also provides a basic general education background through management, mathematics, reading, writing, and speech courses. Employment opportunities throughout the state are very good for students completing this program.

REQUIRED COURSES (63-71 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
GRA 101	Graphic Technology I	3	
GRA 102	Graphic Technology II	3	GRA 101
GRA 103	Binding and Finishing Process	3	
GRA 104	Offset Photography Stripping and Platemaking	3	
GRA 105	Phototypesetting	3	GRA 101*
GRA 201	Color Theory and Practice	3	GRA 104
GRA 202	Offset Presswork	3	GRA 102
GRA 203	Estimating of Printing and Materials	3	GRA 101
GRA 221	Advanced Stripping and Platemaking for Color	3	GRA 104*
GRA 222	Advanced Offset Presswork	3	GRA 202
GRA 232	Offset Operations and Maintenance	3	GRA 202*
GRA 206	Phototypesetting II	3	GRA 105
General Education and Support Courses:			
ADA 111	Production Techniques and Processes I	3	MTH 060*
ADA 211	Production Techniques and Processes II	3	ADA 111*
GRA 199	Co-op Related Class in GRA	1	*
GRA 199	Co-op Work in GRA	2	*
GRA 299	Co-op Related Class in GRA	1	GRA 199*
GRA 299	Co-op Work in GRA	2	GRA 199*
MAN 110	Human Relations in Business and Industry	3	
MTH	Determined by assessment test	3	*
MTH	Second in sequence	3	*
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I	3	WRT 100*
WRT 101	Writing I		WRT 100*
or 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*

HUM/ART

Humanities and Fine Arts

Elective

Complete one of the following: 3-4

ART 130, 131, 132, 135

DRA 140, 141

ECE 108, 112

HUM 110, 111

Foreign Language

LIT 260, 265

MUS 151, 201, 202

PHI 101, 120

Suggested Course Sequence (Read down.)

Reading requirement	Math course	GRA 203
Math course	WRT 101, 102 or 154	GRA 199
WRT 100 or 101	GRA 102	GRA 222
GRA 101	ADA 211	GRA 221
ADA 111	GRA 104	MAN 110
GRA 103	GRA 105	GRA 232
Humanities and Fine Arts Elective	GRA 201	GRA 299
	GRA 202	GRA 206

*For additional prerequisite information, check Course Section.

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

The graphic artist option places special emphasis on advertising art and design as related to printing although it also covers all the basic areas of graphic technology, including mechanical paste-up, ruling, stripping, plate making, process camera operation, small offset press operation, and binding. Job placement for students completing this program has been good.

REQUIRED COURSES (61-65 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ADA 100	Applied Computer Graphics	3	
ADA 101	Advertising Art I	3	
ADA 102	Advertising Design I	3	
ADA 103	Advertising Drawing I	3	
ADA 111	Production Techniques and Processes I	3	MTH 060*
ADA 120	Advertising Design II	3	ADA 103*
GRA 101	Graphic Technology I	3	
GRA 102	Graphic Technology II	3	GRA 101
GRA 104	Offset Photography Stripping and Platemaking	3	
GRA 105	Phototypesetting I	3	GRA 101*
GRA 201	Color Theory and Practice	3	GRA 104
GRA 202	Offset Presswork	3	GRA 102
GRA 221	Advanced Stripping and Platemaking for Color	3	GRA 104*
General Education and Support Courses:			
ADA 199	Co-op Work in ADA	2	ADA 102*
ADA 199	Co-op Related Class in ADA	1	ADA 102*
HUM 110	Humanities I	4	
MAN 110	Human Relations in Business and Industry	3	
MTH	Determined by assessment test	3	*
MTH	Second in sequence	3	*
SPE 120	Business and Professional Communication	3	
WRT 150	Practical Communications	3	
REA	Reading requirement	0-4	*

Suggested Course Sequence (Read down.)

Reading requirement	Math Course	HUM 110
Math course	SPE 120	GRA 104
WRT 150	GRA 102	GRA 202
GRA 101	ADA 111	GRA 221
ADA 101	ADA 120	MAN 110
ADA 102	GRA 105	ADA 199
ADA 103	GRA 201	ADA 199
ADA 100		

*For additional prerequisite information, check Course Section.

Home Economics

Home Economics offers students course work toward the following objectives:

- Completion of a two-year transfer program toward a B.S. degree at a university.
- Career preparation for direct employment.
- Completion of service courses for nursing, psychology and other disciplines.
- Personal development for home and family living.

Home Economics Transfer Programs

Students can fulfill the first two years of 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 University of Arizona's School of Family and Consumer Resources are listed below. Pima College offers all courses required (first two years) of the options listed under each program.

- Child Development and Family Relations
 - Child Development Option
 - Family Studies Option
 - Early Childhood Education
- Clothing and Textiles
 - Fashion Merchandising
 - Clothing and Textiles
- Food, Human Nutrition and Dietetics
 - Human Nutrition and Dietetics
 - Food Service Management
 - Consumer Service in Food
- 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

Alteration Specialist—Advanced Certificate For Direct Employment

REQUIRED COURSES (30-32 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FDC 111	Clothing Construction (Beginning) I	3	
FDC 112	Alteration and Designing	3	
FDC 126	Textiles	3	
FDC 131	Clothing Selection	3	
FDC 142	Alteration and Repair	3	
General Education and Support Courses:			
FDC 122	History of Fashion	3	
OED 151 or 251	Business English Business Communications	3	WRT 100* OED 151
SCI/MTH	Science and Mathematics Elective		
	Complete one of the following:	3-5	
	ACC 050, 101, 102		
	AST 101, 102		
	BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205		
	BUS 051		
	CHM 121, 130, 140, 141, 151, 152		
	ECE 124		
	GEO 101, 102		
	GLG 101, 102		
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220		
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230		
ELEC	Other Electives		
	Complete two of the following:	6	
	ART 100, 115		
	MAN 110, 124		

Suggested Course Sequence (Read down.)

OED 151 or 251	FDC 131
FDC 111	FDC 142
FDC 112	FDC 126
FDC 122	Science and
Other Elective	Mathematics Elective
	Other Elective

*For additional prerequisite information, check Course Section.

Professional Seamstress—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (60-65 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FDC 111	Clothing Construction (Beginning) I	3	
FDC 112	Alteration and Designing	3	
FDC 121	Applied Dress Design	3	
FDC 126	Textiles	3	
FDC 131	Clothing Selection	3	
FDC 142	Alteration and Repair	3	
FDC 211	Clothing Construction (Advanced) II	3	FDC 111*
General Education and Support Courses:			
ART 130 or 131	Art and Culture I Art and Culture II	3	
FDC 122	History of Fashion	3	
FDC 132	Psychology of Dress	3	
FDC 212	Clothing Construction (Tailoring) III	3	FDC 211*
HEC 137	Today's World	3	
ECE 107	Human Development and Relations		
or PSY 100	Psychology I	3	
OED 151	Business English		WRT 100*
or 251	Business Communications		OED 151
REA	Reading requirement	0-4	*

COMM/ELEC	Communication Elective Complete one of the following: OED 151, 251 SLG 101, 102, 201, 202, 203 SPE 120 WRT 100, 101, 102, 150, 154	3-4
SCI/MTH	Science and Mathematics Electives Complete six credit hours from the following: ACC 050, 101, 102 AST 101, 102, 111, 112 BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205 BUS 051 CHM 121, 130, 140, 141, 151, 152 ECE 124 ENV 203 GEO 101, 102 GLG 101, 102 MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220 PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230	6
ELEC	Other Electives Complete three of the following: ART 100, 115 MAN 110, 124	9

Suggested Course Sequence (Read down.)

Reading requirement	FDC 126	Communication
OED 151 or 251	Science and	Elective
FDC 111	Mathematics Elective	FDC 212
FDC 112	Other Elective	FDC 132
FDC 122	FDC 211	HEC 137
Other Elective	FDC 121	Science and
FDC 131	ART 130 or 131	Mathematics Elective
FDC 142	ECE 107 or PSY 100	Other Elective

*For additional prerequisite information, check Course Section.

Fashion Design—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (60-70 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
FDC 111	Clothing Construction (Beginning) I	3	
FDC 121	Applied Dress Design	3	
FDC 122	History of Fashion	3	
FDC 126	Textiles	3	
FDC 132	Psychology of Dress	3	
FDC 141	Fashion Design I	3	
FDC 211	Clothing Construction (Advanced) II	3	FDC 111*
FDC 241	Fashion Design II	3	FDC 111*
General Education and Support Courses:			
ART 100	Basic Design		
or 115	Color and Design		ART 100
or 131	Art and Culture II	3	
FDC 112	Alteration and Designing	3	
FDC 131	Clothing Selection	3	
MAN 110	Human Relations in Business and Industry		
or MKT 125	Advertising	3	
MTH 060	Introductory Mathematics	3	
WRT 101	Writing I	3	WRT 100*
WRT 150	Practical Communications		
or	Communication Elective	3-4	
REA	Reading requirement	0-4	*
CLOTH/TEX	Clothing and Textile Elective Complete one course with an FDC prefix (other than one of those listed elsewhere in this program).	3	
COMM/ELEC	Communication Elective Complete one of the following: OED 151, 251 SLG 101, 102, 201, 202, 203 SPE 120 WRT 100, 101, 102, 150, 154	3-4	

SCI/MTH	Science and Mathematics Elective Complete one of the following: 3-5 ACC 050, 101, 102 AST 101, 102 BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205 BUS 051 CHM 121, 130, 140, 141, 151, 152 ECE 124 GEO 101, 102 GLG 101, 102 MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220 PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230
ELEC	Other Electives Complete two of the following: 6-8 ADA 106, ART 110, CHM 130 DRA 111, ECE 212, FDC 212 FDC 142, PSY 100

Suggested Course Sequence (Read down.)

Reading requirement	ART 100, 115 or 131	Science and
MTH 060	FDC 122	Mathematics Elective
WRT 101	FDC 141	FDC 121
FDC 111	WRT 150 or	FDC 241
FDC 126	Communication	MAN 110 or MKT 125
FDC 131	Elective	Clothing and Textile
Other Elective	FDC 132	Elective
FDC 211	FDC 112	Other Elective

*For additional prerequisite information, check Course Section.

Honors

The Honors Program of Pima Community College offers challenging educational opportunities for students with excellent academic records.

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

1. Continuing Pima students must have a GPA of 3.5 in at least 12 hours of college level courses (normally courses numbered 100 or above).
2. New students should show evidence of a GPA of 3.5 on previous academic records if available, and have Pima assessment scores that qualify them for two of the following: WRT 101, MTH 130, or Reading 112.
3. Continuing college students (from other than Pima) must have a GPA of 3.5 in at least 12 hours of college level courses (normally courses numbered 100 or above).

Students who meet the criteria may obtain application forms from the Downtown Campus Career Center, East Campus Career Center, and West Campus Career Center. Selection will be made by the Honors Program Screening Committee which meets four times a year: January, April, August, and November.

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

Hospitality Education

This program area prepares students for service in the broad-based hospitality industry. Tucson's rapid growth affords many opportunities within this industry which encompasses hotels, motels, clubs, food and beverage establishments, and tourist services. Career opportunities are excellent as nearly one out of every six jobs in Arizona is related to the hospitality industry.

The program options are designed to prepare students to enter the hospitality work force and/or to update those already employed in the industry. Program options include six major specialties: hotel-motel management; restaurant, culinary and food service management; travel-tourism operations; executive housekeeping; hospitality sales and marketing; and meetings and convention management. Certificates are offered in hotel food and beverage management, hotel-motel operations, restaurant management, culinary and food management, travel industry, hospitality marketing application, housekeeping-executive, and meetings and convention management.

Course work in all options emphasizes communications, human relations and other successful job skills. Many of the major courses in the program area are taught by professionals in the field. Other types of support provided by local industry includes classroom locations, training jobs, etc. Cooperative education opportunities are available. Faculty advisors in the program area are located on the Downtown Campus.

Northern Arizona University Hotel/Restaurant School accepts certain courses toward the bachelor's degree in hotel and restaurant management. Additional course work in general education and other support courses may also be taken at Pima Community College. Students planning to transfer to NAU should see an advisor in the hospitality department.

Hotel/Motel Management Options:

These options train students in the basics for employment in various hotel/motel and restaurant positions and in the travel agency and meeting/convention management areas.

Hotel/Motel Management—Associate of Applied Science Degree For Direct Employment

This degree prepares students for entry into the lodging industry. Principles of hotel/motel management, front office, housekeeping, accounting, law, food and beverage management, financial management and hospitality marketing are included.

REQUIRED COURSES (68-75 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
HMM 100	Introduction to Hotel/Motel Management	3	
HMM 101	Front Office Procedures	3	
HMM 102	Hospitality Accounting	3	*
HMM 103	Supervisory Housekeeping	3	
HMM 104	Hotel Food and Beverage Management	3	
HMM 111	Hospitality Management Law	3	HMM 100
HMM 202	Advanced Hotel/Motel Accounting	3	HMM 102
HMM 203	Marketing of Hospitality Services	3	HMM 100
HMM 204	Hotel/Motel Financial Management	3	HMM 202
General Education and Support Courses:			
HMM 199	Co-op Related Class in HMM	2	
HMM 199	Co-op Work in HMM (2 semesters)	6	
HMM 299	Co-op Related Class in HMM	2	HMM 199
HMM 299	Co-op Work in HMM	6	HMM 199
MAN 278	Labor/Management Relations	3	BUS 100
RCF 102	Food Service Specialties I		
	Culinary Preparation	3	
HOS 111	Hospitality - Alcohol Intervention Procedures	1	
MAN 110	Human Relations in Business and Industry	3	
BUS 051	Mathematics of Business	3	MTH 060*
SPE 120	Business and Professional Communication	3	
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I		WRT 100*
or 150	Practical Communications	3	

REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	POS 100, 110, 112, 120, 130		
	PSY 100, 101, 130		
	SOC 100, 101		

SCI/MTH	Science and Mathematics Elective		
	Complete one of the following:	3-5	
	ACC 050, 101, 102		
	AST 101, 102		
	BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205		
	CHM 121, 130, 140, 141, 151, 152		
	ECE 124		
	GEO 101, 102		
	GLG 101, 102		
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220		
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230		

Suggested Course Sequence (Read down.)

Reading requirement	HMM 104	HOS 111
BUS 051	MAN 110	Humanities and Fine
WRT 100 or 101 or 150	HMM 111	Arts Elective
HMM 100	HMM 202	HMM 299
HMM 101	HMM 199	MAN 278
HMM 199	HOS 203	Science and
HMM 102	HMM 204	Mathematics Elective
HMM 103	RCF 102	HMM 299
		SPE 120

*For additional prerequisite information, check Course Section.

Hotel Operations—Basic Certificate For Direct Employment

This option is designed to provide a broad introduction to the operation of hotels and motels. Attention is focused on the basics of front office operations, accounting, and housekeeping systems.

All course work in the basic certificate applies to the two-year degree in hotel/motel management.

REQUIRED COURSES (16 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
HMM 100	Introduction to Hotel-Motel Management	3	
HMM 101	Front Office Procedures	3	
HMM 102	Hospitality Accounting	3	*
HMM 103	Supervisory Housekeeping	3	

General Education and Support Courses:

HMM 199	Co-op Related Class in HMM	1	
HMM 199	Co-op Work in HMM	3	

Suggested Course Sequence (Read down.)

HMM 100
HMM 101
HMM 102
HMM 103
HMM 199

*For additional prerequisite information, check Course Section.

Hotel Food and Beverage Management—Basic Certificate For Direct Employment

This option is designed to prepare students for entry-level positions in food and beverage management. Instruction includes the basic principles of hiring, financial management, food and beverage purchasing, and preparation and serving.

All course work in the basic certificate applies to the two-year degree in hotel/motel management.

REQUIRED COURSES (17 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
HMM 100	Introduction to Hotel/Motel Management	3	
HMM 104	Hotel Food and Beverage Management	3	
HMM 102	Hospitality Accounting	3	*
HOS 111	Hospitality-Alcohol Intervention Procedures	1	
General Education and Support Courses:			
HMM 199	Co-op Related Class in HMM	1	
HMM 199	Co-op Work in HMM	3	
RCF 102	Food Service Specialties I/ Culinary Preparation	3	

Suggested Course Sequence (Read down)

HMM 100	HMM 199
HMM 104	HMM 102
RCF 102	HOS 111

*For additional prerequisite information, check Course Section.

Restaurant, Culinary and Foodservice Management Options:

Programs in this area are designed to prepare students for foodservice employment in hotels or restaurants. Management, budgeting and hands-on experience in the preparation of food are emphasized.

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

The two-year degree program focuses on the technical and supervisory aspects of foodservice operations, both in food preparation and kitchen/dining-room management. It is designed to prepare students for beginning managerial and technical positions. The program includes all the course work covered in the two basic certificates plus more advanced study in the principles of profitability, techniques for controlling sanitation, quality and inventory management, and food preparation.

REQUIRED COURSES (66-71 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
RCF 107	Restaurant Sanitation	3	
RCF 108	Restaurant Inventory Management	3	MTH 060*
RCF 101	Principles of Restaurant Operations	3	
RCF 102	Foodservice Specialties I/ Culinary Preparation	3	
RCF 103	Foodservice Specialties II/ Baking	3	
RCF 104	Foodservice Specialties III/ Garde-Manger	3	RCF 103*

General Education and Support Courses:

HMM 102	Hospitality Accounting	3	
HMM 111	Hospitality Management Law	3	HMM 100
MAN 122	Supervision	3	
HMM 199	Co-op Related Class in HMM	2	
HMM 199	Co-op Work in HMM	6	
HMM 299	Co-op Related Class in HMM	2	HMM 199
HMM 299	Co-op Work in HMM	6	HMM 199
HOS 111	Hospitality-Alcohol Intervention Procedures	1	
BUS 051	Mathematics of Business	3	
BIO 101	General Biology I	4	
MAN 110	Human Relations in Business and Industry	3	
SPE 120	Business and Professional Communication	3	
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I		WRT 100*
or 150	Practical Communications	3	
REA	Reading requirement	0-4	*

HUM/ART	Humanities and Fine Arts Elective Complete one of the following: 3-4 ART 130, 131, 132, 135 DRA 140, 141 ECE 108, 112 HUM 110, 111 Foreign Language LIT 260, 265 MUS 151, 201, 202 PHI 101, 120
ELEC	Other Elective Complete one of the following: 3 RCF 105, 106, 201 FSN 114 MAN 278

Suggested Course Sequence (Read down.)

Reading requirement	HMM 199	RCF 104
WRT 100 or 101 or 150	HMM 102	HMM 299
BUS 051	HOS 111	Humanities and Fine Arts Elective
SPE 120	HMM 111	HMM 299
RCF 107	MAN 110	BIO 101
RCF 108	HMM 199	Other Elective
RCF 101	MAN 122	
RCF 102	RCF 103	

*For additional prerequisite information, check Course Section.

Restaurant Management—Basic Certificate for Direct Employment

Students who complete this certificate program are trained for entry-level positions in the field of restaurant management. Legal aspects of restaurant management, supervision, principles of quantity food preparation, safety and sanitation techniques, and methods of purchasing, receiving and storing products are emphasized.

REQUIRED COURSES (17 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
RCF 101	Principles of Restaurant Operations	3	
RCF 107	Restaurant Sanitation	3	

General Education and Support Courses:

HOS 111	Hospitality-Alcohol Intervention Procedures	1
HMM 199	Co-op Related Class in HMM	1
HMM 199	Co-op Work in HMM	3
BUS 051	Mathematics of Business	3
MAN 110	Human Relations in Business and Industry	3

Suggested Course Sequence (Read down.)

MAN 110	RCF 101
BUS 051	HOS 111
RCF 107	HMM 199

*For additional prerequisite information, check Course Section.

Culinary Management—Basic Certificate for Direct Employment

This certificate program prepares students for entry-level positions in culinary and food management. Instruction covers fundamentals of organized quantity food preparation, safety and sanitation, and methods of purchasing, receiving and storing products. Emphasis is placed on cost effectiveness, hygienic work habits, and food preparation.

REQUIRED COURSES (16 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
RCF 101	Principles of Restaurant Operations	3	
RCF 102	Foodservice Specialties I/ Culinary Preparation	3	
RCF 103	Foodservice Specialties II/ Baking	3	

General Education and Support Courses:

MAN 122	Supervision	3
HMM 199	Co-op Related Class in HMM	1
HMM 199	Co-op Work in HMM	3

Suggested Course Sequence (Read down.)

RCF 101	HMM 199
RCF 102	MAN 122
RCF 103	

*For additional prerequisite information, check Course Section.

Travel-Tourism Operations Options:

These program options are designed to prepare students to work as travel agents or agency manager trainees. Students are trained in travel agency methods of ticketing and booking procedures, computer applications, and geography. Good communications, clerical skills and ability to relate well with people are essential components of the program.

Travel Industry—Basic Certificate For Direct Employment

This certificate program prepares students to enter the work force as beginning-level travel agents. Instruction includes preparation of airline tickets, other travel and lodging bookings, effective telephone usage, familiarity with the various modes of travel, travel routing, travel financial planning, communications, leadership skills and time management.

REQUIRED COURSES (17 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
TVL 101	Principles of the Travel-Tourism Industry	3	
TVL 102	Travel Agent Methods and Procedures	3	TVL 101*
GEO 103	Cultural Geography	4	
General Education and Support Courses:			
HMM 199	Co-op Related Class in HMM	1	
HMM 199	Co-op Work in HMM	3	
BUS 051	Mathematics of Business	3	

Suggested Course Sequence (Read down.)

BUS 051
TVL 101
TVL 102
GEO 103
HMM 199

*For additional prerequisite information, check Course Section.

Travel Industry Management—Advanced Certificate For Direct Employment

This advanced certificate program option is designed to prepare students for travel agency management trainees. It includes all the course work of the travel agent basic certificate plus advanced instruction in cost-effective operations, training techniques, current developments in the travel industry, computer applications, tour development and sales and communications skills.

REQUIRED COURSES (36 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate requirements		17	
Core Courses - A grade of C or better is required for graduation.			
TVL 201	Travel Industry Operations Management	3	TVL 102
TVL 202	Travel Industry Computer Applications	3	TVL 201*
TVL 211	Tour Development, Sales and Management	3	TVL 101*

General Education and Support Courses:

SPE 120	Business and Professional Communication	3	
HMM 199	Co-op Related Class in HMM	1	
HMM 199	Co-op Work in HMM	3	
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I		WRT 100*
or 150	Practical Communications	3	

Suggested Course Sequence (Read down.)

Basic Certificate requirements
WRT 100, 101 or 150
TVL 211
SPE 120
TVL 201
TVL 202
HMM 199

*For additional prerequisite information, check Course Section.

Hospitality Sales and Marketing Application Options:

These certificate program options are designed to prepare students for beginning-level management positions in sales and marketing in the lodging industry. The programs offer current practitioners, and those who wish to upgrade their skills, professional training in sales and marketing, both in group room and food/beverage sales. Training includes product marketing and customer needs analyses; sales call techniques; advertising, media, public relations and other promotional activities; career advancement; catering menu development/costing; tour development and sales; research skills; and skills for communicating with a wide spectrum of consumers. Students entering these certificate programs should have at least one year of work experience in the hospitality-tourism industry.

Hospitality Sales and Marketing Application—Basic Certificate For Direct Employment

REQUIRED COURSES (16 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
HOS 211	Hospitality Sales and Marketing Applications I	3	*
RCF 201	Catering and Banquet Sales and Management	3	RCF 101*
General Education and Support Courses:			
HMM 199	Co-op Related Class in HMM	1	
HMM 199	Co-op Work in HMM	3	
SPE 120	Business and Professional Communication	3	
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I		WRT 100*
or 150	Practical Communications	3	

Suggested Course Sequence (Read down.)

HOS 211	HMM 199
SPE 120	RCF 201
WRT 100 or 101 or 150	

*For additional prerequisite information, check Course Section.

Hospitality Sales and Marketing Application—Advanced Certificate for Direct Employment

REQUIRED COURSES (32 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate requirements		16	
Core Courses - A grade of C or better is required for graduation.			
HOS 212	Hospitality Sales and Marketing Applications II	3	HOS 211*
TVL 211	Tour Group Development, Sales and Management	3	TVL 101*
HOS 101	Meetings and Convention Management I	3	

General Education and Support Courses:

HMM 199	Co-op Related Class in HMM	1	
HMM 199	Co-op Work in HMM	3	
BUS 051	Mathematics of Business	3	MTH 060*

Suggested Course Sequence (Read down.)

HOS 212
BUS 051
HOS 101
HMM 199
TVL 211

*For additional prerequisite information, check Course Section.

Housekeeping Departments/Hospitality Industry Options:

Students in this program area receive training for positions as executive housekeepers, i.e., persons who supervise the maintenance staffs of hotels, restaurants, hospitals, business offices, or residences. Successful executive housekeepers are able to perform their duties with minimal direction, and have good organizational and supervisory skills.

Housekeeping, Executive—Basic Certificate For Direct Employment

This option is designed to prepare students for beginning-level management positions in the executive housekeeping field. Training includes: safety techniques; skills and procedures for mixing and applying chemical solutions for cleaning, sanitizing and maintaining rooms; equipment maintenance; cost controls; hiring and firing practices; communications and leadership skills; and time management.

REQUIRED COURSES (13 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
HSK 150	Executive Housekeeping I	3	
HSK 151	Executive Housekeeping II	3	
General Education and Support Courses:			
HMM 199	Co-op Related Class in HMM	1	
HMM 199	Co-op Work in HMM	3	
WRT 150	Practical Communications	3	

Suggested Course Sequence (Read down.)

WRT 150
HSK 150
HSK 151
HMM 199

*For additional prerequisite information, check Course Section.

Housekeeping, Executive—Advanced Certificate For Direct Employment

The advanced certificate option prepares students for positions as executive housekeepers. It includes all the course work of the basic certificate plus more advanced principles and techniques for achieving high productivity through effective budgeting, scheduling, insurance liability, and supervisor/employee communications.

REQUIRED COURSES (32 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate requirements		13	
General Education and Support Courses:			
HMM 299	Co-op Related Class in HMM	1	HMM 199
HMM 299	Co-op Work in HMM	3	HMM 199
MAN 122	Supervision	3	
ECO 100	Introduction to Microeconomics	3	MTH 070*
MAN 110	Human Relations in Business and Industry	3	
MTH	Determined by assessment test	3	
ELEC	Elective		
	Complete one of the following:	3	
	MAN 280		
	PSY 100		

Suggested Course Sequence (Read down.)

Basic Certificate requirements
MAN 110
MAN 122
HMM 299
Elective
Math course
ECO 100

*For additional prerequisite information, check Course Section.

Meetings and Convention Management Options:

These certificate programs prepare students to manage conventions, trade shows, destination services and meetings. Students are trained to plan, control, and coordinate such activities.

Meetings and Convention Management—Basic Certificate for Direct Employment

REQUIRED COURSES (16 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
HOS 101	Meetings and Convention Management I	3	
HOS 102	Meetings and Convention Management II	3	HOS 101
General Education and Support Courses:			
HMM 199	Co-op Related in Class in HMM	1	
HMM 199	Co-op Work in HMM	3	
WRT 100	Writing Fundamentals		WRT 070*
or 101	Writing I		WRT 100*
or 150	Practical Communications	3	
SPE 120	Business and Professional Communication	3	

Suggested Course Sequence (Read down.)

HOS 101
HOS 102
HMM 199
SPE 120
WRT 100 or 101 or 150

*For additional prerequisite information, check Course Section.

Meetings and Convention Management—Advanced Certificate for Direct Employment

REQUIRED COURSES (32 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate Requirements		16	
Core Courses - A grade of C or better is required for graduation.			
HOS 103	Meetings and Convention Management III	3	HOS 102
RCF 201	Catering and Banquet Sales and Management	3	RCF 101*
TVL 211	Tour Group Development, Sales and Management	3	TVL 101*

General Education and Support Courses:

HMM 199	Co-op Related Class in HMM	1
HMM 199	Co-op Work in HMM	3
BUS 051	Mathematics of Business	3

Suggested Course Sequence (Read down.)

Basic Certificate requirements
HOS 103
RCF 201
BUS 051
TVL 211
HMM 199

*For additional prerequisite information, check Course Section.

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 progress from the basic certificate requiring 17-19 credit hours to the advanced certificate requiring 15 additional hours for a program total of 32-34 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 topics in the curriculum include the basic principles of nutrition, safety, and sanitary conditions. Also included are the principles of menu preparation, techniques of quantity food production, special techniques as they relate to nutrition and food related areas, and an analysis of purchasing and production methods in the expanded areas of the food service industry.

Institutional Food Service—Basic Certificate For Direct Employment

REQUIRED COURSES (17-19 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
IFS 110	Basic Nutrition for Food Service Personnel	3	
IFS 116	Quantity Food Production	3	
MAN 110	Human Relations in Business and Industry	3	
General Education and Support Courses:			
IFS 105	Record Keeping for Institutional Food Services	2	
SPE 120	Business and Professional Communication	3	
SCI/MTH	Science and Mathematics Elective		
	Complete one of the following:	3-5	
	ACC 050, 101, 102		
	AST 101, 102		
	BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205		
	BUS 051		
	CHM 121, 130, 140, 141, 151, 152		
	ECE 124		
	GEO 101, 102		
	GLG 101, 102		
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220		
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230		
Suggested Course Sequence (Read down.)			
IFS 105	SPE 120		
IFS 110	Science and		
IFS 116	Mathematics Elective		
MAN 110			

*For additional prerequisite information, check Course Section.

Institutional Food Service—Advanced Certificate For Direct Employment

Persons planning to apply for the advanced certificate must have completed the basic certificate program (17-19 credit hours).

REQUIRED COURSES (32-34 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate requirement		17-19	
Core Courses - A grade of C or better is required for graduation.			
IFS 125	Special Nutritional Needs	3	IFS 110
IFS 130	Educating the Consumer in Food and Nutrition	3	IFS 110
IFS 180	Menu Planning and Food Purchasing for Institutions	3	IFS 110
IFS 221	Food Service System Management	3	IFS 180
GEB 150	Management Update Technician I	1	
HDE 195	Securing a Job	1	
CSC 110C	Terminal Operations	1	*

Suggested Course Sequence (Read down.)

IFS 180	GEB 150
IFS 125	HDE 195
IFS 130	CSC 110C
IFS 221	

*For additional prerequisite information, check Course Section.

International Business Communication Studies

This program area is designed to meet the needs of business and industry by providing business training with the following emphases: (1) preparing the student for employment in an international setting, (2) upgrading the skills of students currently employed in a company with international operations, and (3) preparing the student for a foreign assignment.

Two program options are offered: a basic certificate for direct employment and an associate of applied science degree (AAS). These

programs cover the following areas: language training, cross-cultural training for the business and/or social environment, training for living in a foreign country, culture shock training, training to develop skills in handling everyday transactions of international trade, and training for hosting foreign business personnel. In addition, the AAS degree includes business course offerings and general education requirements.

Courses in these programs are structured to accommodate content for any country or geographic region. The acculturation portion of the program should be taken by family members of employees anticipating a foreign assignment. For transcript purposes, each IBC course will show the actual foreign country or region studied.

International Business Communication Studies—Basic Certificate for Direct Employment

REQUIRED COURSES (15-16 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
IBC 100	Foreign Language I: (Language to be specified)	4	
IBC 110	Foreign Language II: (Language to be specified)	4	IBC 100
IBC 120	Cultural Similarities and Differences Between the United States and the Foreign Country	3	
IBC 130 or 140	Living in the Foreign Country Basic Techniques of International Trade	3	
IBC 150 or 160	Cultural Shock Management Hosting Foreign Business Personnel	1-2	

Suggested Course Sequence (Read down.)

IBC 100
IBC 110
IBC 120
IBC 130 or 140
IBC 150 or 160

International Business Communication Studies— Associate of Applied Science Degree

Students in this program, upon completing IBC 100, 110, 120, 130 or 140, and 150 or 160, may apply for the international business communication studies basic certificate.

REQUIRED COURSES (68-75 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACC 101	Financial Accounting	3	
BUS 210	International Business	3	
IBC 100	Foreign Language I: (To be specified or see foreign language electives)	4	
IBC 110	Foreign Language II: (To be specified or see foreign language electives)	4	IBC 100
IBC 120	Cultural Similarities and Differences Between the United States and the Foreign Country	3	
IBC 140	Basic Techniques of International Trade	3	
IBC 160	Hosting Foreign Business Personnel	1	
MAN 280	Business Organization and Management	3	BUS 100*
MKT 111	Marketing	3	
SPE 120	Business and Professional Communication	3	
WRT 101 or 150 or OED 151	Writing I Practical Communications Business English	3	WRT 100* *
General Education and Support Courses:			
BUS 100	Introduction to Business	3	
BUS 105	Survey of Microcomputer Uses	3	
BUS 200	Business Law I	3	
ACC 102	Managerial Accounting	3	ACC 101*
BUS 051 or MTH 130	Mathematics of Business Algebra II or higher	3	MTH 070*
MAN 110	Human Relations in Business and Industry	3	

WRT 102 or 154 or OED 251 REA	Writing II Technical Communications I Business Communications Reading requirement	3 0-4	WRT 101* WRT 100* OED 151 *
FOR/LANG	Foreign Language Electives Complete one of the following pairs in lieu of IBC 100 and 110: FRE 110 and 111 GER 110 and 111 ITA 110 and 111 SPA 110 and 111		
HUM/ART	Humanities and Fine Arts Elective Complete one of the following: ART 130, 131, 132, 135 DRA 140, 141 HUM 110, 111 LIT 260, 265 MUS 151, 201, 202 PHI 101, 120	3-4	
ELEC	Other Electives Complete four of the following: ANT 102 ECO 100, 101, 230 FIN 211 IBC 130, 150 MAN 100 MKT 199, 113, 125, 150 POS 120	11-13	
Suggested Course Sequence (Read down.)			
Reading requirement	IBC 160	MAN 110	
WRT 101 or 150 or OED 151	BUS 210 ACC 101	MAN 280 MKT 111	
IBC 100 or Foreign Language Elective	ACC 102 BUS 051	SPE 120 WRT 102 or 154 or OED 251	
IBC 110 or Foreign Language Elective	or MTH 130 or higher	BUS 200 Humanities and Fine Arts Elective	
IBC 120	BUS 105	Other Electives	
IBC 140	BUS 100		

*For additional prerequisite information, check Course Section.

Interpreter Training Program

Sign Language Certificate

The sign language basic certificate program 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 course work also provides information relating to the history, education and community aspects of deafness and American Sign Language.

This program is primarily for individuals preparing for or already employed in industry, business and public service who have daily contact with the general public. While this course work will not qualify an individual as an interpreter, it will enhance his/her ability to provide services to many deaf individuals through basic communication skills.

Sign Language—Basic Certificate

REQUIRED COURSES (20-24 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
SLG 100	Community and the Exceptional Person	3	
SLG 101	American Sign Language I	4	
SLG 102	American Sign Language II	4	SLG 101
SLG 105	Expressive/Receptive Fingerspelling and Numbers	2	*
SLG 120	History of Deafness	3	
General Education and Support Courses			
REA 071	Spelling	1	
ANT 215	The Nature of Language	3	
REA	Reading requirement	0-4	*

Suggested Course Sequence (Read down.)

SLG 101	SLG 102
SLG 100	SLG 120
SLG 105	REA requirement
ANT 215	REA 071

*For additional prerequisite information, check Course Section.

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 61 credit hours to complete the associate of applied arts degree in interpreting. The program includes a minimum of 54 credit hours of campus lecture, 4 credit hours of laboratory study and 2-3 credit hours of cooperative education in the community. Students graduating from this program will be eligible to meet the Interpreter Quality Assurance System in Arizona.

Acceptance Into the Program:

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

- Complete an Interpreter Training Program application packet
- Demonstrate the following minimum reading competencies:
 - Program entry - 10th grade level
 - Program exit - REA 112 level or above
- Successfully complete or show an equivalency for
 - SLG 102 - American Sign Language II
 - REA 071 - Spelling
- Receive approval by the Interpreter Training Program selection committee.

General Requirements:

- Minimum of 61 credit hours.
- Work in residence: 32 hours in major course work.

Restrictions:

- Students will be allowed to transfer in 8 hours of sign language credit towards completion of the program.

Interpreter Training Program—Associate of Applied Arts Degree For Direct Employment

REQUIRED COURSES (61-69 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
SLG 100	Community and the Exceptional Person	3	
SLG 105	Expressive/Receptive Fingerspelling and Numbers	2	*
SLG 120	History of Deafness	3	
SLG 150	Principles of Etiology and Audiology	3	
SLG 180	Psychosocial Aspects of Deafness	3	SLG 101
SLG 201	American Sign Language III	4	SLG 102
SLG 202	American Sign Language IV	4	SLG 201
SLG 203	American Sign Language V	3	SLG 202*
SLG 220	Interpreting I	3	SLG 201
SLG 250	Interpreting II	3	SLG 220*
SLG 270	Sign to Voice	4	SLG 202*
SLG 299	Co-op Related Class in SLG	1-2	SLG 202*
SLG 299	Co-op Work in SLG	1-8	SLG 202*
General Education and Support Courses:			
PSY 100	Psychology I	3	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
SPE 102	Introduction to Oral Communication	3	
ANT 215	The Nature of Language	3	
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives (See Graduation section of this catalog for associate of applied arts degree course lists.)	3-4	
SCI/MTH	Science and Mathematics Electives (See Graduation section of this catalog for associate of applied arts degree course lists.)	6-8	
ITP ELEC	Electives (not required for graduation)		

SLG 106	Fingerspelling II	2	SLG 105*
SLG 199	Co-op Related Class in SLG	1-2	*
SLG 199	Co-op Work in SLG	1-8	*

Suggested Course Sequence (Read down.)

SLG 201	SLG 120	SLG 180
SLG 105	Humanities and Fine Arts Elective	SLG 250
SPE 102	SLG 203	SLG 270
SLG 100	SLG 150	SLG 299
WRT 101	SLG 220	SLG 299
Reading Requirement	PSY 100	Science and Mathematics Elective
SLG 202	Science and Mathematics Elective	ITP Elective
ANT 215		
WRT 102		

*For additional prerequisite information, check Course Section.

Landscape Technician

The landscape technician program options are designed to prepare students for employment in the landscape industry either as landscape maintenance and plant care technicians or as designers and/or managers of landscape systems. The former training is provided by the advanced certificate program and the latter by the associate of applied science degree program. Program advisors are located on the West Campus.

Landscape Technician—Advanced Certificate For Direct Employment

This program trains students to be landscape maintenance and plant care technicians. Instruction covers definition of career goals; diagnosis, treatment and control of horticultural diseases and pests; familiarity with suitable plants for exterior and interior use; and analysis and improvement of soils for horticultural use. The program includes four credit hours of cooperative education experience in any aspect of the landscape (Green) industry in which students may explore their individual career objectives. Success in this program requires good basic mathematics and English skills, a high level of manual dexterity, and the ability to engage in strenuous work.

REQUIRED COURSES (36-40 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BIO 184	Plant Biology	4	BIO 101*
LTP 100	Landscape Today and Tomorrow	3	
LTP 120	Plant Pathology, Pests and Controls	4	BIO 184
LTP 130	Soils: Plant Fertility	4	
LTP 160	Plant Usage and Identification	3	BIO 184
LTP 199	Co-op Related Class in LTP	1	*
LTP 199	Co-op Work in LTP	3	*
MTH 110	Technical Mathematics I	3	MTH 060*
WRT 150	Practical Communications	3	

General Education and Support Courses :

CHM 130	Fundamental Chemistry	5	*
MTH 120	Technical Mathematics II	3	MTH 110
REA	Reading requirement	0-4	*

Suggested Course Sequence (Read down.)

Reading requirement	LTP 130
WRT 150	MTH 120
MTH 110	LTP 120
CHM 130	LTP 160
BIO 184	LTP 199
LTP 100	

*For additional prerequisite information, check Course Section.

Landscape Technician—Associate of Applied Science Degree For Direct Employment

This program trains students for employment as landscape system designers and/or managers. Instruction includes designing, estimating and implementing landscape plans; designing, installing and maintaining pressure-type irrigation systems; estimating and implementing maintenance projects; and performing first-level maintenance on equipment. The associate of applied science degree program includes all the requirements of the advanced certificate program. Success in this program requires a good grasp of the basic concepts of biology as well as good basic mathematics and English skills, a high level of manual dexterity, and the ability to engage in strenuous work.

REQUIRED COURSES (71-72 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Advanced Certificate requirements		40	
Core Courses - A grade of C or better is required for graduation.			
LTP 200	Landscape Management Systems	3	
LTP 205	Irrigation Design I	3	
LTP 210	Irrigation Installation	3	LTP 205
LTP 230	Landscape Maintenance	3	
SPE 120	Business and Professional Communication	3	
General Education and Support Courses:			
LTP 260	Basic Landscape Design	3	
HUM 110	Humanities I	4	
PSY 100	Psychology I	3	
LTP ELEC	Other Elective		
Complete one of the following:			
LTP 150	Landscape Equipment Repair Maintenance	3	
LTP 206	Irrigation Design II	3	LTP 205
LTP 215	Interior Plantscape Design/Maintenance	3	
LTP 240	Nursery Operations and Maintenance	3	
SOC/BEH	Social and Behavioral Science Elective		
Complete one of the following:		3-4	
ANT 101, 102, 200, 210, 215, 225			
ECE 107, 117			
ECO 100, 101			
GEO 103			
HIS 101, 102, 141, 142, 147			
MAN 110			
POS 100, 110, 112, 120, 130			
PSY 100, 101, 130			
SOC 100, 101			

Suggested Course Sequence (Read down.)

Advanced Certificate Requirement	LTP 205
LTP 230	HUM 110
PSY 100	LTP 200
LTP 260	LTP 210
Social and Behavioral Science Elective	SPE 120
	LTP Elective

*For additional prerequisite information, check Course Section.

Legal Assistant

This program is approved by the American Bar Association and is designed to prepare students for entry-level paraprofessional positions in the legal field. Legal assistants work under the supervision of a lawyer, applying legal knowledge and procedures in assisting lawyers, clients, and courts. Their work includes developing and modifying procedures used in the legal field; preparing and interpreting legal documents; researching, selecting, assessing, compiling and using information from the law library and other references; and analyzing and handling procedural problems that involve independent decisions.

The program also assists students with course work in preparation for writing the voluntary Certified Legal Assistant Certification Examination offered by National Association of Legal Assistants (NALA). A Certified Legal Assistant (CLA) must maintain a certain number of continuing education credits as required by NALA to keep CLA status. The LAS courses listed below (except LAS 101 and 250) currently meet those continuing education requirements.

Legal assistants may be employed by law firms, businesses, financial institutions, title and escrow companies, government agencies or as independent contractors. Additional positions for which they qualify include title examiner, trust officer, contract clerk, legal investigator, and law firm administrator. The program has four specialty areas from which the student may choose: criminal, litigation, probate, or business. This choice allows the student to pursue in-depth study in a particular area of law. An internship at an approved work site is available during the last semester of course work for students who have not had previous work experience in the legal field.

The Legal Assistant Advisory Committee recommends that students who have not had prior work experience or knowledge of the legal field and plan to enter the legal assistant program take Legal Terms (OED 141) and Legal Procedures I (OED 142). These courses do not count toward the 66 credit hour associate degree but greatly enhance the student's probability of success in the program.

Students should also have a minimum reading capability at the twelfth-grade level in order to ensure success in the program. In addition, good organizational ability, oral and written communication skills, and ability to relate well to people are important for success in this field. LAS faculty advisors are available on the Downtown Campus only.

Legal Assistant Program Objectives

To prepare students with employment entry level practical skills and knowledge for the legal assistant field, the program offers a series of courses which gives students the ability to:

1. Describe the role and responsibilities of a legal assistant within a law office and the court system.
2. Demonstrate knowledge of the law library, research skills and methods, and the ability to write research memoranda and reports using proper citation form for legal sources.
3. Demonstrate knowledge of professional ethics as applied to the practice of law and the legal assistant.
4. Demonstrate the legal assistant's role during litigation and trial and the ability to prepare motions, pleading, instruments of discovery, notetaking and daily trial recapitulation.
5. Apply legal problem solving techniques and the principles of abstract, inductive and deductive reasoning to case law and factual situations.

Legal Assistant—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (66-75 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
LAS 101	Introduction to Legal Assistant Careers	3	
LAS 102	Legal Systems and Procedures	3	
LAS 103	Legal Research	3	WRT 101*
LAS 104	Judgment, Analysis and Ethics	3	LAS 101*
LAS 106	Civil and Criminal Evidence	3	LAS 103*
LAS 202	Discovery and Trial Preparation	3	LAS 102
General Education and Support Courses:			
BUS 200	Business Law I	3	
BUS 201	Business Law II	3	BUS 200
ACC 101	Financial Accounting	3	
ACC 102	Managerial Accounting	3	ACC 101*
MAN 110	Human Relations in Business and Industry	3	
POS 110	American National Government and Politics	3	
SPE 120	Business and Professional Communication	3	
WRT 101	Writing I	3	WRT 100*
REA	Reading requirement	0-4	*

HUM/ART	Humanities and Fine Arts Elective Complete one of the following: 3-4 ART 130, 131, 132, 135 DRA 140, 141 ECE 108, 112 HUM 110, 111 Foreign Language LIT 260, 265 MUS 151, 201, 202 PHI 101, 120
SCI/MTH	Science and Mathematics Electives Complete two of the following, or PHI 120 and one of the following: 6-10 ACC 050 AST 101, 102, 111, 112 BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205 BUS 051 CHM 121, 130, 140, 141, 151, 152 ECE 124 ENV 203 GEO 101, 102 GLG 101, 102 MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220 PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230
SPEC ELEC	Specialty Area Electives Complete one of the following specialty areas: 9 Also complete one additional course from any other specialty area or from the LAS electives. 3 (Specialty courses are not offered every semester. Consult with an LAS faculty advisor to determine class offerings.) Criminal: AJS 109, LAS 206, LAS 207

Litigation: LAS 201, LAS 203 and
complete one LAS course from
another specialty area or an LAS
elective.

Probate: FIN 238, LAS 204,
LAS 205

Business: LAS 105, LAS 107,
LAS 209

LAS ELEC LAS Electives: LAS 208, LAS
210, LAS 250 (The internship is
designed to give the students
work experience at an approved
site. For students in their final
semester of course work.)

ELEC Other Electives
Complete one of the following: 3
AJS 146, 220
CSC 100, 105
ECO 230
FIN 212
HCE 140
MAN 278, 280
POS 050, 130, 230
PSY - any course
RLS 201
SOC 202
SPA - any four credit course
SSE 127

Suggested Course Sequence

See a legal assistant faculty advisor.

*For additional prerequisite information, check Course Section.

Liberal Arts and Sciences

This associate of arts or associate of science program is designed for students seeking a broad-based educational background, enabling them to transfer into an upper class level at a college or university of their choice. Included among the areas in which students may major are social and behavioral sciences, humanities, languages, literature, writing, mathematics, and natural sciences. (Students may prefer to seek an associate of science degree if majoring in mathematics or natural sciences.)

Students should see an advisor early in their program in order to receive guidance regarding subject areas in which they may wish to major and minor and for appropriate selection of courses required by the institution to which they plan to transfer. Students should decide upon their major and minor prior to their transfer.

Students planning to transfer to the University of Arizona, Arizona State University, or Northern Arizona University must see an advisor in liberal arts and sciences for requirements unique to each school. (See the Liberal Arts and Sciences transfer guide for the chosen university and see an advisor.)

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

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

REQUIRED COURSES (60-71 CREDIT HOURS)

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

Note: All courses in this degree program are considered core courses and must be transferable.

Support Courses:

REA	Reading Requirement	0-4	*
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FOR/LANG

Foreign Language:

4-16**

Completion of a language course numbered 211, fourth-semester level, or completion of SPA 202 or SLG 202. (Bilingual or international students should consult an advisor concerning exceptions to this requirement.) If a student satisfies the language requirement in fewer than 16 credits, additional credit hours of transferable electives must be completed to meet the minimum associate degree requirement of 60 credit hours.

FSS

Fitness and Sport Sciences:

2

(The Fitness and Sport Sciences requirement can be waived only for a physical disability or medical reasons. See an advisor.)

CRIT/THINK COMP/LIT

Critical Thinking/Computer Literacy:

3

Choose one course from the following:

CSC 105	Survey of Microcomputer Uses	3
PHI 101	Introduction to Philosophy I	3
PHI 120	Introduction to Logic	3
PHI 130	Introductory Studies in Ethics and Social Philosophy	3

General Education Requirements (44-46 credit hours):

Three credit hours may be waived (as long as the course is not marked with ***, which indicates unique content in matters of gender, class, race, or ethnicity) from one of the following requirement areas: Humanities/Western Civilization, Social and Behavioral Sciences, or Non-Western Civilization.

English Composition (6 credit hours):

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
WRT 107	Writing I for International Students	3	WRT 106*
WRT 108	Writing II for International Students	3	WRT 107

Humanities/Western Civilization (9 credit hours):

OPTION 1 - Humanities Option:		
HUM 251	Western Humanities I	3
HUM 252	Western Humanities II	3
HUM 253	Western Humanities III	3

OPTION 2 - History Option:

Complete both courses below:		
HIS 101	Introduction to Western Civilization I	3
HIS 102	Introduction to Western Civilization II	3

and one of the following:

HIS 141	History of the United States I	3
HIS 142	History of the United States II	3

Biological and Physical Sciences (8-10 credit hours):

Complete at least eight credit hours from one of the following five options.

OPTION 1:

Complete two of the three courses

BIO 101	General Biology (Non-Majors) I: Selected Topics	4	
BIO 102	General Biology (Non-Majors) II: Additional Topics	4	
BIO 105	Environmental Biology	4	

OPTION 2:

Complete both courses

BIO 184	Plant Biology	4	BIO 101*
BIO 190	Animal Biology	4	*

OPTION 3:

Complete both courses

GEO 101	Physical Geography: Weather and Climate	4	
GEO 102	Physical Geography: Land Forms and Oceans	4	

OPTION 4:

Complete both courses

GLG 101	Introductory Geology I	4	
GLG 102	Introductory Geology II	4	

OPTION 5:

Complete both courses

PHY 121	Introductory Physics I	5	*
PHY 122	Introductory Physics II	5	PHY 121

Mathematics (3 credit hours):

Complete MTH 150 or above. See Graduation section for associate of arts degree course list. 3

Social Sciences/Individuals and Institutions (9 credit hours):

Complete nine credit hours from at least two subject areas, and one of the courses must include unique content in matters of gender, class, race, or ethnicity. Currently SOC 201*** and SOC 204*** fulfill this unique content requirement; however, this requirement could be met at the U of A at either the lower or upper division level.

ANT 101	Human Origins and Prehistory	3	
ANT 102	Introduction to Cultural Anthropology and Linguistics	3	
GEO 103	Cultural Geography	4	
POS 100	Introduction to Politics	3	
POS 110	American National Government and Politics	3	
POS 120	Introduction to International Relations	3	
POS 130	American State and Local Governments and Politics	3	
POS 140	Introduction to Comparative Politics	3	
PSY 120	Introduction to Social Psychology	3	PSY 100*
SOC 100	Introduction to Sociology	3	
SOC 201***	Minority Relations and Urban Society	3	
SOC 204***	Women in Society	3	

Non-Western Civilization (3 credit hours):

ANT 121	Contemporary Indian Groups of the Southwest	3	
ANT/ARC 141	Introduction to Southwestern Prehistory	3	

Arts and Literature (6 credit hours):

Complete three credit hours from Group 1 and three credit hours from Group 2.

Group 1:		
ART 100	Basic Design	3
ART 130	Art and Culture I	3

	Group 2:		
LIT 260	Major British Writers	3	*
LIT 261	Modern Literature	3	*
LIT 262	Major Literary Themes	3	*
LIT 265	Major American Authors	3	*
LIT 266	World Literature: Dramatic	3	*
LIT 267	World Literature: Narrative	3	*
LIT 286	Themes in American Literature	3	*
REL 120	Old Testament	3	
REL 121	New Testament	3	
SPE 102	Introduction to Oral Communication	3	
SPE 110	Public Speaking	3	
SPE 136	Oral Interpretation of Literature	3	

Suggested Course Sequence

See a liberal arts and sciences faculty advisor.

*For additional prerequisite information, check Course Section.

Machine Tool Technology

This program area is designed to provide the skills, knowledge, and practice needed for employment as a machinist. Depending upon their qualifications, students may find positions in the local job market as machine operators, machinist apprentices, maintenance machinists, model makers, QC inspectors or CNC operators.

Three program options are available: machine shop fundamentals basic certificate, machinist's standard certificate technical certificate, and machine tool technology associate of applied science degree. In addition to these options, a 43-credit-hour block program of in-depth training and skill development is available in a concentrated two-semester sequence. Students interested in the block program must apply to the program advisor during the spring or summer prior to starting the two-semester sequence in the fall. Cooperative education courses offer actual work experience while attending classes.

Machine tool training includes a broad range of techniques used in metals manufacturing in addition to support courses in manufacturing processes, quality control, metallurgy, drafting, numerical control, and welding. Such background can provide a base from which students may pursue a baccalaureate degree in manufacturing engineering technology or mechanical engineering. Students interested in obtaining the higher degree should contact the college or university of their choice to determine transfer requirements.

Good mechanical aptitude and good basic skills in reading, writing, and mathematics are important for success in this program. It is suggested that all students confer with machine tool advisors before registering.

Machine Shop Fundamentals—Basic Certificate For Direct Employment

This program is designed to prepare students for entry level employment as machine operators, machinist apprentices, maintenance machinists, model makers, QC inspectors and CNC operators. Good mechanical aptitude and good basic skills in reading, writing, and mathematics are important for success in this program.

REQUIRED COURSES (21 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
MAC 103	Machine Shop Mathematics I	3	MTH 060*
MAC 104	Machine Shop Mathematics II	3	MAC 103
MAC 110	Machine Shop for Technicians I	4	
MAC 120	Machine Shop for Technicians II	4	MAC 103*
MAC 130	Basic Metallurgy	3	

General Education and Support Courses:

DFT 101	Blueprint Reading/Sketching	4	
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Suggested Course Sequence (Read down.)

MAC 103
DFT 101
MAC 110
MAC 104
MAC 120
MAC 130

*For additional prerequisite information, check Course Section.

Machinist's Standard Certificate—Technical Certificate For Direct Employment**REQUIRED COURSES (34 CREDIT HOURS)**

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
MAC 103	Machine Shop Mathematics I	3	MTH 060*
MAC 104	Machine Shop Mathematics II	3	MAC 103
MAC 110	Machine Shop for Technicians I	4	
MAC 120	Machine Shop for Technicians II	4	MAC 103*
MAC 130	Basic Metallurgy	3	

General Education and Support Courses:

DFT 150	Technical Drafting I	4	
MAN 110	Human Relations in Business and Industry	3	
PHY 101	Technical Physics I	3	
WRT 100 or 101	Writing Fundamentals or Writing I	3	WRT 070* WRT 100*

ELEC**Other Electives:**

4

Complete four credit hours from the following list with the approval of the program advisor.
MAC 210, 225, 250, 255, 270, 280, 281
CSC 100, 105
DFT 101, 180
WLD 110, 150, 160, 260
SML 110

Suggested Course Sequence (Read down.)

WRT 100 or 101	MAC 120
MAC 103	MAC 130
MAC 110	Other Electives
MAC 104	MAN 110
DFT 150	PHY 101

*For additional prerequisite information, check Course Section.

Machine Tool Technology—Associate of Applied Science Degree For Direct Employment**REQUIRED COURSES (62-67 CREDIT HOURS)**

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
MAC 103	Machine Shop Mathematics I	3	MTH 060*
MAC 104	Machine Shop Mathematics II	3	MAC 103*
MAC 110	Machine Shop for Technicians I	4	
MAC 120	Machine Shop for Technicians II	4	MAC 103*
MAC 130	Basic Metallurgy	3	
MAC 250	Introduction to Numerical Control	4	MTH 104*
MAC 280	Machine Shop for Technicians III	4	
MAC 285	Physical Metallurgy	3	MAC 130
General Education and Support Courses:			
DFT 150	Technical Drafting I	4	
DFT 151	Technical Drafting II	4	DFT 150*
MAN 110	Human Relations in Business and Industry	3	
PHY 101	Technical Physics I	3	
PHY 102	Technical Physics II	3	PHY 101*
WRT 100 or 101	Writing Fundamentals or Writing I	3	WRT 070* WRT 100*

WRT 101	Writing I		WRT 100*
or 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*
ELEC	Other Electives:	8	
	Complete eight credit hours from the following list with the approval of the program advisor.		
	MAC 210, 225, 255, 270, 280, 281		
	CSC 100, 105		
	DFT 101, 180		
	WLD 110, 150, 160, 260		
	SML 110		
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

Suggested Course Sequence (Read down.)

Reading requirement	MAC 120	Humanities and Fine
MAC 103	Other Elective	Arts Elective
WRT 100 or 101	PHY 101	MAC 280
MAC 110	MAN 110	MAC 250
MAC 130	DFT 150	MAC 285
MAC 104	PHY 102	DFT 151
	WRT 101 or 102 or 154	Other Elective

*For additional prerequisite information, check Course Section.

Mathematics

The associate of arts degree in mathematics is designed to provide students with basic mathematical skills through linear algebra and thus prepare them to transfer to a four-year college or university to continue work on a bachelor's degree in mathematics. Such students should follow the first two years' requirements of the institution to which they plan to transfer.

The mathematics program area offers a wide variety of courses ranging from arithmetic and basic algebra, through calculus and linear algebra. The mathematics faculty is dedicated to the goal of providing as much individual attention to students as possible. An intensive tutoring program is provided in the college's learning centers, and the faculty is constantly reviewing and updating the mathematics curriculum and teaching methods.

New students are required to take the mathematics assessment test and should begin their program with the recommended mathematics course. Students who plan to transfer to an upper division school should check with an advisor. Program advisors are available on all campuses.

Mathematics—Associate of Arts Degree For Transfer

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

REQUIRED COURSES (60-78 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CSC 140	FORTAN Programming	3	CSC 100*
FOREIGN LANGUAGE	Four transferable semesters in one foreign language or demonstrated proficiency at the fourth-semester level	4-16	
MTH 180	Analytic Geometry and Calculus I	4	MTH 160*
MTH 185	Analytic Geometry and Calculus II	3	MTH 180
MTH 215	Analytic Geometry and Calculus III	4	MTH 185

MTH 219	Differential Equations	3	MTH 215
MTH 225	Introduction to Linear Algebra	3	MTH 215
PHYSICS	Complete one of the following options:	10-14	
	OPTION 1:		
PHY 131	Introductory Physics with Calculus I	5	MTH 180*
PHY 132	Introductory Physics with Calculus II	5	PHY 131*
	OPTION 2:		
PHY 210	Introductory Mechanics	5	MTH 180*
PHY 216	Introductory Electricity and Magnetism	5	PHY 210*
PHY 221	Introduction to Waves and Heat	4	PHY 210*

Support Courses:

REA	Reading requirement	0-4	*
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General Education Requirements (See Graduation section of this catalog for associate of arts degree course lists.):

English Composition	6
Humanities and Fine Arts	9
Biological and Physical Sciences	8
Physics options satisfy this requirement.	
Mathematics (MTH 150 or above)	3
Math core courses satisfy this requirement.	
Social and Behavioral Sciences	9
Other Requirements	5-6
Foreign language satisfies this requirement.	

Suggested Course Sequence (Read down.)

Reading requirement	Humanities and Fine Arts Requirement	Humanities and Fine Arts Requirement
English Composition	Arts Requirement	Arts Requirement
MTH 180	CSC 140	Humanities and Fine Arts Requirement
Foreign Language	Foreign Language	Arts Requirement
Social and Behavioral Sciences Requirement	Social and Behavioral Sciences Requirement	MTH 219
English Composition	MTH 215	MTH 225
MTH 185	Physics Option	Physics Option
Physics Option	Foreign Language	Foreign Language
		Social and Behavioral Sciences Requirement

*For additional prerequisite information, check Course Section.

Media Communications

Persons trained in media communications can work in a variety of jobs in the production of television programs, films, and publications. The field comprises such jobs as writer, editor, director, camera operator, and graphic designer.

Students can choose a major in print media or telecommunications. In both programs, a student can obtain an associate degree and become employed or continue on to a four-year college or university. A basic certificate is also offered in telecommunications. Both majors emphasize hands-on experience with equipment and extensive work in newspaper or television facilities on campus. Students in either university transfer program should follow the first two years of requirements of the school they plan to attend.

Instruction includes television camera operation, video editing, studio production, audio production, typesetting, paste-up, art design, computer applications in media, electronic field production, electronic news gathering, film production, film editing, lighting and script writing. The associate degree programs also involve students as interns at work sites in the community through cooperative education courses. Student activities also include the Aztec Press, an award winning student newspaper published weekly, and Collage, the student-produced video magazine, aired locally on cable television.

Program advisors are located on the West Campus.

Print Media Sequence—Associate of Applied Science Degree For Direct Employment

This program is designed to prepare students for employment as typesetters, graphic designers and artists, newspaper paste-up and layout persons, reporters, freelance writers, small publication advisors, editors and print design specialists. Cooperative education opportunities are available on small publications, daily and weekly newspapers, magazines and specialty publications. Students must complete at least six credit hours of media communications courses before being placed at work sites. Students may also work on the Aztec Press, the student-produced newspaper, in the areas mentioned above. They may also express their creativity through editorials, cartoons, feature stories and photography courses. Helpful qualifications for success in this field are good writing skills and an interest in art, design, layout, computers, reporting, editing, and photojournalism.

REQUIRED COURSES (61-68 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CSC 100	Introduction to Computers	3	MTH 070
GRA 101	Graphic Technology I	3	
GRA 102	Graphic Technology II	3	GRA 101
GRA 202	Offset Presswork	3	GRA 102
MEC 101	Introduction to Reporting and Media Writing	3	
MEC 102	Survey of Media Communications	3	
MEC 199	Co-op Related Class in MEC	1	*
MEC 199	Co-op Work in MEC	2	*
MEC 240	Copy Editing and Design	3	MEC 101
MEC 299	Co-op Related Class in MEC	1	MEC 199*
MEC 299	Co-op Work in MEC	2	MEC 199*
General Education and Support Courses:			
HUM 110	Humanities I	4	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
REA	Reading requirement	0-4	*
SCI/MTH	Science and Mathematics Electives		
	Complete two of the following:	6-8	
	ACC 050, 101, 102		
	AST 101, 102		
	BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205		
	BUS 051		
	CHM 121, 130, 140, 141, 151, 152		
	ECE 124		
	ENV 203		
	GEO 101, 102		
	GLG 101, 102		
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220		
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230		

SOC/BEH	Social and Behavioral Science Elective	
	Complete one of the following:	3-4
	ANT 101, 102, 200, 210, 215, 225	
	ECE 107, 117	
	ECO 100, 101	
	GEO 103	
	HIS 101, 102, 141, 142, 147	
	MAN 110	
	POS 100, 110, 112, 120, 130	
	PSY 100, 101, 130	
	SOC 100, 101	
ELEC	Other Electives	
	Complete 15 credit hours from the following:	15
	ART 140	
	BUS 100	
	GEB 084	
	MEC 170, 190, 280	
	MKT 125	

Suggested Course Sequence (Read down.)

Reading requirement	GRA 101	Science and
WRT 101	WRT 102	Mathematics Elective
MEC 102	Social and Behavioral	MEC 199
MEC 101	Science Elective	Other Elective
Science and	HUM 110	GRA 202
Mathematics Elective	GRA 102	MEC 299
MEC 240	CSC 100	Other Electives

*For additional prerequisite information, check Course Section.

Print Media Sequence—Associate of Arts Degree For Transfer

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

This program is designed to prepare students to transfer to four-year college or university journalism programs. Successful graduates of the associate of arts degree program are also qualified as copy editors, reporters, newspaper design specialists or photojournalists. Such positions are available on weekly newspapers and small publications, including newsletters. Cooperative education opportunities include work on major daily newspapers, weekly newspapers, specialty

publications or freelance writing assignments. Students must complete at least six credit hours of media communications courses to be eligible for co-op work. Students are also able to improve their skills by working on the Aztec Press, the weekly student newspaper. Those interested in reporting should have a well-rounded background with emphasis on writing and storytelling skills. The ability to type and familiarity with word processing are also necessary. Photojournalism is an option for students who have basic dark room skills and who are interested in black-and-white photography. Those interested in publication production should have a background in computer use, art, and design.

REQUIRED COURSES (67-72 CREDIT HOURS)

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

MEC 101	Introduction to Reporting and Media Writing	3	
MEC 102	Survey of Media Communications	3	
MEC 230	Advanced Reporting	3	MEC 101
MEC 240	Copy Editing and Design	3	MEC 101
MEC 280	Photojournalism	3	MEC 101

Support Courses:

MAP 106	Introduction to Microcomputers	3	
MEC 270	Media Advertising and Public Relations	3	MEC 101
MEC ELEC	Select three elective courses from the following:		
ART 140	Photography I	3	ART 100
GEB 084	Public Relations	3	
MEC 170	Journalism Workshop	3	MEC 101
MEC 235	Broadcast Journalism	3	MEC 101
OED 111	Typing I	3	
REA	Reading requirement	0-4	*

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

English Composition	6
Humanities and Fine Arts	9
Biological and Physical Sciences	8
Mathematics (MTH 150 or above)	3

Social and Behavioral Sciences 9
MEC 102 satisfies 3 credit hours of this requirement.

Other Requirements 5-6

Suggested Course Sequence

See a media communications faculty advisor.

*For additional prerequisite information, check Course Section.

Telecommunications Sequence—Basic Certificate For Direct Employment

The basic telecommunications certificate is an intensive, hands-on program designed to prepare students for positions as media center managers, television news camera persons, television production camera persons, television news tape editors, television commercial producers, scriptwriters, and audio technicians. Successful graduates will be able to work in both the one-half-inch VHS and the three-fourths-inch U-Matic formats, make simple repairs to various media equipment, make recommended equipment purchases, and assess media production needs.

Cooperative education opportunities exist in television stations, production centers, industrial video facilities and audio production studios. To be eligible, students must have completed at least six credit hours of media communications classes, have available time to work on site and have access to necessary transportation. A good background of writing courses is strongly recommended for students entering this field. Aptitudes for mechanics, graphic design, art, music, and verbal expression are also helpful.

REQUIRED COURSES (25 CREDIT HOURS)

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

MEC 125	Television Production I	3	
MEC 145	Equipment Repair and Maintenance	3	
MEC 155	Instructional Media Technology I	3	
MEC 225	Television Workshop	4	MEC 125
MEC 265	Implications of Media Technology	3	
MEC 270	Media Advertising and Public Relations	3	MEC 101
MEC 285	Television Production Workshop II	3	MEC 125

General Education and Support Courses:

MEC 175	Cinematography	3
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Suggested Course Sequence (Read down.)

MEC 175	MEC 145
MEC 270	MEC 265
MEC 125	MEC 225
MEC 155	MEC 285

*For additional prerequisite information, check Course Sequence.

Telecommunications Sequence—Associate of Applied Science Degree For Direct Employment

This degree option is designed to qualify students to be television camera persons, videotape editors, television writers, media center directors, audio specialists, producers and directors of small format productions. Students are trained in all aspects of television production, including shooting in the VHS or three-fourths-inch U-Matic formats, editing both formats, planning and producing media productions. The latter involves script writing, location, lighting, equipment purchasing and repair, and budgeting. Cooperative education opportunities in the past have included placement in television stations, production companies, industrial production facilities and out-of-state productions as production assistants. Completion of six credit hours is required for co-op placement. Students may also obtain practical experience in all aspects of television production by working on the College news magazine program, Collage. Strong writing skills are important for success in this field. A creative background in art, music, design, computers, and electronics is also helpful but not required.

REQUIRED COURSES (66-74 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
CSC 100	Introduction to Computers	3	MTH 070
MEC 125	Television Production I	3	
MEC 145	Equipment Repair and Maintenance	3	
MEC 155	Instructional Media Technology I	3	
MEC 199	Co-op Related Class in MEC	1	*
MEC 199	Co-op Work in MEC	2	*
MEC 225	Television Workshop	4	MEC 125
MEC 255	Instructional Media Technology II	3	MEC 155

MEC 265	Implications of Media Technology	3	
MEC 285	Television Production Workshop II	3	MEC 125
MEC 299	Co-op Related Class in MEC	1	MEC 199*
MEC 299	Co-op Work in MEC	2	MEC 199*
ART/ELEC	Any ART course	3	*
MEC 270	Media Advertising and Public Relations	3	MEC 101
MEC 275	Basic Audio Production	3	MEC 101

General Education and Support Courses:

HUM 110	Humanities I	4	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
REA	Reading requirement	0-4	*
SCI/MTH	Science and Mathematics Electives		
	Complete two of the following:	7-10	
	ACC 050, 101, 102		
	AST 101, 102		
	BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205		
	BUS 051		
	CHM 121, 130, 140, 141, 151, 152		
	ECE 124		
	ENV 203		
	GEO 101, 102		
	GLG 101, 102		
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220		
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230		

SOC/BEH	Social and Behavioral Science Elective	
	Complete one of the following:	3-4
	ANT 101, 102, 200, 210, 215, 225	
	ECE 107, 117	
	ECO 100, 101	
	GEO 103	
	HIS 101, 102, 141, 142, 147	
	MAN 110	
	POS 100, 110, 112, 120, 130	
	PSY 100, 101, 130	
	SOC 100, 101	
ELEC	Other Electives	
	Complete two of the following:	6
	GEB 084	
	MEC 175, 185, 280	
	MKT 125	

Suggested Course Sequence (Read down.)

Reading requirement	MEC 225	Science and
WRT 101	WRT 102	Mathematics Elective
MEC 270	Social and Behavioral	MEC 199
MEC 155	Science Elective	MEC 265
MEC 125	HUM 110	MEC 299
Science and	MEC 145	MEC 285
Mathematics Elective	CSC 100	ART Elective
MEC 275	MEC 255	Other Electives

*For additional prerequisite information, check Course Section.

Telecommunications Sequence—Associate of Arts Degree For Transfer

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

This program prepares students to transfer to four-year college or university programs in radio-television. It provides students with a general background in radio-television production, reporting and writing. Cooperative education opportunities exist in television production facilities, television stations, industrial production centers, and media-related activities. Students must have completed at least six credit hours of media communications courses before taking co-op classes. Additional hands-on experience is available on the College video magazine program, aired on local cable TV. Good writing skills and creative background in art, design, computers, and photography are helpful in this degree option.

REQUIRED COURSES (61-66 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
MEC 101	Introduction to Reporting and Media Writing	3	
MEC 102	Survey of Media Communications	3	
MEC 125	Television Production I	3	
MEC 175	Cinematography	3	
MEC 265	Implications of Media Technology	3	

Support Courses:

MAP 106	Introduction to Microcomputers	3	
MEC 235	Broadcast Journalism	3	MEC 101
MEC 275	Basic Audio Production	3	MEC 101
REA	Reading requirement	0-4	*

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

English Composition	6
Humanities and Fine Arts	9
Biological and Physical Sciences	8
Mathematics (MTH 150 or above)	3
Social and Behavioral Sciences	9
MEC 102 satisfies three credit hours of this requirement.	
Other Requirements	5-6

Suggested Course Sequence

See a media communications faculty advisor.

*For additional prerequisite information, check Course Section.

Military Science

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

ROTC is offered to students at Pima Community College by the Military Science Department at the University of Arizona. Although students enroll in their ROTC classes at Pima, classes are held on the University of Arizona campus.

First-year students should take MLA 101 or MLS 101, or NSP 100 and NSP 101 in the first semester; and MLA 102 or MLS 102, or NSP 100 and NSP 102 in the second semester. Second-year students should take MLA 201 or MLS 203, or NSP 200 and NSP 201 in the first semester; and MLA 202 or MLS 204, or NSP 200 and NSP 202 in the second semester. Second-year students who have not taken these classes in their first year may combine the first and third semesters of ROTC in the fall and the second and fourth semesters in the spring, thus gaining in one year the units required to enter the advanced ROTC program upon transfer to the University of Arizona.

Students are under no military obligation during their first two years in the program.

A uniform deposit fee is required with the student's normal registration fees. The fee receipt must be taken to the ROTC supply clerk, Bear Down Gym, University of Arizona campus, so that a uniform can be issued (not applicable to Navy ROTC).

Upon return of the uniform to the supply clerk at the end of the semester, the student fee receipt will be signed and the student's deposit will be refunded. Refunds are made at the Pima College West Campus only (not applicable to Navy ROTC).

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

Air Force ROTC

REQUIRED COURSES (8 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
MLA 101	History of Airpower I	2	
MLA 102	History of Airpower II	2	
MLA 201	Air Force Today I	2	
MLA 202	Air Force Today II	2	

Suggested Course Sequence (Read down.)

MLA 101
MLA 102
MLA 201
MLA 202

Army ROTC

REQUIRED COURSES (12 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
MLS 101	Introduction to Military Science I	3	
MLS 102	Introduction to Military Science II	3	
MLS 203	The National Defense Establishment	3	
MLS 204	Management through Military Leadership	3	

Suggested Course Sequence (Read down.)

MLS 101
MLS 102
MLS 203
MLS 204

Navy ROTC

REQUIRED COURSES (13 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
NSP 100	Naval Laboratory I	1	
NSP 101	Introduction to Naval Science	2	
NSP 102	Naval Ship Systems I: Engineering	3	
NSP 200	Naval Laboratory II	1	
NSP 201	Naval Ship Systems II: Weapons	3	
NSP 202	Sea Power and Maritime Affairs	3	

Suggested Course Sequence (Read down.)

NSP 100 NSP 200
NSP 101 NSP 201
NSP 100 NSP 200
NSP 102 NSP 202

Music

This program is designed to prepare students to become musical performers, teachers, coaches, conductors, composers, researchers, or program directors. Employment opportunities exist in such places as private and public schools, church and community organizations, bands and orchestras. Students receive instruction to develop aural, composing, ensemble and solo skills in all areas of music. Cooperative education opportunities include performance for art galleries, a musical theater, a pep band, etc. The program is adaptable for part-time as well as full-time attendance and emphasizes close contact between teachers and students through small classes and individual attention. Faculty members are all active professional performers. For success in this program, it is important to have as much background in music as possible and to possess good reading and listening skills, knowledge of repertoire, and self-discipline. Program advisors are available on the West Campus.

Music—Associate of Arts Degree For Transfer

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

REQUIRED COURSES (71-76 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
MUS 120	Band		*
and 130	Chorale (SATB)		*
or 131	College Singers (SATB)	6	
MUS 125	The Structure of Music I	3	
MUS 126	The Structure of Music II	3	MUS 125
MUS 127	Aural Perception I	1	
MUS 128	Aural Perception II	1	MUS 127
MUS 141	Piano Class I—Music Majors	1	
MUS 142	Piano Class II—Music Majors	1	MUS 141
MUS 143	Piano Class III—Music Majors	1	MUS 142
MUS 144	Piano Class IV—Music Majors	1	MUS 143
MUS 145	Applied Music—Private Instruction	2	
MUS 146	Applied Music—Private Instruction	2	MUS 145
MUS 201	History and Literature of Music I	3	MUS 102
MUS 202	History and Literature of Music II	3	MUS 102
MUS 225	The Structure of Music III	3	MUS 125
MUS 226	The Structure of Music IV	3	MUS 125
MUS 227	Aural Perception III	1	MUS 127
MUS 228	Aural Perception IV	1	MUS 127
MUS 247	Applied Music—Private Instruction	2	MUS 146
MUS 248	Applied Music—Private Instruction	2	MUS 247
Support Courses:			
REA	Reading requirement	0-4	*
General Education Requirements (See Graduation section of this catalog for associate of arts degree course lists.):			
English Composition		6	
Humanities and Fine Arts		9	
Nine credit hours from MUS 120, 130, 131 and 125 may be used to satisfy this requirement.			
Biological and Physical Sciences		8	
Mathematics (MTH 150 or above)		3	
Social and Behavioral Sciences		9	
Other Requirements		5-6	

Suggested Course Sequence

See a music faculty advisor.

*For additional prerequisite information, check Course Section.

Nursing

Nursing Assistant—Basic Certificate For Direct Employment

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

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.

General Requirements:

- Total credits: 12 credit hours.
- Successful completion of all academic and clinical program requirements.
- A physical examination to include documentation of current immunizations (required upon acceptance into the program).

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

REQUIRED COURSES (12 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BIO 160	Introduction to Human Anatomy and Physiology	4	
NRS 050	Nursing Assistant	5	
HCA 154	Introduction to Health Care	3	

Suggested Course Sequence (Read down.)

BIO 160

HCA 154

NRS 050

Practical Nursing—Advanced Certificate For Direct Employment

This curriculum provides the theoretical and practical preparation to qualify graduates for immediate employment as practical nurses (PN).

This program is accredited by the Arizona State Board of Nursing.

Students having satisfactorily completed the curriculum will graduate with an advanced certificate in nursing and will be eligible to take the National Council Licensure Examination (NCLEX-PN) for licensure as a licensed practical nurse (LPN).

The student may choose between two tracks for completion of the program: the non-articulating PN program and the articulating PN program.

Successful completion of the PN articulation track will allow the student to apply for acceptance into the second year of the associate degree nursing (ADN) program. The continuing PN graduates must take a transition course for admission into the ADN program.

Acceptance Into Program

- Completion of Pima Community College acceptance requirements and special application for the practical nurse program.
- Minimum college-defined competency in reading of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment.
- Eligibility for MTH 070 as determined by PCC assessment examination or MTH 070 with a grade of "C" or better.
- Approval by Selection Committee.

General Requirements:

- Total credits:
Non-articulating track: 38-39 credit hours
Articulating track: 43 credit hours
- Work in residence: minimum 18 credit hours of major (NRS) courses to be completed in residence.
- Physical examination, including documentation of current immunizations, to be completed upon acceptance into program.
- Successful completion of all program requirements in theory, skills and clinicals.

Practical Nursing—Advanced Certificate for Direct Employment—Non-Articulating Track

REQUIRED COURSES (38-39 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
HCA 154	Introduction to Health Care	3	
HCA 155	Introduction to Pharmacology	3	
BIO 160	Introduction to Human Anatomy and Physiology	4	
BIO 204	Survey of Human Diseases	4	BIO 160
NRS 101	Nursing Process I	8	*
NRS 102	Nursing Process II	9	NRS 101
NRS 103	Trends and Issues I	1	NRS 101*

General Education and Support Courses:

PSY 100	Psychology I		
or 110	Introduction to Psychology		
or SOC 100	Introduction to Sociology	3-4	
WRT 101	Writing I	3	WRT 100*

Suggested Course Sequence (Read down.)

BIO 160	PSY 100 or 110 or
HCA 154	SOC 100
HCA 155	WRT 101
NRS 101	NRS 102
BIO 204	NRS 103

*For additional prerequisite information, check Course Section.

Practical Nursing—Advanced Certificate for Direct Employment—Articulating Track

REQUIRED COURSES (43 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
HCA 154	Introduction to Health Care	3	
HCA 155	Introduction to Pharmacology	3	
BIO 201	Human Anatomy and Physiology I	4	BIO 100*
BIO 202	Human Anatomy and Physiology II	4	BIO 201
BIO 205	Microbiology	4	*
NRS 101	Nursing Process I	8	*
NRS 102	Nursing Process II	9	NRS 101
NRS 103	Trends and Issues I	1	NRS 101*

General Education and Support Courses:

PSY 110	Introduction to Psychology	4	
WRT 101	Writing I	3	WRT 100*

Suggested Course Sequence (Read down.)

BIO 201	BIO 205
BIO 202	WRT 101
HCA 154	PSY 110
HCA 155	NRS 102
NRS 101	NRS 103

*For additional prerequisite information, check Course Section.

Associate Degree Nursing—Associate of Applied Science Degree For Direct Employment

The associate degree nursing (ADN) program is provided through the West Campus to prepare nurses in response to the continuing need for nursing personnel. The program is accredited by the National League for Nursing. Students satisfactorily completing this curriculum will graduate with an associate of applied science degree in nursing. Graduates of this program will be eligible to take the National Council Licensure Examination (NCLEX) for licensure as a registered nurse.

Most nursing courses include lecture, skills laboratory, and hospital laboratory components. Nursing courses must be taken in sequence as each course builds upon the previous one.

Successful completion of the practical nursing program articulation track will allow the student to apply for acceptance into the second year of the ADN program.

All graduates of the practical nursing program will be required to take a transition course and will be evaluated on an individual basis.

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

Acceptance Into Program:

- Completion of college (PCC) and associate degree nursing applications.
- One year of high school chemistry or its equivalent (CHM 130, PCC) evaluated on an individual basis.
- Minimum college-defined competency in reading of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment.
- Documented mathematics at level of MTH 070 by assessment examination or MTH 070 with a grade of "C" or better.
- Approval by Selection Committee.
- Approval of transfer credit according to college policy (see PCC catalog).

General Requirements:

- Total credit: 69-71 credit hours.
- Nursing Major: 41 credit hours.
- General Education Courses: 28-30 credit hours.

REQUIRED COURSES (69-71 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BIO 201	Human Anatomy and Physiology I	4	BIO 100*
BIO 202	Human Anatomy and Physiology II	4	BIO 201
BIO 205	Microbiology I	4	*
NRS 104	Nursing Process I	8	*
NRS 105	Nursing Process II	9	NRS 104
NRS 103	Trends and Issues I	1	NRS 101*
NRS 201	Nursing Process III	11	NRS 105
NRS 202	Nursing Process IV	11	NRS 201
NRS 203	Trends and Issues II	1	NRS 103*
PSY 110	Introduction to Psychology	4	

General Education and Support Courses:

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
SOC/BEH	Social and Behavioral Science Elective		
	Complete one of the following:	3-4	
	ANT 101, 102, 200, 210, 215, 225		
	ECE 107, 117		
	ECO 100, 101		
	GEO 103		
	HIS 101, 102, 141, 142, 147		
	MAN 110		
	POS 100, 110, 112, 120, 130		
	PSY 130		
	SOC 100, 101		

Suggested Course Sequence (Read down.)

WRT 101	BIO 205
BIO 201	PSY 110
NRS 104	Humanities and Fine Arts Elective
BIO 202	Social and Behavioral Science Elective
NRS 105	NRS 202
NRS 103	NRS 203
WRT 102	
NRS 201	

*For additional prerequisite information, check Course Section.

Pre-Baccalaureate Nursing Degree

Students should check with a Pima Community College counselor or faculty advisor or with the transfer university or college.

Office Education

Office Education in the secretarial and clerical fields offers a variety of courses and programs. Two-year programs which lead to an associate of applied science degree are given in these areas: records management, administrative assistant, executive secretary, general secretary, legal secretary and medical secretary. One year advanced certificate programs for clerk-typist, receptionist, and records management are available. Bilingual secretary certificate and degree programs are offered.

The office occupations curriculum offers education in communications, business, and management subjects, including varied office equipment. General education is also included.

Clerk-Typist—Advanced Certificate For Direct Employment

REQUIRED COURSES (34 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
OED 121	Calculating Machines	2	BUS 051
OED 151	Business English	3	*
OED 211	Typing III	3	*
OED 221	Word Processing	4	OED 112*
OED 251	Business Communications	3	OED 151
OED 271	Office Procedures	4	OED 112
RIM 132	Records Management: Filing Systems	3	

General Education and Support Courses:

OED 112	Typing II	3	OED 111
ACC 050	Practical Accounting Procedures	3	
BUS 051	Mathematics of Business	3	MTH 060*
MAN 110	Human Relations in Business and Industry	3	

Suggested Course Sequence (Read down.)

First Semester	Second Semester
OED 112	OED 121
BUS 051	OED 221
ACC 050	OED 271
OED 151	OED 251
MAN 110	OED 211
	RIM 132

*For additional prerequisite information, check Course Section.

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

REQUIRED COURSES (34-35 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
OED 112	Typing II	3	OED 111
OED 121	Calculating Machines	2	BUS 051
OED 151	Business English	3	*
OED 221	Word Processing	4	OED 112*
OED 251	Business Communications	3	OED 151
RIM 132	Records Management: Filing Systems	3	
ELECTIVE Select one:			
OED 141 or	Legal Terms (For Legal Receptionist Majors)	3	
OED 161	Medical Office Procedures (For Medical Receptionist Majors)	4	OED 112*

General Education and Support Courses:

OED 271	Office Procedures	4	OED 112
ACC 050	Practical Accounting Procedures	3	
BUS 051	Mathematics of Business	3	MTH 060*
MAN 110	Human Relations in Business and Industry	3	

Suggested Course Sequence (Read down.)

First Semester	Second Semester
OED 151	ACC 050
OED 112	OED 251
BUS 051	OED 221
RIM 132	OED 121
OED 141 or	MAN 110
OED 161	OED 271

*For additional prerequisite information, check Course Section.

Administrative Assistant—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (60-65 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
OED 121	Calculating Machines	2	BUS 051
OED 151	Business English	3	*
OED 211	Typing III	3	*
OED 221	Word Processing	4	OED 112*
OED 251	Business Communications	3	OED 151
OED 271	Office Procedures	4	OED 112
General Education and Support Courses:			
OED 112	Typing II	3	OED 111
RIM 132	Records Management: Filing Systems	3	
ACC 101	Financial Accounting	3	
BUS 051	Mathematics of Business	3	MTH 060*
BUS 200	Business Law I	3	
ECO 100	Introduction to Microeconomics	3	MTH 070
MAN 110	Human Relations in Business and Industry	3	
MAN 122	Supervision	3	
SPE 120	Business and Professional Communication	3	
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective (See Graduation section of this catalog for associate of applied science degree course list.)	3	
OPTIONS: Select one course from each of the following four options: 10-12			
OPTION 1:			
BUS 105	Survey of Microcomputer Uses	3	
or CSC 105	Survey of Microcomputer Uses	3	
OPTION 2:			
OED 051	Notehand	2	
or OED 061	Stenoscript	3	*
or OED 220	Word/Information Processing Concepts	2	
or BUS 100	Introduction to Business	3	

OPTION 3:			
ACC 200	Accounting Practice on the Microcomputer	3	ACC 050*
or ACC 102	Managerial Accounting	3	ACC 101*
OPTION 4:			
RIM 131	Records Management: Development of a Program	3	
or MAN 280	Business Organization and Management	3	BUS 100*
or OED 199	Co-op Related Class and Co-op Work in OED	2-3	*
or OED 299	Co-op Related Class and Co-op Work in OED	2-3	*

Suggested Course Sequence (Read down.)

First Semester	Third Semester
OED 112	OED 121
OED 151	OED 271
BUS 051	ACC 101
SPE 120	BUS 200
Reading Requirement	ECO 100
	MAN 122
Second Semester	Fourth Semester
OED 211	OED 221
RIM 132	Option 2
MAN 110	Option 3
OED 251	Option 4
Option 1	Humanities and Fine Arts Elective

*For additional prerequisite information, check Course Section.

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

REQUIRED COURSES (33 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
RIM 131	Records Management: Development of a Program	3	
OED 151	Business English	3	*
RIM 132	Records Management: Filing Systems	3	

General Education and Support Courses:

POS 110	American National Government and Politics	3	
ACC 101	Financial Accounting	3	
BUS 100	Introduction to Business	3	
OED 111	Typing I	3	
BUS 200	Business Law I	3	
ECO 100	Introduction to Microeconomics	3	MTH 070
MAN 110	Human Relations in Business and Industry	3	
MTH 130	Algebra II	3	MTH 070*

Suggested Course Sequence (Read down.)

First Semester	Second Semester
POS 110	BUS 200
ACC 101	ECO 100
BUS 100	OED 151
OED 111	RIM 132
RIM 131	MAN 110
	MTH 130

*For additional prerequisite information, check Course Section.

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

REQUIRED COURSES (60-67 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
RIM 131	Records Management: Development of a Program	3	
OED 151	Business English	3	*
RIM 132	Records Management: Filing Systems	3	
OED 251	Business Communications	3	OED 151
RIM 231A	Records Management: Forms Management	1	RIM 131
RIM 231B	Records Management: Micrographics	1	RIM 131
RIM 231C	Records Management: Automated Retrieval	1	RIM 131
RIM 232	Records Management: Supervision	3	RIM 131

General Education and Support Courses:

POS 110	American National Government and Politics	3	
ACC 101	Financial Accounting	3	
BUS 100	Introduction to Business	3	
OED 111	Typing I	3	
REA	Reading requirement	0-4	*
BUS 200	Business Law I	3	
ECO 100	Introduction to Microeconomics	3	MTH 070
MAN 110	Human Relations in Business and Industry	3	
MTH 130	Algebra II	3	MTH 070*
OED 071A	Typing Refresher: Skill Building	1	OED 111*
MAN 276	Personnel Management	3	BUS 100
BUS 105	Survey of Microcomputer Uses	3	
BUS 201	Business Law II	3	BUS 200
ELECTIVE	Complete one of the following courses: WRT 101, WRT 102, ECO 101 or SPE 120.	3	
OED 199	Coop Related Class in OED	1	*
OED 199	Coop Work in OED	1-3	*
HUM/ART	Humanities and Fine Arts Elective (See Graduation section of this catalog for associate of applied science degree course list.)	3-4	

Suggested Course Sequence (Read down.)

First Semester	Third Semester
POS 110	OED 071A
ACC 101	OED 251
BUS 100	MAN 276
OED 111	BUS 105
RIM 131	BUS 201
Reading requirement	RIM 231A, B, C
Second Semester	Fourth Semester
BUS 200	Elective
ECO 100	OED 199
OED 151	OED 199
RIM 132	RIM 232
MAN 110	Humanities and Fine Arts Elective
MTH 130	

*For additional prerequisite information, check Course Section.

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

REQUIRED COURSES (33-34 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
RIM 131	Records Management: Development of a Program	3	
RIM 121	Introduction to Medical Record Science	1	
OED 151	Business English	3	*
RIM 132	Records Management: Filing Systems	3	
General Education and Support Courses:			
SCI ELEC	Complete one of the following: BIO 100, BIO 205, or CHM 130	4-5	*
ACC 101	Financial Accounting	3	
BIO 201	Human Anatomy and Physiology I	4	BIO 100*
OED 111	Typing I	3	
HCA 154	Introduction to Health Care	3	
MAN 110	Human Relations in Business and Industry	3	
MTH 130	Algebra II	3	MTH 070*

Suggested Course Sequence (Read down.)

First Semester	Second Semester
Science Elective	HCA 154
ACC 101	RIM 121
BIO 201	OED 151
OED 111	RIM 132
RIM 131	MAN 110
	MTH 130

*For additional prerequisite information, check Course Section.

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

REQUIRED COURSES (65-73 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
RIM 131	Records Management: Development of a Program	3	
RIM 121	Introduction to Medical Record Science	1	
OED 151	Business English	3	*
RIM 132	Records Management: Filing Systems	3	
OED 251	Business Communications	3	OED 151
RIM 221	Medical Record Coding and Statistics	3	RIM 121*
RIM 231A	Records Management: Forms Management	1	RIM 131
RIM 231B	Records Management: Micrographics	1	RIM 131
RIM 231C	Records Management: Automated Retrieval	1	RIM 131
RIM 232	Records Management: Supervision	3	RIM 131

General Education and Support Courses:

SCI ELEC	Complete one of the following: BIO 100, BIO 205, or CHM 130	4-5	*
ACC 101	Financial Accounting	3	
BIO 201	Human Anatomy and Physiology I	4	BIO 100*
OED 111	Typing I	3	
REA	Reading requirement	0-4	*
HCA 154	Introduction to Health Care	3	
MAN 110	Human Relations in Business and Industry	3	
MTH 130	Algebra II	3	MTH 070*
OED 071A	Typing Refresher: Skill Building	1	OED 111*
OED 162	Medical Terms I	3	
BUS 105	Survey of Microcomputer Uses	3	
BIO 202	Human Anatomy and Physiology II	4	BIO 201

BIO 204	Survey of Human Diseases	4	BIO 160
OED 199	Coop Related Class in OED	1	*
OED 199	Coop Work in OED	1-3	*
HUM/ART	Humanities and Fine Arts Elective (See Graduation section of this catalog for associate of applied science degree course list.)	3-4	

Suggested Course Sequence (Read down.)

First Semester	Third Semester
Science Elective	OED 071A
ACC 101	OED 251
BIO 201	OED 162
OED 111	BUS 105
RIM 131	BIO 202
Reading requirement	RIM 231A, B, C
Second Semester	Fourth Semester
HCA 154	BIO 204
RIM 121	OED 199
OED 151	OED 199
RIM 132	RIM 232
MAN 110	Humanities and Fine Arts Elective
MTH 130	RIM 221

*For additional prerequisite information, check Course Section.

General Secretary—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (60-65 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
OED 102	Shorthand II	3	OED 151*
OED 121	Calculating Machines	2	BUS 051
OED 151	Business English	3	*
OED 211	Typing III	3	*
OED 221	Word Processing	4	OED 112*
OED 251	Business Communications	3	OED 151
OED 271	Office Procedures	4	OED 112
RIM 132	Records Management: Filing Systems	3	

General Education and Support Courses:

OED 101	Shorthand I	3	OED 111*
OED 111	Typing I	3	
OED 112	Typing II	3	OED 111
OED 201	Shorthand III	3	OED 102*
ACC 050	Practical Accounting Procedures		
or 101	Financial Accounting	3	
BUS 051	Mathematics of Business	3	MTH 060*
BUS 200	Business Law I	3	
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective (See Graduation section of this catalog for associate of applied science degree course list.)	3	
ELECTIVE	Select one of the following: BUS 100, BUS 105, or CSC 105	3	
ELECTIVES	Electives should be selected with the advice of an OED advisor from the following list: RIM 131, OED 199, OED 202, OED 220, OED 299, ACC 200	8-9	

Suggested Course Sequence (Read down.)

First Semester	Third Semester
OED 151	OED 211
OED 101	OED 201
OED 111	OED 271
BUS 051	ACC 050 or ACC 101
Elective	BUS 100, BUS 105, or CSC 105
Reading requirement	
Second Semester	Fourth Semester
OED 102	BUS 200
OED 112	OED 251
OED 121	Electives
RIM 132	Humanities and Fine
OED 221	Arts Elective

*For additional prerequisite information, check Course Section.

Executive Secretary—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (60-66 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
OED 102	Shorthand II	3	OED 151*
OED 121	Calculating Machines	2	BUS 051
OED 151	Business English	3	*
OED 211	Typing III	3	*
OED 221	Word Processing	4	OED 112*
OED 251	Business Communications	3	OED 151
OED 271	Office Procedures	4	OED 112
RIM 132	Records Management: Filing System	3	

General Education and Support Courses:

OED 112	Typing II	3	OED 111
OED 201	Shorthand III	3	OED 102*
ACC 050 or 101	Practical Accounting Procedures	3	
BUS 051	Mathematics of Business	3	MTH 060*
BUS 200	Business Law I	3	
MAN 110	Human Relations in Business and Industry	3	
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective (See Graduation section of this catalog for associate of applied science degree course list.)	3	
ELECTIVES	Selection of electives should be made with advice of an OED advisor from the following list: RIM 131, OED 199, OED 202, OED 220, OED 299, ACC 102, ACC 200	8-10	
ELECTIVE	Complete one of the following: BUS 100, BUS 105, CSC 105, or MAP 106	3	
ELECTIVE	General elective	3	

Suggested Course Sequence (Read down.)

First Semester	Third Semester
Reading requirement	OED 121
OED 151	OED 221
OED 102	OED 271
OED 112	Elective
BUS 051	BUS 200
Elective	
Second Semester	Fourth Semester
OED 201	RIM 132
OED 211	Humanities and Fine Arts Elective
OED 251	Electives
ACC 050 or ACC 101	
MAN 110	

*For additional prerequisite information, check Course Section.

Medical Secretary—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (61-66 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
OED 102	Shorthand II	3	OED 151*
OED 151	Business English	3	*
OED 161	Medical Office Procedures	4	OED 112*
OED 162	Medical Terms I	3	
OED 211	Typing III	3	*
OED 221	Word Processing	4	OED 112*
OED 251	Business Communications	3	OED 151
OED 262	Medical Terms II	3	OED 162
OED 263	Medical Transcription	3	OED 162*
RIM 132	Records Management: Filing Systems	3	

General Education and Support Courses:

OED 101	Shorthand I	3	OED 111*
OED 112	Typing II	3	OED 111
ACC 050	Practical Accounting Procedures	3	
BUS 051	Mathematics of Business	3	MTH 060*
BUS 200	Business Law	3	
MAN 110	Human Relations in Business and Industry	3	
REA	Reading requirement	0-4	*

HUM/ART	Humanities and Fine Arts Elective (See Graduation section of this catalog for associate of applied science degree course list.)	3
ELECTIVES	Selection of electives should be made with the advice of an OED advisor from the following list: OED 121, RIM 131, OED 199, OED 201, OED 220, OED 299, ACC 101, ACC 200	8-9

Suggested Course Sequence (Read down.)

First Semester	Third Semester
Reading requirement	OED 161
OED 101	OED 221
OED 112	OED 262
OED 151	BUS 200
BUS 051	
Second Semester	Fourth Semester
OED 102	RIM 132
OED 162	OED 263
OED 211	MAN 110
OED 251	Electives
ACC 050	Humanities and Fine Arts Elective

*For additional prerequisite information, check Course Section.

Legal Secretary—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (60-65 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
OED 102	Shorthand II	3	OED 151*
OED 151	Business English	3	*
OED 211	Typing III	3	*
OED 221	Word Processing	4	OED 112*
OED 251	Business Communications	3	OED 151
RIM 132	Records Management: Filing Systems	3	

General Education and Support Courses:

OED 112	Typing II	3	OED 111
OED 141	Legal Terms	3	
OED 142	Legal Secretarial Procedures I	3	OED 211*
OED 143	Legal Secretarial Procedures II	3	OED 142*
OED 201	Shorthand III	3	OED 102*
OED 242	Legal Secretarial Procedures III	3	OED 143*
OED 243	Legal Secretarial Procedures IV	3	OED 242*
ACC 050	Practical Accounting Procedures		
or 101	Financial Accounting	3	
BUS 201	Business Law II		BUS 200
or AJS 109	Criminal Law	3	
BUS 051	Mathematics of Business	3	MTH 060*
BUS 200	Business Law I	3	
MAN 110	Human Relations in Business and Industry		
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective (See Graduation section of this catalog for associate of applied science degree course list.)	3	
ELECTIVE	Complete one course from the following list:		
ACC 200	Accounting Practice on the Microcomputer	3	ACC 050*
BUS 105	Survey of Microcomputer Uses	3	
CSC 105	Survey of Microcomputer Uses	3	
OED 202	Shorthand IV	3	OED 201
OED 199	Co-op Related Class and Co-op Work in OED	2-3	*
OED 220	Word/Information Processing Concepts	2	
OED 299	Co-op Related Class and Co-op Work in OED	2-3	*
RIM 131	Records Management: Development of a Program	3	

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

Reading requirement
 OED 151
 OED 102
 OED 112
 OED 141
 OED 142

Third Semester

OED 221
 BUS 051
 BUS 200
 ACC 050 or ACC 101
 OED 242

Second Semester

OED 251
 OED 201
 OED 211
 MAN 110
 OED 143

Fourth Semester

RIM 132
 Humanities and Fine
 Arts Elective
 OED 243
 BUS 201 or AJS 109
 Elective

*For additional prerequisite information, check Course Section.

Bilingual Secretary—Basic Certificate For Direct Employment**REQUIRED COURSES (16 CREDIT HOURS)**

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

OED 112	Typing II	3	OED 111
OED 151	Business English	3	*
OED 252	Bilingual Commercial Correspondence	2	*
OED 271	Office Procedures (English) or Practicas de Oficina (Bilingual)**	4	OED 112

General Education and Support Courses:

SPA 201	Spanish for Native Speakers I	4	*
or 210	Intermediate Spanish I	4	SPA 111*

Suggested Course Sequence (Read down.)

OED 112
 OED 252
 OED 271
 OED 151
 SPA 201 or SPA 210

*For additional prerequisite information, check Course Section.

**Consult with program advisor.

Bilingual Secretary—Advanced Certificate For Direct Employment**REQUIRED COURSES (35 CREDIT HOURS)**

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
OED 102	Shorthand II	3	OED 151*
OED 151	Business English	3	*
OED 211	Typing III	3	*
OED 251	Business Communications	3	OED 151
OED 252	Bilingual Commercial Correspondence	2	*
OED 271	Office Procedures (English) or Practicas de Oficina (Bilingual)**	4	OED 112

General Education and Support Courses:

OED 112	Typing II	3	OED 111
BUS 051	Mathematics of Business	3	MTH 060*
SPA 205	Imaginative Writing I	3	
SPA 201	Spanish for Native Speakers	4	*
or 210	Intermediate Spanish I	4	SPA 111*
SPA 202	Spanish for Native Speakers II	4	SPA 201
or 211	Intermediate Spanish II	4	SPA 210

Suggested Course Sequence (Read down.)

First Semester	Second Semester
OED 112	BUS 051
OED 252	OED 102
OED 271	OED 251
OED 151	OED 211
SPA 201 or SPA 210	SPA 205
	SPA 202 or SPA 211

*For additional prerequisite information, check Course Section.

**Consult with program advisor.

Bilingual Secretary—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (69-73 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
OED 102	Shorthand II	3	OED 151*
OED 112	Typing II	3	OED 111
OED 121	Calculating Machines	2	BUS 051
OED 151	Business English	3	*
SPA 202	Spanish for Natives II	4	SPA 201
or 211	Intermediate Spanish II	4	SPA 210
OED 251	Business Communications	3	OED 151
OED 252	Bilingual Commercial Correspondence	2	*
OED 271	Office Procedures (English) or Practicas de Oficina (Bilingual)**	4	OED 112
RIM 132	Records Management: Filing Systems	3	
General Education and Support Courses:			
ACC 101	Financial Accounting	3	
or 050	Practical Accounting Procedures		
BUS 100	Introduction to Business or Introduccion a Negocios**	3	
BUS 051	Mathematics of Business	3	MTH 060*
MAN 110	Human Relations in Business and Industry	3	
OED 101	Shorthand I	3	OED 111*
OED 201	Shorthand III	3	OED 102*
OED 221	Word Processing	4	OED 112*
ELECTIVE	Electives should be selected with the assistance of an OED advisor from the following courses: OED 211, OED 202, OED 199 (Co-op Related Class and Work), RIM 131, RIM 232	3	
SPA 201	Spanish for Native Speakers I	4	
SPA 205	Imaginative Writing I	3	

SPA ELEC	Spanish Elective Select one course from the following: SPA 225, SPA 226, SPA 240, or any SPA 200 level course.	3	
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective (See Graduation section of this catalog for associate of applied science degree course list.)	3	

Suggested Course Sequence (Read down.)

First Semester	Third Semester
Reading requirement	MAN 110
OED 112	RIM 132
OED 101	OED 252
OED 151	OED 201
SPA 201	SPA 205
BUS 051	Humanities and Fine Arts Elective
Second Semester	Fourth Semester
OED 121	OED 221
OED 102	OED 271
OED 251	BUS 100
ACC 101 or ACC 050	SPA Elective
SPA 202 or SPA 211	Elective

*For additional prerequisite information, check Course Section.

**Consult with program advisor.

Ophthalmic Dispensing Technology

This program is designed to provide to the student the theory and practice towards a career as an ophthalmic dispensing optician.

Successful graduates of the program will find career choices as dispensing opticians, contact lens specialists, and/or laboratory technicians. The program provides theoretical and practical experiences in all phases of ophthalmic employment. Successful graduates will be able to fit, fabricate and adjust ophthalmic eyewear; measure, instruct, fit, and recommend contact lens choices; and assemble and manufacture prescription corrective lenses.

The four-semester program is sequential in order and requires a minimum grade level of C throughout for ODT courses. In the fourth semester, the student is required to complete 240 hours of co-op experiences in an ophthalmic capacity. Upon completion of the program the graduate is awarded an associate of applied science degree. With the degree and 2,000 hours of work experience, the graduate may sit for the licensing examination in the state of Arizona. The program is accredited by the Commission of Opticianry Accreditation.

As the employment possibilities for this field are substantial at present, it is expected opportunities will continue to be excellent in the future. As the local economy and population base continue to increase, it is expected the employment potential will remain high. Further, this program is the only one of its type in the state of Arizona.

A good background in mathematics is essential to success in the ophthalmic program. It is recommended that MTH 070 or higher level math be completed during the first semester or prior to entry. Additional courses that may prove to be invaluable in this career choice are salesmanship, public speaking, spanish and business courses. Program advisors are headquartered on the West Campus as are the course offerings.

Required for Acceptance into the Associate Degree in Ophthalmic Dispensing Technology:

- Receipt of high school, GED and college-level transcripts (as applicable)
- Completion of Pima Community College and Ophthalmic Dispensing Technology Program applications
- Receipt of placement examination results in reading, writing and math (See General Education requirements for graduation)
- Personal pre-admission conference with program director
- Minimum grade achievement: "C" level

Ophthalmic Dispensing Technology—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (64-69 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ODT 051	Optical Orientation I	6	*
ODT 052	Optical Orientation II	4	ODT 051
ODT 053	Optical Laboratory	3	ODT 051
ODT 054	Optical Dispensing I	6	ODT 051*
ODT 055	Contact Lenses I	5	ODT 051*
ODT 056	Ophthalmic Assistant	3	ODT 051*
ODT 057	Contact Lenses II	5	ODT 055
ODT 058	Optical Dispensing II	4	ODT 054
ODT 059	Ophthalmic Seminar	2	ODT 051*
ODT 299	Co-op Related Class in ODT	1	*
ODT 299	Co-op Work in ODT	3	*
PHY 105	Introduction to Optics	4	*
General Education and Support Courses:			
MAN 124	Small Business Management	3	
MAN 110	Human Relations in Business and Industry	3	
MTH 070	Algebra I		MTH 060*
or 130	Algebra II	3	MTH 070*
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

Suggested Course Sequence (Read down.)

Reading requirement	Humanities and Fine	ODT 056
WRT 101 or 150	Arts Elective	MAN 124
MTH 070 or 130	ODT 052	ODT 057
PHY 105	ODT 053	ODT 058
ODT 051	ODT 054	ODT 059
WRT 102 or 154	ODT 055	
MAN 110	ODT 299	

*For additional prerequisite information, check Course Section.

Pharmacy Technology

This program provides the basic health care skills students can utilize as pharmacy technicians in hospitals (private and government), nursing care facilities, private and chain drug stores, drug manufacturers, wholesale drughouses, and health maintenance organizations. Graduates are prepared to assist the pharmacist in the packaging and distribution of medication. The certified student will have knowledge of the professional, technical skills necessary for direct employment as a pharmacy technician. The degree student will have the professional, technical skills with additional education in administration, supervisory skills and the basic sciences. Both the certificate and degree students will have spent considerable time in laboratory and clinical training.

Program Prerequisites:

Basic Certificate for Direct Employment:

- Math 60 with a grade of "C" or better, or mathematics placement assessment at or above this level.

Associate of Applied Science Degree:

- Math 60 with a grade of "C" or better, or mathematics placement assessment at or above this level.
- Reading placement assessment at or above the 12th grade level.

Pharmacy Technology—Basic Certificate for Direct Employment

REQUIRED COURSES (23 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
PHT 170	Introduction to Pharmacy Technology	2	
PHT 171	Pharmaceutical Calculations	2	
PHT 172	Drug Therapy I	3	
PHT 174	Pharmacy Operations	3	PHT 171*
PHT 180	Sterile Products	4	PHT 174
PHT 181	Interprofessional Relations in Pharmacy	2	PHT 170*
PHT 182	Drug Therapy II	3	
PHT 190	Pharmacy Technician Internship	4	*

Suggested Course Sequence

See a pharmacy technology faculty advisor.

*For additional prerequisite information, check Course Section.

Pharmacy Technology—Associate of Applied Science Degree

REQUIRED COURSES (65-67 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
PHT 170	Introduction to Pharmacy Technology	2	
PHT 171	Pharmaceutical Calculations	2	
PHT 172	Drug Therapy I	3	
PHT 174	Pharmacy Operations	3	PHT 171*
PHT 180	Sterile Products	4	PHT 174
PHT 181	Interprofessional Relations in Pharmacy	2	PHT 170*
PHT 182	Drug Therapy II	3	
PHT 190	Pharmacy Technician Internship	4	*
PHT 191	Pharmacy Technician Administration	3	*

General Education and Support Courses:

MTH 150	College Algebra	3	MTH 130*
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
CHM 151	General Chemistry I	5	MTH 130*
CHM 152	General Chemistry II	5	CHM 151
BIO 101	General Biology (Non Majors) I: Selected Topics	4	
BIO 102	General Biology (Non Majors) II: Additional Topics	4	
SPE 120	Business and Professional Communication	3	
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
SOC/BEH	Social and Behavioral Science Electives		
	Complete two of the following:	6-7	
	ANT 101, 102, 200, 210, 215, 225		
	ECE 107, 117		
	ECO 100, 101		
	GEO 103		
	HIS 101, 102, 141, 142, 147		
	MAN 110		
	POS 100, 110, 112, 120, 130		
	PSY 100, 101, 130		
	SOC 100, 101		

Suggested Course Sequence

See a pharmacy technology faculty advisor.

*For additional prerequisite information, check Course Section.

Physical Therapist Assistant

The physical therapist assistant curriculum prepares students to be members of the health care team, treating patients in a variety of clinical settings. In addition to classroom and laboratory studies, students concurrently practice treatment techniques in hospitals and clinics.

Upon completion of the associate of applied science degree, students have the skills necessary to participate in the preventive and restorative treatment of orthopedic, neurological, and cardiopulmonary patients. This degree prepares graduates for direct employment as physical therapist assistants. Those who wish to pursue physical therapy studies should contact the college or university of their choice since this program does not fulfill all prerequisites for admission and is not fully transferable.

Students will be formally accepted into the physical therapist assistant program upon completion of the following general education and support courses: WRT 101, BIO 201, BIO 202, PSY 110, SPE 102 or SPE 120, MTH 130, one Humanities and Fine Arts elective (see Graduation section of this catalog for course list), college reading requirement, one Fitness and Sport Sciences elective, and one academic elective of the student's choice. **It is also strongly recommended that students complete PTA 170 and BIO 204 prior to application to the program.**

Application Procedure

Students should apply between January 1 and March 1 for acceptance into the class beginning the following fall semester. Students must have completed all general education and support courses listed above prior to starting the physical therapist assistant program.

The application process includes the following:

- Application for admission to Pima Community College
- Completion of physical therapist assistant "Application for Admission", including proof of completion of general education and support courses listed above.
- Completion of mathematics assessment test
- Submission of copy of high school diploma or GED certificate
- Interview with program director/faculty

General Requirements

- Total required credits: 68-74 credit hours.
- Work in residence: a minimum of 15 credits in the major (PTA) courses to be completed in residence.

Minimal Grade Achievement and Program Progression

- All core (PTA) courses must be completed with a C or better grade.
- Students must earn a C or better in BIO 201 and BIO 202.

Physical Therapist Assistant—Associate of Applied Science Degree For Direct Employment**REQUIRED COURSES (68-74 CREDIT HOURS)**

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
PTA 170	Introduction to Physical Therapy	2	
PTA 180	Kinesiology	3	*
PTA 181	Physical Therapist Assistant Procedures I	4	*
PTA 182	Physical Therapist Assistant Procedures II	5	*
PTA 183	Physical Therapist Assistant Procedures III	5	PTA 182*
PTA 184	Physical Therapist Assistant Procedures IV	5	PTA 182*
PTA 190	Physical Therapist Assistant Clinical Observations	1	*
PTA 191	Physical Therapist Assistant Clinical Experience	5	PTA 190*
PTA 192	Physical Therapist Assistant Clinical Seminar	2	PTA 190*
PTA 193	Physical Therapist Assistant Clinical Internship	4	PTA 192*

General Education and Support Courses:

BIO 201	Human Anatomy and Physiology I	4	BIO 100*
BIO 202	Human Anatomy and Physiology II	4	BIO 201
BIO 204	Survey of Human Diseases	4	BIO 160
MTH 130	Algebra II	3	MTH 070*
PSY 110	Introduction to Psychology	4	
SPE 102	Introduction to Oral Communication		
or 120	Business and Professional Communication	3	
WRT 101	Writing I	3	WRT 100*

FSS ELEC	Fitness and Sport Sciences elective	1-2
HUM/ART	Humanities and Fine Arts Electives See Graduation section of this catalog for associate of applied science degree course list.	3-4
REA	Reading requirement	0-4 *
ELEC	Any academic elective	3

Suggested Course Sequence (Read down.)

General Education	PTA 190
and Support Courses	PTA 183
BIO 204	PTA 184
PTA 170	PTA 191
PTA 180	PTA 192
PTA 181	PTA 193
PTA 182	

*For additional prerequisite information, check Course Section.

Physics

Physics—Associate of Science Degree For Transfer

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

Students may take PHY 216 before PHY 221 if they have completed MTH 185.

REQUIRED COURSES (71-77 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
MTH 180	Analytic Geometry and Calculus I	4	MTH 150*
MTH 185	Analytic Geometry and Calculus II	3	MTH 180
MTH 215	Analytic Geometry and Calculus III	4	MTH 185
MTH 219	Differential Equations	3	MTH 215
PHY 210	Introductory Mechanics	5	MTH 180*
PHY 216	Introductory Electricity and Magnetism	5	MTH 185*
PHY 221	Introduction to Waves and Heat	4	MTH 185*
PHY 230	Introduction to Modern Physics	4	PHY 210*
Recommended Courses:			
CHM 151	General Chemistry I	5	MTH 130*
CHM 152	General Chemistry II	5	CHM 151
CSC 140	FORTAN Programming	3	CSC 100*
MTH 225	Introduction to Linear Algebra	3	MTH 215
General Education and Support Courses:			
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
REA	Reading requirement	0-4	*

Foreign Language:

Four semesters (two years) of any **one** foreign language (courses numbered 110 and above). For students whose native language is a language other than English, the language requirement may be satisfied by successfully completing Writing 101 and 102.

HUM/ART

Humanities and Fine Arts Electives

- Complete one of the following options: 8-10
- HUM 110 and 111
 - HUM 110 or 111 and six units from Option C
 - Nine units from the following three groups, with no more than six units from any one group.
 - DRA 140, 141
 - ART 130, 131, MUS 151
 - PHI 101, 130

SOC/BEH

Social and Behavioral Science Electives

- Complete nine units with six in one subject and three in another. Choose from the following areas:** 9
- Anthropology
 - Economics
 - Cultural Geography
 - History
 - Political Science
 - Psychology
 - Sociology

Suggested Course Sequence

See a physics faculty advisor.

*For additional prerequisite information, check Course Section.

**Students must also take one non-western course while completing this requirement. Choose from: ANT 121, 141, HIS 113, 114, 127.

Postal Service Management

The postal service management certificate and degree program has been designed in cooperation with the Tucson Management Sectional Center (MSC) United States Postal Service. A curriculum has been established to develop and enhance skills of persons presently employed by the Postal Service. The program certificate and degree options utilize the career-ladder concept. This means that a student may smoothly progress from the basic certificate requiring 16 credit hours to the advanced certificate requiring an additional 18 credit hours and then to the associate of applied science degree which requires an additional 33 credit 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 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BUS 051	Mathematics of Business	3	MTH 060*
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	

General Education and Support Courses:

PSM 100	Postal History and Organization	3	
ACC 101	Financial Accounting	3	
REA 100	Reading Series	4	*

Suggested Course Sequence (Read down.)

WRT 101 or 150
ACC 101
PSM 100
REA 100
BUS 051

*For additional prerequisite information, check Course Section.

Postal Service Management—Advanced Certificate For Direct Employment

REQUIRED COURSES (34 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate requirements		16	
Core Courses - A grade of C or better is required for graduation.			
MAN 110	Human Relations in Business and Industry	3	
PSM 120	Postal Service Labor Management	3	
PSM 140	Mail Processing I	3	
WRT 102	Writing II		WRT 101
or 154	Technical Communications	3	WRT 100*

General Education and Support Courses:

PSM 130	Postal Employee Services	3	
ACC 102	Managerial Accounting	3	ACC 101*

Suggested Course Sequence (Read down.)

Basic Certificate requirements	MAN 110
WRT 102 or 154	PSM 120
ACC 102	PSM 130
	PSM 140

*For additional prerequisite information, check Course Section.

Postal Service Management—Associate of Applied Science Degree

REQUIRED COURSES (70-75 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Advanced Certificate requirements		34	
Core Courses - A grade of C or better is required for graduation.			
MAN 280	Business Organization and Management	3	BUS 100*
PSM 200	Postal Service Finance	3	
PSM 240	Mail Processing II	3	PSM 140
PSM 250	Postal Service Delivery and Collection	3	
PSM 260	Postal Problems Analysis	3	
PSM 270	Postal Customer Services	3	
PSM 280	Management of Small Post Offices	3	

SPE 120	Business and Professional Communication	3	
General Education and Support Courses:			
CSC 100	Introduction to Computers	3	MTH 070
PSM 210	Mailroom Procedures and Mailing Techniques	3	
ECO 101	Macroeconomics	3	MTH 070*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

Suggested Course Sequence (Read down.)

Advanced Certificate requirements	PSM 200	PSM 250
Reading requirement	PSM 240	PSM 280
ECO 101	Humanities and Fine Arts Elective	PSM 260
SPE 120	PSM 270	PSM 210
	CSC 100	
	MAN 280	

*For additional prerequisite information, check Course Section.

Production and Inventory Management

The production and inventory management program (PIM) is designed to meet the educational needs of students desiring to enter or advance in the field of production management and inventory. This program encompasses the production and inventory management areas of shop-floor control, capacity planning, material requirements planning, inventory management, master scheduling and forecasting. Courses within the PIM program are designed to compliment the local American Production and Inventory Control Society (APICS) seminars and workshops to prepare individuals for the APICS certification examinations.

The following courses are designed as preparation for APICS certification examinations:

PIM 200	Production Planning Master Planning certification examination
PIM 205	Inventory Management certification examination
PIM 210	Production Control Capacity Management certification examination and Production Activity Control certification examination
PIM 215	Material Requirements Planning certification examination

Completion of a PIM certificate or degree program will prepare an individual for employment in a manufacturing environment with emphasis on production and inventory management.

Production and Inventory Management—Basic Certificate For Direct Employment

REQUIRED COURSES (15 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
PIM 150	Physical Distribution Management	3	
PIM 200	Production Planning	3	BUS 205*
PIM 205	Inventory Management	3	MTH 150
OED 151	Business English or equivalent	3	WRT 100*
MTH 150	College Algebra or higher	3	MTH 130*

Suggested Course Sequence

See a production and inventory management faculty advisor.

*For additional prerequisite information, check Course Section.

Production and Inventory Management—Advanced Certificate For Direct Employment

REQUIRED COURSES (30 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
PIM 200	Production Planning	3	BUS 205*
PIM 205	Inventory Management	3	MTH 150
PIM 210	Production Control	3	PIM 200
PIM 215	Material Requirements Planning (MRP)	3	PIM 205
OED 151	Business English or equivalent	3	WRT 100*
MTH 150	College Algebra (or higher)	3	MTH 130*
ELEC	Select the remaining 12 credit hours from the courses listed in the Associate of Applied Science degree program including electives.	12	

Suggested Course Sequence

See a production and inventory management faculty advisor.

*For additional prerequisite information, check Course Section.

Production and Inventory Management—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (66-71 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
PIM 150	Physical Distribution Management	3	
PIM 200	Production Planning	3	BUS 205*
PIM 205	Inventory Management	3	MTH 150
PIM 215	Material Requirements Planning (MRP)	3	PIM 205
PIM 210	Production Control	3	PIM 200
MAN 280	Business Organization and Management	3	BUS 100*
OED 251	Business Communications	3	OED 151

MTH 150 and PAD 204	College Algebra Introduction to the Analysis of Data for Decision Making	3	MTH 130*
or MTH 170 and BUS 205	Finite Mathematics Statistical Methods in Economics and Business	3	MTH 150
ACC 101	Financial Accounting	3	MTH 170*
ACC 102	Managerial Accounting	3	ACC 101
BUS 100	Introduction to Business	3	
MKT 111	Marketing	3	
MAN 110	Human Relations in Business and Industry	3	
SPE 120	Business and Professional Communications	3	
WRT 101 or OED 151	Writing Business English	3	WRT 100*
REA	Reading requirement	0-4	WRT 100*
HUM/ART	Humanities and Fine Arts Elective		
	Complete 3-4 credit hours from the following:	3-4	
	ART 103, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 15, 201, 202		
	PHI 101, 120		
ELEC	Technical Electives		
	Select four courses (12 credit hours), with the concurrence of a program advisor, from the following electives:	12	
	CSC 100, 105		
	BUS 105		
	ACC 203		
	TTM 101		
	ECO 100, 101		
	MAN 122, 124		
	PIM 203		

Suggested Course Sequence (Read down.)

First Semester

Reading requirement
MTH 150 or MTH 170
ACC 101
PIM 150
BUS 100
WRT 101 or OED 151

Second Semester

PAD 204 or BUS 205
ACC 102
MAN 110
OED 251
MKT 111

Third Semester

PIM 200
PIM 205
SPE 120
Humanities and Fine
Arts Elective
Technical Elective
Technical Elective

Fourth Semester

PIM 215
PIM 210
MAN 280
Technical Elective
Technical Elective

*For additional prerequisite information, check Course Section.

Public Administration

The public administration curriculum is designed primarily to facilitate transfer to a major university; however, it also prepares students for a variety of entry-level supervisory and staff positions in the public sector as well as in quasi-public institutions (e.g., hospitals, centers for care of the aged, etc.). Public administration includes the following major fields of interest: public management, health services administration, criminal justice administration, and human services administration. Students interested in the latter two fields should consult administration of justice and social services advisors. Pre-law students are encouraged to major in public administration. Skill development in human relations, statistics, decision-making, and policy analysis is emphasized throughout the program.

Students who have not completed college algebra (MTH 150) should do so as soon as possible. The prerequisite for MTH 150 is MTH 130 or two years of algebra. New students are required to take the math assessment test which is administered during registration. Those wishing to transfer to the business and public administration college at the University of Arizona should place heavy emphasis on mathematics. Students should check with program advisors (located on the West Campus) for further information.

Public Administration—Associate of Science Degree For Transfer

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

REQUIRED COURSES (62-74 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACC 101	Financial Accounting	3	
ACC 173	Introduction to Fund Accounting	3	ACC 101
PAD 105	Introduction to Public Administration	3	
PAD 204	Introduction to the Analysis of Data for Decision Making	3	
CSC 100	Introduction to Computers	3	MTH 070
ECO 200**	Principles of Economics	3	MTH 070
MTH 170	Finite Mathematics	3	MTH 150
MTH 175	Topics in Calculus	3	MTH 150
BUS 205	Statistical Methods in Economics and Business I	3	MTH 170*
General Education Courses:			
BIO/PHY SCIENCE	Complete two semesters of introductory level science with/without lab. AST 101/111; AST 102/112 BIO 101, 102, 105, 109 CHM 121, 130, 140, 141, 151, 152 GEO 101, 102 GLG 101, 102 PHY 121, 122	8	
COMMUNICATION	Complete one of the following options: OPTION 1: WRT 101 and WRT 102 OPTION 2: WRT 107 and 108 (For international students)	6	

INTER- NATIONAL MULTI- CULTURAL EXPERIENCE	Complete one of the following options: OPTION 1: Two courses in a single foreign language at the 110 level or above. OPTION 2: POS 120	3-8
HUM/WEST CIV	Complete two of the following courses: HIS 101, 102; HUM 251 252, 253	6
NON- WESTERN CIV	Complete one of the following courses: HIS 113, 114; REL 125	3
ARTS/LIT/ ETHICS	Complete three credit hours from Option 1 (Ethics), AND three credit hours from Option 2 (Arts) OR Option 3 (Literature) for a total of six credits. If you have already completed an ethics course (PHI 101, PHI 130 or PSY 130), complete three credit hours from Option 2 (Arts) AND three credit hours from Option 3 (Literature) for a total of six credits. OPTION 1: Ethics: PHI 101, 130, or PSY 130 OPTION 2: Arts ART 130, 131, 135 DRA 140, 141 MUS 151 OPTION 3: Literature LIT 231, 260, 261, 265, 266, 267	6
SOC/BEH	Complete one option: OPTION 1: Values, Culture and Change ANT 102, SOC 100 OPTION 2: Sociology and Organizations SOC 100, 101	3-6

OPTION 3:
Basic Psychology
PSY 110, 130

OPTION 4:
Arizona and the Southwest
ARC 141, ANT 121

OPTION 5:
Political Institutions
POS 110

OPTION 6:
American Social Institutions
POS 160, and POS 110 or
POS 130

OPTION 7:
Concepts in Ethics
PHI 130

OPTION 8:
International Business
POS 140

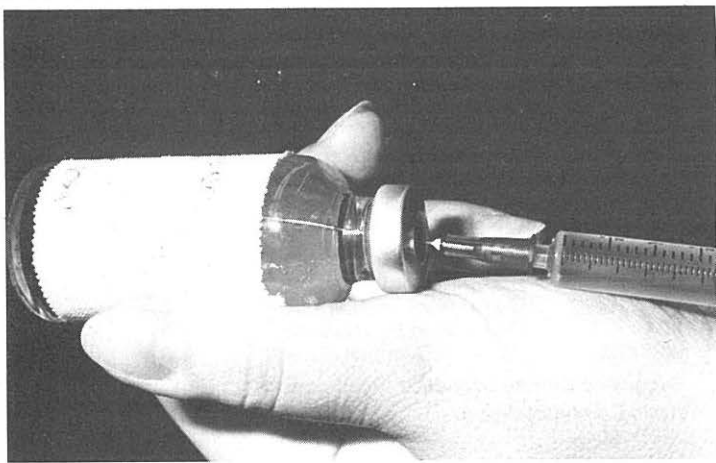
READING REQUIRE- MENT	Minimum college-defined competency in reading of at least 12th grade in each of the vocabulary and comprehension sections as measured by college assessment.	0-4
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Suggested Course Sequence

See a public administration program advisor.

*For additional prerequisite information, check Course Section.

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



Public Transportation Maintenance Technology

This program provides training in diagnostics, troubleshooting and rebuilding in eight 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 (16 CREDIT HOURS)

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

PTM 101	Applied Electrical Systems	4	
PTM 102	Brake Systems	3	
PTM 103	Air Systems	3	
PTM 104	Diesel Engine Basics	3	

General Education and Support Courses:

MAN 110	Human Relations in Business and Industry	3	
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Suggested Course Sequence (Read down.)

PTM 101
PTM 102
PTM 103
PTM 104
MAN 110

Public Transportation Maintenance—Technical Certificate

REQUIRED COURSES (37 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
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Basic Certificate requirements 16

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

PTM 105	Air Conditioning Systems	4	PTM 101
PTM 106	Automatic Transmission		
	VH and VS	4	
PTM 203	Rear Ends and Differentials	3	

General Education and Support Courses:

PTM 199	Co-op Related Class in PTM	1	*
PTM 199	Co-op Work in PTM	3	
MTH	Determined by assessment	3	*
WRT 150	Practical Communications	3	

Suggested Course Sequence (Read down.)

Basic Certificate Requirements

WRT 150

Math course

PTM 105

PTM 106

PTM 203

PTM 199

*For additional prerequisite information, check Course Section.

Public Transportation Maintenance—Associate of Applied Science Degree

REQUIRED COURSES (62-68 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
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Technical Certificate requirements 37

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

PTM 201	Automatic Transmission V-730	4	
PTM 202	Diesel Engine Overhaul	3	PTM 103
PTM 204	Front End Alignment and Steering Gears	3	

General Education and Support Courses:

PTM 299	Co-op Related Class in PTM	1	PTM 199*
PTM 299	Co-op Work in PTM	2	
PHY 101	Technical Physics I	3	
WRT 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
SOC/BEH	Social and Behavioral Science Elective		
	Complete one of the following:	3-4	
	ANT 101, 102, 200, 210, 215, 225		
	ECE 107, 117		
	ECO 100, 101		
	GEO 103		
	HIS 101, 102, 141, 142, 147		
	MAN 110		
	POS 100, 110, 112, 120, 130		
	PSY 100, 101, 130		
	SOC 100, 101		

Suggested Course Sequence (Read down.)

Technical Certificate	PHY 101
Requirements	PTM 299
Reading requirement	Humanities and Fine Arts Elective
WRT 154	Arts Elective
PTM 201	Social and Behavioral Science Elective
PTM 202	
PTM 204	

*For additional prerequisite information, check Course Section.

Quality Control Technology

The quality control technology technician program is an occupational program for persons seeking a career in the quality control field and for existing quality control personnel who desire to enhance their knowledge and careers.

The program consists of a basic certificate (one semester), an advanced certificate (two semesters) and an associate of applied science degree (two years). The basic certificate will provide the basic knowledge of manufacturing methods, engineering blueprints and the quality function. The advanced certificate will provide the student with knowledge and hands-on usage of the various tools for inspection of manufacturing processes and application of quality control methods. The final two semesters will be a quality assurance orientation towards a selected commodity which includes electronics, microelectronics, general fabrication and management systems.

The program will also aid the student in the preparation for the examination to obtain certification from the American Society for Quality Control (ASQC) as a certified quality control technician.

Quality Control Technology—Basic Certificate For Direct Employment

REQUIRED COURSES (15 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
DFT 101A	Blueprint Reading	3	
QCT 101	Quality Control I	3	
DFT 240	Manufacturing Processes I	3	
WRT 101	Writing I	3	WRT 100*
MTH 130	Algebra II		MTH 070*
or 115	Electronics Mathematics	3	MTH 070

Suggested Course Sequence

 (Read down.)

DFT 101A	WRT 101
QCT 101	MTH 130 or 115
DFT 240	

*For additional prerequisite information, check Course Section.

Quality Control Technology—Advanced Certificate For Direct Employment

REQUIRED COURSES (32 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate Requirements		15	
Core Courses - A grade of C or better is required for graduation.			
QCT 102	Quality Control II	3	QCT 101
DFT 245	Manufacturing Processes II	3	
MTH 210	Introductory Statistics	3	MTH 130*
MAC 130	Basic Metallurgy	3	
WRT 154 or 102	Technical Communications Writing II	3	WRT 101*
QCT 230	Machine Shop Inspector Skills	2	WRT 101

Suggested Course Sequence (Read down.)

Basic Certificate Requirements	MTH 210
	MAC 130
QCT 102	WRT 154 or 102
DFT 245	QCT 230

*For additional prerequisite information, check Course Section.

Quality Control Technology—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (67-71 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Advanced Certificate requirements		32	
Core Courses - A grade of C or better is required for graduation.			
QCT 250	Introduction to Statistical Quality Control	3	MTH 210
ETR 100	Electronic Fundamentals	6	MTH 115*
MAN 110	Human Relations in Business and Industry	3	
CSC 105	Survey of Microcomputer Uses	3	
PHY 121	Introductory Physics I	5	*
REA	Reading requirement	0-4	*

HUM/ART	Humanities and Fine Arts Elective (See Graduation section of this catalog for associate of applied science degree course list.)	3
ELEC	Program Electives Complete 12 credit hours from the following:	12
	BUS 100	
	DFT 160	
	ETR 104, 105, 110, 124, 125, 155, 165	
	MAC 110, 285	
	MAN 122, 280	
	QCT 123, 210	
	SML 110	
	SPE 120	
	WLD 110	

Suggested Course Sequence (Read down.)

Advanced Certificate Requirements	MAN 110
Reading requirement	CSC 105
QCT 250	PHY 121
ETR 100	Humanities and Fine Arts Elective
	Program Electives

*For additional prerequisite information, check Course Section.

Radiologic Technology

Radiologic technology is a health sciences career which deals with diagnostic medical imaging. The associate of applied science degree program prepares students to become certified radiologic technologists after successfully completing the medical radiography examination of the American Registry of Radiologic Technologists. The certified technologist has several career alternatives: direct employment in hospitals, clinics and private doctors' offices or, with additional training, specialization in radiation oncology, nuclear medicine, special procedures, ultrasound, CT scanning or magnetic resonance imaging. In addition, graduates may transfer to a university which offers a bachelor of science degree program in the field.

Requirements for Acceptance into the Program

- Graduation from high school or a GED certificate.
- Completion and submission of Pima Community College and the radiologic technology program applications for admission.
- Submission of completed high school transcripts or GED certificate.
- Submission of official transcripts from all colleges attended, including Pima Community College (if applicable).
- Completion of Algebra I (MTH 070) or its college equivalent within the last five years with a grade of "C" or better.
- Submission of documented reading competency at the level of REA 112 or higher.
- Completion of the interview process with a program advisor.
- Submission of all transcripts and application materials to the admissions secretary for Allied Health Programs by March 1 prior to the fall semester being considered for entry into the program.
- Selection by the West Campus Allied Health Programs Selections Committee.

Selection Process

- Evaluation and selection of applicants is conducted by the West Campus Allied Health Programs Selections Committee. Applicants will be notified of their status by mail.

General Requirements

- Total required credits: 87-92 credit hours

Minimal Grade Achievement

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

Radiologic Technology—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (87-92 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BIO 160	Introduction to Human Anatomy and Physiology	4	
RAD 171	Medical Imaging Fundamentals	4	*
RAD 172	Medical Imaging Technology I	4	RAD 171*
RAD 173	Radiographic Positioning I	4	RAD 171*
RAD 174	Clinical Education I	4	RAD 171*
RAD 175	Clinical Education II	6	RAD 172*

RAD 181	Medical Imaging Technology II	4	RAD 175
RAD 182	Radiographic Positioning II	4	RAD 175
RAD 183	Clinical Education III	6	RAD 175
RAD 184	Medical Imaging Technology III	4	RAD 181*
RAD 185	Radiographic Positioning III	4	RAD 181*
RAD 186	Clinical Education IV	6	RAD 181*
RAD 187	Clinical Seminar I	1	RAD 181*
RAD 188	Clinical Education V	6	RAD 184*
RAD 191	Clinical Education VI	6	RAD 188*
RAD 192	Clinical Seminar II	1	RAD 188*

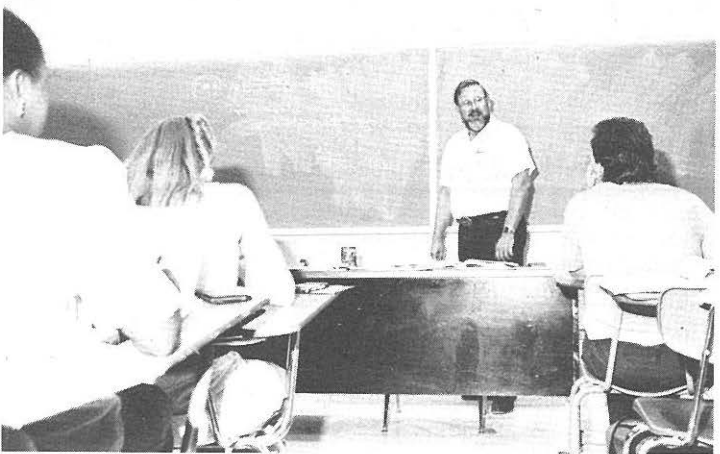
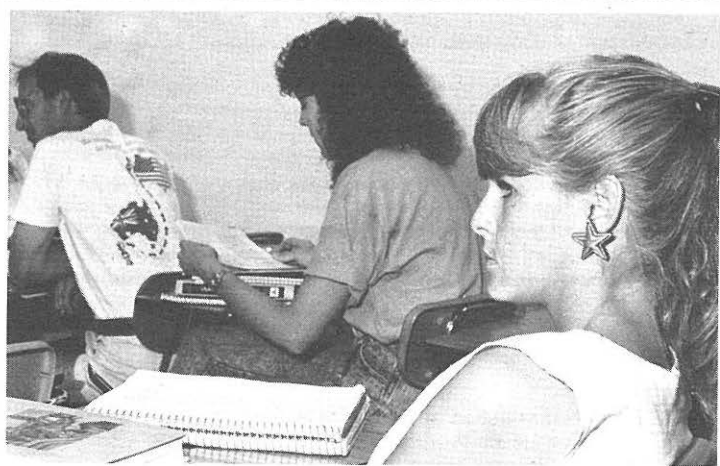
General Education and Support Courses:

CSC 105	Survey of Microcomputer Uses	3	
MTH 130	Algebra II	3	MTH 070*
PSY 110	Introduction to Psychology	4	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language (Course number 100 or above)		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

Suggested Course Sequence (Read down.)

Reading requirement	RAD 172	CSC 105
WRT 101	RAD 173	RAD 184
MTH 130	RAD 174	RAD 185
Humanities and Fine Arts Elective	RAD 175	RAD 186
BIO 160	PSY 110	RAD 187
RAD 171	RAD 181	RAD 188
RAD 172	RAD 182	RAD 191
WRT 102	RAD 183	RAD 192

*For additional prerequisite information, check Course Section.



Real Estate

The real estate program is designed to fulfill industry needs in the Tucson area. There are basically two program options: one in sales/brokerage which includes a two-year associate of applied science degree and basic and advanced certificates, the other in real estate escrow which offers a basic and an advanced certificate.

Real Estate Sales/Brokerage

This real estate option is designed to prepare persons to handle the sales of private residences, apartment buildings, industrial and commercial property and unimproved land. Students also are trained in finance, real property management, advertising, appraising, site developing, urban renewal, public housing and rehabilitation of property. Training in real estate is offered through a one-semester basic and a two-semester advanced certificate program and also through a two-year associate of applied science degree program.

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

The two-year program provides for additional growth, development and specialization in the real estate field. The real estate degree and certificate programs are job oriented. Persons interested in a four-year degree should follow the first two-year course requirements of the university they plan to attend.

Real Estate Sales/Brokerage—Basic Certificate For Direct Employment

REQUIRED COURSES (15 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
RLS 101	Real Estate Principles	3	
General Education and Support Courses:			
BUS 200	Business Law I	3	
ACC 101	Financial Accounting	3	
MTH	Determined by assessment test	3	*
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	

Suggested Course Sequence (Read down.)

WRT 101 or 150	BUS 200
MTH course	RLS 101
ACC 101	

*For additional prerequisite information, check Course Section.

Real Estate Sales/Brokerage—Advanced Certificate For Direct Employment

REQUIRED COURSES (30 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate requirements		15	
Core Courses - A grade of C or better is required for graduation.			
FIN 205	Real Estate Finance		
or RLS 205	Real Estate Finance	3	
RLS 201	Real Estate Law	3	RLS 101
General Education and Support Courses:			
MKT 113	Salesmanship	3	
RLS 102	Real Estate Practices	3	RLS 101*
SPE 120	Business and Professional Communications	3	

Suggested Course Sequence (Read down.)

Basic Certificate	RLS 102
Requirements	RLS 201
FIN 205 or RLS 205	SPE 120
MKT 113	

*For additional prerequisite information, check Course Section.

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

REQUIRED COURSES (63-69 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ACC 101	Financial Accounting	3	
FIN 205	Real Estate Finance	3	
MKT 113	Salesmanship	3	
RLS 101	Real Estate Principles	3	
RLS 201	Real Estate Law	3	RLS 101
RLS 202	Real Estate Appraisals	3	RLS 101
General Education and Support Courses:			
BUS 200	Business Law I	3	
MAN 124	Small Business Management	3	
RLS 102	Real Estate Practices	3	*
ACC 102	Managerial Accounting	3	ACC 101*
ECO 100	Introduction to Microeconomics	3	MTH 070*
ECO 101	Introduction to Macroeconomics	3	MTH 070*
MAN 110	Human Relations in Business and Industry	3	
MTH	Determined by assessment test	3	*
SPE 120	Business and Professional Communications	3	
WRT 101	Writing I	3	WRT 100*
or 150	Practical Communications	3	
REA	Reading requirement	0-4	*

HUM/ART

Humanities and Fine Arts

Elective

Complete one of the following: 3-4

ART 130, 131, 132, 135

DRA 140, 141

ECE 108, 112

HUM 110, 111

Foreign Language

LIT 260, 265

MUS 151, 201, 202

PHI 101, 120

ELEC

Real Estate Electives:

Complete three courses at the 100 level or above which are related to the real estate industry. 9

SOC/BEH

Social and Behavioral Science Elective

Complete one of the following: 3-4

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

ECE 107, 117

ECO 100, 101

GEO 103

HIS 101, 102, 141, 142, 147

MAN 110

POS 100, 110, 112, 120, 130

PSY 100, 101, 130

SOC 100, 101

Suggested Course Sequence

 (Read down.)

Reading requirement	SPE 120	Real Estate Elective
WRT 101 or 150	RLS 102	MAN 124
Math course	MKT 113	ACC 102
ACC 101	ECO 101	RLS 201
RLS 101	FIN 205	RLS 202
Real Estate Elective	MAN 110	Social and Behavioral
BUS 200	Humanities and Fine	Science Elective
ECO 100	Arts Elective	Real Estate Elective

*For additional prerequisite information, check Course Section.

Real Estate Escrow

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

Real Estate Escrow—Basic Certificate For Direct Employment

REQUIRED COURSES (15 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
RLS 101	Real Estate Principles	3	
RLS 120	Real Estate Escrow Principles	3	
RLS 121	Real Estate Escrow Practices	3	RLS 120
General Education and Support Courses:			
ACC 101 or BUS 051	Financial Accounting Mathematics of Business	3	MTH 060*
ELEC	Elective: Complete one additional course as recommended by a real estate advisor to satisfy individual student requirements	3	*

Suggested Course Sequence (Read down.)

RLS 120	ACC 101 or
RLS 121	BUS 051
RLS 101	Elective

*For additional prerequisite information, check Course Section.

Real Estate Escrow—Advanced Certificate For Direct Employment

REQUIRED COURSES (30 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate requirements		15	
Core Courses - A grade of C or better is required for graduation.			
RLS 210	Real Estate Escrow Problems	3	RLS 121
General Education and Support Courses:			
FIN 205	Real Estate Finance	3	
RLS 201	Real Estate Law	3	RLS 101
WRT	Determined by assessment score	3	
ELEC	Elective: Complete one additional course as recommended by a real estate advisor to satisfy individual student requirements.	3	

Suggested Course Sequence (Read down.)

Basic Certificate requirements	RLS 201
Writing course	FIN 205
RLS 210	Elective

*For additional prerequisite information, check Course Section.

Respiratory Therapist Program

This program gives the theory and practice to prepare students for jobs as respiratory therapists. It also prepares the student for transfer into four-year programs.

Respiratory care is a health science specialty which deals with the treatment, management and care of patients with deficiencies and abnormalities associated with respiration and circulation. This program trains students in the therapeutic use of medical gases and their administering devices, environmental control, humidity and aerosols, inhaled medications, ventilator management, chest physiotherapy, rehabilitation, airway management and cardiopulmonary resuscitation. Students also learn a variety of techniques used in the diagnosis, monitoring and treatment of patients with cardiopulmonary disorders. Following physician's orders, respiratory care personnel must work closely with other members of the health care team including physicians, nurses, physical therapists and other health technologists.

The associate degree program consists of five semesters of professional (RTH) and support courses. Students who are accepted into the program and complete all required courses will be scheduled to enter the hospital portion of their program beginning with the third semester. Graduates will receive either an associate of applied science degree or an advanced certificate as a respiratory therapist. Graduates receiving an advanced certificate may complete the program in less than five semesters depending on their previous background in respiratory care.

The advanced certificate program is designed for and limited to those individuals with previous work experience in respiratory care and/or graduates of American Medical Association (AMA) approved respiratory technician training programs. Individuals who have completed medical training in other disciplines may qualify for advanced placement into the respiratory therapist program.

Following completion of this AMA-approved program, the graduate is qualified for immediate employment and for application to the National Board for Respiratory Care (NBRC) for the entry-level certification

examination (CRTT). He or she may also apply for entry into an internship or baccalaureate program and for registration as a Registered Respiratory Therapist (RRT) through the NBRC. The RRT usually works in hospitals, clinics or laboratories. Employment also exists within commercial companies in sales or within contract service agencies. The registered therapist may choose to work strictly as a clinician or in other areas such as management, medical research or education in the hospital, college or university setting.

Requirements for Acceptance Into the Associate of Applied Science Degree and Advanced Certificate Curriculum:

- Receipt of high school and college-level transcripts (if applicable)
- Completion of Pima College and Respiratory Therapist Program applications
- Receipt of placement examination results in mathematics and reading comprehension (See General Education Requirements under the Graduation section of this catalog for the reading requirement.)
- Personal pre-admission conference with the program faculty
- Approval by the selections committee

Requirements for an Advanced Certificate:

This program has a variable number of credit hours based on individual background and previous academic coursework. See respiratory therapy full-time faculty.

Requirements for an Associate of Applied Science Degree:

This program requires 76 to 81 credit hours to be completed as follows:

- Work in residence: consult with program full-time faculty
- Correspondence and extension study: as arranged by the program chairman

Minimum Grade Achievement:

- "C" level

Respiratory Care—Advanced Certificate For Direct Employment

REQUIRED COURSES

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

See program chairman.

General Education and Support Courses:

CHM 130 or 196	Fundamental Chemistry Independent Studies in Chemistry	5 1-4	
BIO 160	Introduction to Human Anatomy and Physiology	4	
or 099	Anatomy and Physiology Review	1-3	
BIO 210	Communicable Diseases	3	*
or RTH 099	Basic Science Review for Respiratory Therapists	2	
MTH 070	Algebra I	3	MTH 060*
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
REA	Reading Requirement	0-4	*
HUM/ART	Humanities and Fine Arts Electives See Graduation section of this catalog for Humanities and Fine Arts course list.	3-4	

Suggested Course Sequence

See a respiratory therapist faculty advisor.

*For additional prerequisite information, check Course Section

Respiratory Care—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (76-81 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
RTH 071	Introduction to Respiratory Care	4	*
RTH 073	Pharmacology for Respiratory Therapists	3	RTH 071*
RTH 082	Respiratory Physiology	4	BIO 160*
RTH 083	Basic Therapeutics in Respiratory Care	5	RTH 071
RTH 084	Critical Care Therapeutics	5	RTH 073*
RTH 085	Diagnostic Studies	3	RTH 082
RTH 086	Cardiorespiratory Disorders I	3	RTH 073*
RTH 087	Advanced and Specialty Therapeutics	5	RTH 084*
RTH 089	Cardiorespiratory Disorders II	3	RTH 086*
RTH 091	Clinical Procedures I	4	RTH 073*
RTH 092	Clinical Procedures II	6	RTH 084*
RTH 093	Clinical Procedures III	4	RTH 092

General Education and Support Courses:

BIO 160	Introduction to Human Anatomy and Physiology	4	
BIO 210	Communicable Diseases	3	*
CHM 130	Fundamental Chemistry	5	
MTH 070	Algebra I	3	MTH 060*
PSY 100	Psychology I	3	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II		WRT 101
or 150	Practical Communications	3	
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		

Suggested Course Sequence (Read down.)

Reading requirement	RTH 073	RTH 092
WRT 101	RTH 083	RTH 087
MTH 070	RTH 082	RTH 089
BIO 160	RTH 091	RTH 093
CHM 130	PSY 100	Humanities and Fine Arts Elective
RTH 071	RTH 084	
WRT 102 or 150	RTH 085	
BIO 210	RTH 086	

*For additional prerequisite information, check Course Section.

Social Services

The social services program prepares students for employment in many community service agencies and lays the foundation for continuing education in the helping professions. The skill and knowledge base will qualify the student for entry-level employment in mental health, substance abuse treatment, domestic violence intervention, gerontology, child care, retardation counseling, welfare delivery, community outreach, client advocacy, and other service oriented positions. This program prepares students to pursue studies in social work, rehabilitation, child development and family relations, psychology, sociology, counseling, and other disciplines offered at four-year universities.

There are two degree programs available: a two-year associate of applied science (AAS) for direct employment and a two-year associate of arts (AA) for transfer to a university. In addition to the social services major, the student may choose to expand his or her skill and knowledge base with a subspecialty in either substance abuse or gerontology.

The social service associate degree programs develop skills and knowledge for working with clients, conducting interviews, collecting data, making home visits, working as a team member, determining treatment actions, performing outreach and advocacy, and acting as a link between the professional caregiver and the client. In addition, the skill/knowledge base includes identification of community resources, recognizing power bases in the community, application of models for social change, and utilization of resources in serving clients.

The substance abuse subspecialty degree programs include various units on treatment modes, including the physiological and psychological effects of drugs and alcohol, current legislation and legal aspects of the drug situation, case management, and other topics important to substance abuse rehabilitation.

The gerontology subspecialty degree programs emphasize the special needs the elderly present in social service settings, social issues created by an aging population, special health problems of the elderly, and treatment alternatives in the field of gerontology.

In addition to the associate degree programs, three basic certificates are offered. These certificates are designed as a second major for students in other associate degree programs or as skill building for those individuals who are already employed in industry, business, and human services. While this course work is not necessarily intended to qualify individuals for employment, as does the associate degree, it will enhance understanding of social welfare, substance abuse and

domestic violence issues. Those interested in pursuing one of these certificates are encouraged to consider an associate degree appropriate to their interests.

The basic certificate in social services provides core skills for and understanding of social welfare, agencies, groups, and those in need on a one-to-one basis.

The basic certificate in substance abuse provides core understanding of drug and alcohol use, abuse, treatment modalities and political/legal aspects of substance abuse in society.

The basic certificate in domestic violence intervention provides core understanding of the causes and cures of domestic violence, crisis intervention, and alternative treatment methods to this problem which crosses racial, economic and social boundaries.

Those seeking an associate degree must fulfill minimum general education requirements set by Pima Community College to graduate. Students applying for graduation in an associate degree program must demonstrate competency in reading. This is defined as a minimum score of at least the twelfth grade level in each of the vocabulary and comprehension sections as measured by college assessment.

Core courses in the social services program are SSE 133, SSE 134, SSE 135, SSE 216, SSE 234 and SSE 237. In addition to these, SSE 115, SSE 116, SSE 127 and SSE 218 are core courses for the substance abuse subspecialty degree. SSE 140, SSE 141, SOC 166, SSE 199 and SSE 299 are core courses for the gerontology subspecialty. A grade of D in a core course or in the SSE elective requirement will not fulfill graduation requirements for an associate degree or basic certificate in social services. The Co-op Related Class in SSE (SSE 199) and Co-op Work in SSE (SSE 199c) are required for those seeking the associate of applied science degree. In these courses, the student performs 225 credit hours of supervised work in a helping setting relevant to his/her career interests. While it is **highly recommended** for all students in social services, it is not required for those seeking a basic certificate or an associate of arts degree.

Students who plan to transfer to a four-year college or university can meet the first and second year general education requirements at Pima Community College but must check the requirements of the school they plan to attend. Students are strongly urged to talk with a social services advisor about the best way to schedule classes.

Social Services—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (61-65 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
SSE 133	Introduction to Social Welfare	3	
SSE 134	Casework Methods I	3	
SSE 135	Group Work	3	
SSE 199	Co-op Related Class in SSE	1	SSE 133*
SSE 199	Co-op Work in SSE	3	SSE 133*
SSE 216	Community Organization and Development	3	SSE 133
SSE 234	Casework Methods II	3	SSE 134
SSE 237	Group Technique Applications	3	SSE 135
General Education and Support Courses:			
SSE ELEC	May be fulfilled by taking an SSE course which is not listed as a core course.	3	
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
REA	Reading requirement	0-4	*
ELECTIVES		18	
SOC/BEH	See Graduation section of this catalog for Social and Behavioral Sciences electives	3	
HUM/ART	See Graduation section of this catalog for Humanities and Fine Arts electives	3	
SCI/MTH	See Graduation section of this catalog for Science and Mathematics electives	6	

Suggested Course Sequence

See a social services faculty advisor.

*For additional prerequisite information, check Course Section.

Social Services—Associate of Arts Degree For Transfer

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

REQUIRED COURSES (61-70 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
SSE 133	Introduction to Social Welfare	3	
SSE 134	Casework Methods I	3	
SSE 135	Group Work	3	
SSE 216	Community Organization and Development	3	SSE 133
SSE 234	Casework Methods II	3	SSE 134
SSE 237	Group Technique Applications	3	SSE 135

Support Courses:

SSE 199	Co-op Related Class in SSE	1	SSE 133**
SSE 199	Co-op Work in SSE	3	SSE 133**
SSE ELEC	May be fulfilled by taking an SSE course which is not listed as a core course.	3	
REA	Reading requirement	0-4	*

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

English Composition			
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
Humanities and Fine Arts		9	
Biological and Physical Sciences		8	
Mathematics (MTH 150 or above)		3	
Social and Behavioral Sciences		9	
Other Requirements		5-6	

Suggested Course Sequence

See a social services faculty advisor.

*For additional prerequisite information, check Course Section.

**Optional. Recommended but not required. May be used to fulfill SSE elective requirement.

Social Services Gerontology Subspecialty—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (61-65 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
SSE 133	Introduction to Social Welfare	3	
SSE 134	Casework Methods I	3	
SSE 135	Group Work	3	
SSE 140	Casework/Assessment	3	
SSE 141	Rehabilitation in Gerontology	3	
SSE 199	Aging-Health and Physiology	1	SSE 133*
SSE 199	Co-op Related Class in SSE	3	SSE 140*
SSE 216	Co-op Work in Gerontology	3	
SSE 216	Community Organization and Development	3	SSE 133
SSE 234	Casework Methods II	3	SSE 134
SSE 237	Group Technique Applications	3	SSE 135
SSE 299	Co-op Work in Gerontology	3	SSE 199*
SOC 166	Social Gerontology I	3	

General Education and Support Courses:

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
REA	Reading requirement	0-4	*

ELECTIVES

SOC/BEH	See Graduation section of this catalog for Social and Behavioral Sciences electives	3	
HUM/ART	See Graduation section of this catalog for Humanities and Fine Arts electives	3	
SCI/MTH	See Graduation section of this catalog for Science and Mathematics electives	6	

Suggested Course Sequence

See a social services faculty advisor.

*For additional prerequisite information, check Course Section.

Social Services Gerontology Subspecialty— Associate of Arts Degree For Transfer

REQUIRED COURSES (71-76 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
SSE 133	Introduction to Social Welfare	3	
SSE 134	Casework Methods I	3	
SSE 135	Group Work	3	
SSE 140	Casework/Assessment Rehabilitation in Gerontology	3	
SSE 141	Aging-Health and Physiology	3	
SSE 199	Co-op Related Class in SSE	1	SSE 133*
SSE 199	Co-op Work in Gerontology	3	SSE 140*
SSE 216	Community Organization and Development	3	SSE 133
SSE 234	Casework Methods II	3	SSE 134
SSE 237	Group Technique Applications	3	SSE 135
SOC 166	Social Gerontology I	3	

Support Course:

REA	Reading requirement	0-4	*
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General Education Requirements (See Graduation section of this catalog for associate of arts degree course lists.):

English Composition			
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
Humanities and Fine Arts		9	
Biological and Physical Sciences		8	
Mathematics (MTH 150 or above)		3	
Social and Behavioral Sciences		9	
Other Requirements		5-6	

Suggested Course Sequence

See a social services faculty advisor.

*For additional prerequisite information, check Course Section.

Social Services Substance Abuse Subspecialty— Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (61-65 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
SSE 115	Drugs in American Society	3	
SSE 116	Introduction to Alcohol Abuse	3	
SSE 127	Political and Legal Aspects of Drug Use	3	
SSE 133	Introduction to Social Welfare	3	
SSE 134	Casework Methods I	3	
SSE 135	Group Work	3	
SSE 199	Co-op Related Class in SSE	1	SSE 133*
SSE 199	Co-op Work in SSE	3	SSE 133*
SSE 216	Community Organization and Development	3	SSE 133
SSE 218	Treatment of the Drug Abuser	3	
SSE 234	Casework Methods II	3	SSE 134
SSE 237	Group Technique Applications	3	SSE 135

General Education and Support Courses:

WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
REA	Reading requirement	0-4	*
ELECTIVES		6	
SSE ELEC	May be fulfilled by taking an SSE course which is not listed as a core course.	3	
SOC/BEH	See Graduation section of this catalog for Social and Behavioral Sciences electives	3	
HUM/ART	See Graduation section of this catalog for Humanities and Fine Arts electives	3	
SCI/MTH	See Graduation section of this catalog for Science and Mathematics electives	6	

Suggested Course Sequence

See a social services faculty advisor.

*For additional prerequisite information, check Course Section.

Social Services Substance Abuse Subspecialty— Associate of Arts Degree For Transfer

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

REQUIRED COURSES (70-79 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
SSE 115	Drugs in American Society	3	
SSE 116	Introduction to Alcohol Abuse	3	
SSE 127	Political and Legal Aspects of Drug Use	3	
SSE 133	Introduction to Social Welfare	3	
SSE 134	Casework Methods I	3	
SSE 135	Group Work	3	
SSE 216	Community Organization and Development	3	SSE 133
SSE 218	Treatment of the Drug Abuser	3	
SSE 234	Casework Methods II	3	SSE 134
SSE 237	Group Technique Applications	3	SSE 135

Support Courses:

SSE 199	Co-op Related Class in SSE	1	SSE 134**
SSE 199	Co-op Work in SSE	3	SSE 134**
REA	Reading requirement	0-4	*

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

English Composition			
WRT 101	Writing I	3	WRT 100*
WRT 102	Writing II	3	WRT 101
Humanities and Fine Arts		9	
Biological and Physical Sciences		8	
Mathematics (MTH 150 or above)		3	
Social and Behavioral Sciences		9	
Other Requirements		5-6	

Suggested Course Sequence

See a social services faculty advisor.

*For additional prerequisite information, check Course Section.

**Optional. Recommended but not required.

Social Services—Basic Certificate

REQUIRED COURSES (18 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
SSE 133	Introduction to Social Welfare	3	
SSE 134	Casework Methods I	3	
SSE 135	Group Work	3	
SSE 216	Community Organization and Development	3	SSE 133
SSE 234	Casework Methods II	3	SSE 134
SSE 237	Group Technique Applications	3	SSE 135

Social Services Substance Abuse—Basic Certificate

REQUIRED COURSES (18 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
SSE 133	Introduction to Social Welfare	3	
SSE 134	Casework Methods I	3	
SSE 115	Drugs in American Society	3	
SSE 116	Introduction to Alcohol Abuse	3	
SSE 127	Political and Legal Aspects of Drug Use	3	
SSE 218	Treatment of the Drug Abuser	3	

Social Services Domestic Violence Intervention— Basic Certificate

REQUIRED COURSES (18 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
SSE 133	Introduction to Social Welfare	3	
SSE 134	Casework Methods I	3	
SSE 138	Domestic Violence: Causes and Cures	3	
SSE 236	Crisis Intervention, Theory and Techniques	3	SSE 134
AJS 146	Child Abuse Intervention and Protection	3	
SOC 127	Marriage and the Family (Same as HEC 127)	3	

Speech Communication

The speech communication area offers an associate of arts degree for transfer which helps prepare students for careers requiring extensive interaction with the public: business, law, education, politics, public relations, sales and theology. The program develops and improves skills in public address, interpersonal communication and group communication in social and career settings.

Students in this program may also improve their communication skills by participating in forensic activities such as speaking before community audiences and competing in inter-collegiate speech and debate tournaments. Through such activities, students may develop skills in debating; in persuasive, informative, extemporaneous, and impromptu speaking; and in oral interpretation of literature and readers' theater. All students are welcome to participate in these activities regardless of previous speaking experience. Students are encouraged to take forensics during their first semester of study.

Students who plan to transfer to four-year institutions will find the speech communication program includes courses generally required of a major in the first four semesters of study. However, they should check the specific requirements of the institutions to which they plan to transfer.

All electives must be selected with the concurrence of a speech communication program advisor. Students should note that Voice and Diction is offered in the Fall Semester, and Oral Interpretation of Literature is offered in the Spring Semester.

Speech Communication—Associate of Arts Degree For Transfer

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

REQUIRED COURSES (60-76 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
SPE 102	Introduction to Oral Communication	3	
SPE 105	Voice and Diction	2	
SPE 110	Public Speaking	3	
SPE 125	Forensics	1	
SPE 136	Oral Interpretation of Literature	3	
Support Courses:			
PHI 120	An Introduction to Logic	3	
REA	Reading requirement	0-4	
FOREIGN LANGUAGE	Four transferable semesters in one foreign language or demonstrated proficiency at the fourth semester level.	4-16**	
ANT 102	See General Education Requirements below.		
PSY 120	See General Education Requirements below.		
General Education Requirements (See Graduation section of this catalog for associate of arts degree course lists.):			
	English Composition	6	
	Humanities and Fine Arts	9	
	Biological and Physical Sciences	8	
	Mathematics (MTH 150 or above)	3	
	Social and Behavioral Sciences	9	
	ANT 102 AND PSY 120 are required in addition to three other credit hours from the General Education course list.		
	Other Requirements	5-6	
	Foreign language satisfies this requirement.		

Suggested Course Sequence (Read down.)

Reading Requirement	ANT 102	PSY 120
English Composition	SPE 110	Foreign Language
SPE 102	English Composition	Social and Behavioral
SPE 125	Foreign Language	Sciences Requirement
Foreign Language	Biological and	SPE 136
Mathematics	Physical Sciences	Humanities and Fine
Requirement	Requirement	Arts Requirement
Humanities and Fine	PHI 120	Foreign Language
Arts Requirement	SPE 105	
Biological and	Humanities and Fine	
Physical Sciences	Arts Requirement	
Requirement		

*For additional prerequisite information, check Course Section.

**Bilingual or international students should consult an advisor concerning exceptions to this requirement. If fewer than 16 credits are required in foreign language, additional credits of transferable electives must be completed to meet the minimum associate of arts degree requirement of 60 credits.

Training for Special Education

Paraprofessionals in the training for special education program need a general understanding of special children and specific training in teaching techniques for special children. The objectives of this program are to train paraprofessionals to:

1. understand the various handicapping conditions;
2. recognize high-risk children and refer them to appropriate personnel;
3. use assessment and prescriptive diagnostic procedures;
4. use appropriate teaching techniques; and
5. be familiar with programs and services of community agencies working with handicapped children.

Training for Special Education—Basic Certificate For Direct Employment

REQUIRED COURSES (16 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
ECE 126	Teaching Techniques	3	
PSY 100	Psychology I	3	
General Education and Support Courses:			
SLG 101	American Sign Language I	4	
TSE 132	Behavior Modification		
	Techniques for Special Education	3	
WRT 101	Writing I	3	WRT 100*

Suggested Course Sequence (Read down.)

WRT 101
ECE 126
TSE 132
PSY 100
SLG 101

*For additional prerequisite information, check Course Section.

Training for Special Education—Advanced Certificate For Direct Employment

REQUIRED COURSES (34-36 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate requirements		16	
Core Courses - A grade of C or better is required for graduation.			
TSE 130	Techniques for Teaching Multiple Handicapped	3	
TSE 142	Special Speech and Language Techniques	3	
TSE 155	Issues in Special Education	3	
General Education and Support Courses:			
ECE 117	Child Growth and Development	3	
TSE 150	Behavior Modification Techniques for Special Education II	3	TSE 132
SCI/MTH	Science and Mathematics Elective		
	Complete one of the following:	3-5	
	ACC 050, 101, 102		
	AST 101, 102, 111, 112		
	BIO 101, 102, 160, 184, 190, 195, 201, 202, 204, 205		
	BUS 051		
	CHM 121, 130, 140, 141, 151, 152		
	ECE 124		
	ENV 203		
	GEO 101, 102		
	GLG 101, 102		
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220		
	PHY 101, 102, 105, 121, 122, 131, 132, 210, 216, 221, 230		
Suggested Course Sequence (Read down.)			
Basic Certificate Requirements	TSE 155		
ECE 117	Science and Mathematics Elective		
TSE 142	TSE 150		
TSE 130			

Training for Special Education—Associate of Applied Science Degree

REQUIRED COURSES (64-71 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Advanced Certificate requirements		34-36	
Core Courses - A grade of C or better is required for graduation.			
TSE 238	Characteristics of Learning Disabilities	3	
TSE 240	Techniques for Teaching the Mentally Handicapped Student	3	
TSE 245	The Young Handicapped Child	3	
TSE 250	Classroom Communication Skills	3	
TSE 255	Behavior Disorders in the Classroom	3	
TSE 265	Adaptive Technology in Special Education	3	
General Education and Support Courses:			
ECE 110	Communication Skills for Children	3	
MTH 070	Algebra I	3	MTH 060*
WRT 102	Writing II	3	WRT 101*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
Suggested Course Sequence (Read down.)			
Advanced Certificate Requirements	TSE 255	TSE 250	
Reading requirement	TSE 238	TSE 265	
WRT 102	Humanities and Fine Arts Elective		
MTH 070	TSE 245		
ECE 110	TSE 240		

*For additional prerequisite information, check Course Section.

Transportation and Traffic Management

The diverse field of transportation and traffic management is one of the most dynamic in modern society. Our businesses, our government and our private lives are dependent upon the efficient movement of people and goods.

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

The program certificate and degree options utilize the career ladder concept. This means that a student may smoothly progress from the basic certificate, requiring 18 credit hours, to the advanced certificate, requiring 18 additional credit hours, and then to the associate of applied science degree, requiring an additional 32-37 credit hours for a program total of 68-73 credit hours. Program flexibility allows credit for cooperative education and specialty courses to meet specific educational demands for career advancement. The course work provides graduates a suitable background for further study and work in the transportation industry.

Transportation and Traffic Management—Basic Certificate For Direct Employment

REQUIRED COURSES (18 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
BUS 051	Mathematics of Business	3	MTH 060*
CSC 100	Introduction to Computers	3	MTH 070*
TTM 101	Fundamentals of Transportation	3	
TTM 102	Economics of Transportation	3	
General Education and Support Courses:			
BUS 100	Introduction to Business	3	
OED 111	Typing I	3	

Suggested Course Sequence (Read down.)

TTM 101
TTM 102
BUS 051
CSC 100
OED 111
BUS 100

*For additional prerequisite information, check Course Section.

Transportation and Traffic Management—Advanced Certificate For Direct Employment

REQUIRED COURSES (36 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Basic Certificate requirements		18	
Core Courses - A grade of C or better is required for graduation.			
MKT 111	Marketing	3	
TTM 104	Rates and Tariffs	3	
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	
General Education and Support Courses:			
ACC 101	Financial Accounting	3	
ECO 100	Introduction to Microeconomics	3	MTH 070*
ELEC	Elective		
	Complete one of the following:	3	
	MAN 122 or TTM 199 Co-op		
	Related Class and Work in TTM		

Suggested Course Sequence (Read down.)

Basic Certificate Requirements
MKT 111
Elective
WRT 101 or 150
ACC 101
ECO 100
TTM 104

*For additional prerequisite information, check Course Section.

Transportation and Traffic Management—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (68-73 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Advanced Certificate requirements		36	
Core Courses - A grade of C or better is required for graduation.			
TTM 201	Principles of Air Transportation	3	
TTM 202	Principles of Motor Transportation	3	
TTM 204	Physical Distribution Management	3	
General Education and Support Courses:			
BUS 200	Business Law I	3	
IBC 140	Basic Techniques of International Trade	3	
ACC 102	Managerial Accounting	3	ACC 101*
HUM 110	Humanities I	4	
HUM 111	Humanities II	4	
SPE 120	Business and Professional Communication	3	
REA	Reading requirement	0-4	*
SOC/BEH	Social and Behavioral Science Elective		
	Complete one of the following:	3-4	
	ANT 101, 102, 200, 210, 215, 225		
	ECE 107, 117		
	ECO 100, 101		
	GEO 103		
	HIS 101, 102, 141, 142, 147		
	MAN 110		
	POS 100, 110, 112, 120, 130		
	PSY 100, 101, 130		
	SOC 100, 101		

Suggested Course Sequence (Read down.)

Advanced Certificate Requirements	HUM 110	Social and Behavioral Science Elective
Reading requirement	ACC 102	TTM 202
IBC 140	SPE 120	TTM 204
BUS 200	TTM 201	
	HUM 111	

*For additional prerequisite information, check Course Section.

Welding

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

Welding students may find cooperative education to be a way of gaining work experience while attending classes. See a Cooperative Education teacher-coordinator for details.

Welding—Basic Certificate For Direct Employment

REQUIRED COURSES (20-21 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
WLD 115	Blueprint Reading	3	
WLD 150	Oxyacetylene Welding	4	
WLD 160	Arc Welding	4	
General Education and Support Courses:			
MAC 130	Basic Metallurgy	3	
MTH	Determined by assessment score	3	
TECH ELEC	Technical Electives		
	Complete three or four credit hours from the following:	3-4	
	DFT 150, 180		
	MAC 110, 270		
	SML 110, 120, 130, 135, 210		
	PHY 101		
	WLD 170, 180, 240, 199, 299		
	ATP 101		
	CSC 105		

Suggested Course Sequence (Read down.)

WLD 150
WLD 160
Mathematics Elective
MAC 130
WLD 115
Technical Elective

Ornamental Iron—Basic Certificate For Direct Employment

REQUIRED COURSES (18 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
WLD 115	Blueprint Reading	3	
WLD 150	Oxyacetylene Welding	4	
WLD 160	Arc Welding	4	
WLD 170	Ornamental Iron	4	WLD 110*

General Education and Support Courses:

MTH 060	Introductory Math or higher	3	
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Suggested Course Sequence (Read down.)

WLD 150
WLD 160
MTH 060 or higher
WLD 115
WLD 170

*For additional prerequisite information, check Course Section.

Welding—Technical Certificate For Direct Employment

REQUIRED COURSES (33-34 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
WLD 115	Blueprint Reading	3	
WLD 150	Oxyacetylene Welding	4	
WLD 160	Arc Welding	4	
WLD 250	Pipe Welding	4	WLD 150*

General Education and Support Courses:

MAC 130	Basic Metallurgy	3	
MAC 285	Physical Metallurgy	3	MAC 130
MAN 110	Human Relations in Business and Industry	3	
WRT 100	Writing Fundamentals	3	WRT 070*
MTH	Mathematics Elective Complete three credit hours of mathematics at the MTH 110 level or higher.	3	

TECH ELEC	Technical Elective Complete three or four credit hours from the following:	3-4
	DFT 150, 180	
	MAC 110, 270	
	SML 110, 120, 130, 135, 210	
	PHY 101	
	WLD 170, 180, 240, 199, 299	
	ATP 101	
	CSC 105	
	BCT 101	

Suggested Course Sequence (Read down.)

WRT 100	WLD 250
WLD 115	MAC 130
Mathematics Elective	MAC 285
WLD 150	MAN 110
WLD 160	Technical Elective

*For additional prerequisite information, check Course Section.

Metal Fabrication—Technical Certificate For Direct Employment

REQUIRED COURSES (47 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
WLD 115	Blueprint Reading	3	
WLD 150	Oxyacetylene Welding	4	
WLD 160	Arc Welding	4	
WLD 170	Ornamental Iron	4	WLD 110*
WLD 180	Metal Fabrication I	4	WLD 170*
WLD 240	Metal Fabrication II	4	WLD 180
WLD 250	Pipe Welding	4	WLD 150*
WLD 260	Inert Gas Welding	4	WLD 250

General Education and Support Courses:

MAC 110	Machine Shop for Technicians I	4	
SML 130	Sheet Metal Pattern Layout I	3	
MAN 110	Human Relations in Business and Industry	3	
MTH 110	Technical Mathematics I	3	MTH 060*
WRT 100	Writing Fundamentals	3	WRT 070*

Suggested Course Sequence (Read down.)

WRT 100	WLD 260	WLD 170
MTH 110	WLD 115	WLD 180
WLD 150	MAN 110	WLD 240
WLD 160	MAC 110	
WLD 250	SML 130	

*For additional prerequisite information, check Course Section.

Welding—Associate of Applied Science Degree For Direct Employment

REQUIRED COURSES (62-67 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
WLD 115	Blueprint Reading	3	
WLD 150	Oxyacetylene Welding	4	
WLD 160	Arc Welding	4	
WLD 250	Pipe Welding	4	WLD 150*
WLD 261	Gas Metal Arc Welding	4	WLD 150*
WLD 262	Gas Tungsten Arc Welding	4	WLD 150*

General Education and Support Courses:

MAC 130	Basic Metallurgy	3	
MAC 285	Physical Metallurgy	3	MAC 130
MAN 110	Human Relations in Business and Industry	3	
WRT 100	Writing Fundamentals	3	WRT 070*
WRT 154	Technical Communications I	3	WRT 100*
REA	Reading requirement	0-4	*
HUM/ART	Humanities and Fine Arts Elective		
	Complete one of the following:	3-4	
	ART 130, 131, 132, 135		
	DRA 140, 141		
	ECE 108, 112		
	HUM 110, 111		
	Foreign Language		
	LIT 260, 265		
	MUS 151, 201, 202		
	PHI 101, 120		
MTH	Mathematics Electives	6	
	Complete six credit hours of mathematics at the MTH 120 level or higher.		

TECH ELEC**Technical Electives**

Complete 15 credit hours from the following:

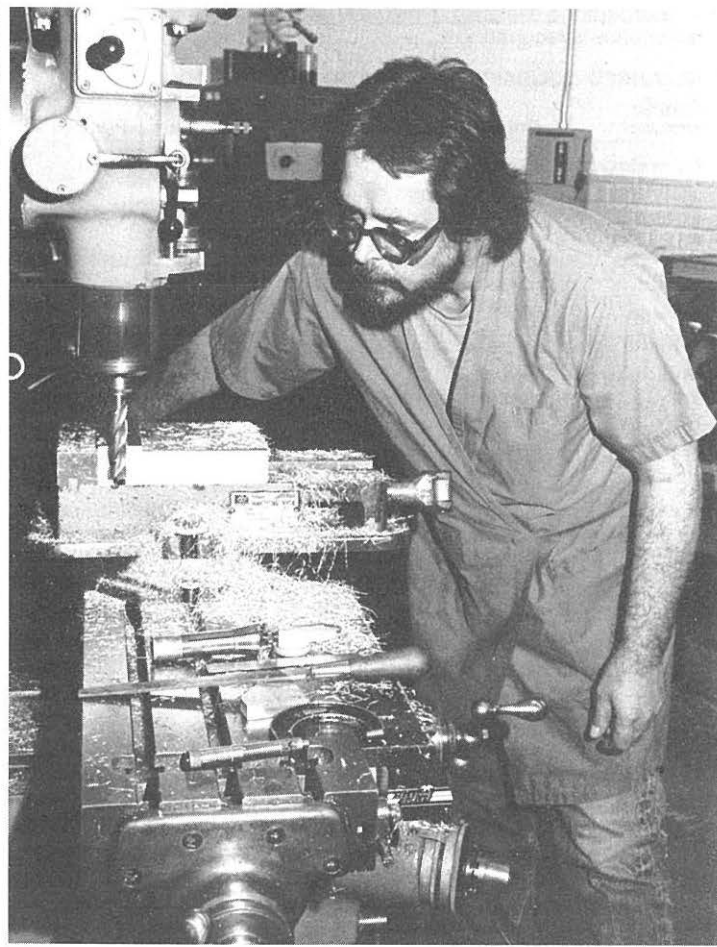
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DFT 150, 180
MAC 110, 270
SML 110, 120, 130, 135, 210
PHY 101
WLD 170, 180, 199, 240, 299
ATP 101
CSC 105
BCT 101

Suggested Course Sequence (Read down.)

Reading requirement	MAC 285	Humanities and Fine Arts Elective
WLD 150	Mathematics Elective	WLD 261
MAC 130	Technical Elective	Mathematics Elective
WLD 115	WLD 250	WLD 262
MAN 110	Technical Elective	WRT 154
WLD 160	Technical Elective	Technical Electives
WRT 100		

*For additional prerequisite information, check Course Section.



Youth Care

Programs in this area are designed to prepare students to work directly in the care and treatment of young persons. Students receive instruction in communication, relationship-building interviewing, understanding youth, youth care methods, general education skills and working with individuals and groups.

The programs offered are an advanced certificate, an associate of applied science degree and an associate of arts degree. These options provide enough flexibility so that students may choose from several competency areas within which specific skills may be developed. Each program provides a balance between core courses and general education requirements as well as between academic instruction and supervised field experience. Students will be closely supervised by faculty advisors.

Youth care program advisors are located on the West Campus.

Youth Care—Advanced Certificate For Direct Employment

This program is designed to provide basic skills in youth care. Field experience is required.

REQUIRED COURSES (30-33 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
YCA 163	Introduction to Youth Care	3	
ECE 114	Effective Parenthood	3	
SSE 135	Group Work	3	
SSE 234	Casework Methods II	3	SSE 134**
YCA 263	Youth Care Methods	3	YCA 163
YCA 290	Field Experience	3	*
General Education and Support Courses:			
WRT 101 or 150	Writing I Practical Communications	3	WRT 100*
REA	Reading requirement	0-4	*
SCI/MTH	Science and Mathematics Electives		
	Complete two of the following:	6-10	
	BIO 201		
	CHM 130		
	MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220		
SPE ELEC	Speech Electives: Complete three credit hours from any course with an SPE prefix.	3	
ELEC	Other Electives If you have met the college reading requirement without taking an REA 100 series course, select 3 additional credit hours from any subject area related to Youth Care.	3	

Suggested Course Sequence

See a youth care faculty advisor.

*For additional prerequisite information, check Course Section.

**This course may be waived if student has completed YCA 163 and is in the YCA program.

Youth Care—Associate of Applied Science Degree For Direct Employment

This program is designed to broaden the student's range of skills in youth care and provide greater competency in this field. Cooperative education opportunities and field experience are included.

REQUIRED COURSES (60-69 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
YCA 163	Introduction to Youth Care	3	
AJS 146	Child Abuse Intervention and Protection		
or ECE 114	Effective Parenthood	3	
AJS 212	Juvenile Justice Procedures	3	
ECE 107	Human Development and Relations		
or 117	Child Growth and Development	3	
SSE 135	Group Work	3	
SSE 234	Casework Methods II	3	SSE 134**
YCA 263	Youth Care Methods	3	YCA 163
YCA 264	Issues in Youth Care	3	YCA 163
General Education and Support Courses:			
YCA 290	Field Experience	3	*
YCA 299	Co-op Related Class in YCA	1	*
YCA 299	Co-op Work in YCA	2	*
HUM 251	Western Humanities I		
or 252	Western Humanities II		
or 253	Western Humanities III	3	
PSY 110	Introduction to Psychology		
OR			
PSY 100	Psychology I		
and PSY 101	Psychology II	4-6	
WRT 101	Writing I		WRT 100*
or 150	Practical Communications	3	

WRT 102 or 154 REA	Writing II Technical Communications I Reading requirement	3 0-4	WRT 101* WRT 100*
SCI/MTH	Science and Mathematics Electives Complete two of the following: BIO 201 CHM 130 MTH 060, 065, 070, 090, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 170, 175, 180, 185, 210, 215, 219, 220	6-10	
SOC/BEH	Social and Behavioral Science Elective Complete one of the following: ANT 101, 102, 200, 210, 215, 225 PSY 100, 101, 110, 130 SOC 100, 101	3-4	
SPE ELEC	Speech Elective Complete three credit hours from any course with an SPE prefix.	3	
ELEC	Other Electives Recommended electives: AJS 225 FSN 113, 130 PSY 140 SPA 050, 051, 052 SSE 115, 116, 133, 236	8	

Suggested Course Sequence

See a youth care faculty advisor.

*For additional prerequisite information, check Course Section.

**This course may be waived if student has completed YCA 163 and is in the YCA program.

Youth Care Rehabilitation—Associate of Arts Degree For Transfer

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

This program is designed for students seeking higher-level positions and more sophisticated skills. In this program, students' courses of

study are individually planned to fit the first two years of a four-year program at a university of their choice. Field experience is required.

A strong reading background is helpful in this program. Students are required to have achieved a 12th-grade reading level, as determined by the reading department, in order to graduate. The student is urged to take the reading assessment test at the beginning of the program and to correct any reading deficiency early. The math requirement, in order to be transferable for general education credit at the University of Arizona, must be MTH 150 (College Algebra) or above. The student is urged to take this course if an equivalent course was not taken. MTH 150 will be helpful as a background course for upper division statistical methods courses after transfer to the University of Arizona or another university of choice.

Students who are transferring to the Rehabilitation program at the University of Arizona must take BIO 201 and 202. Students transferring to other programs may substitute 8 credit hours of another transferable science. Prior to taking BIO 201 or 202, students should have had either high school chemistry or CHM 130 (Fundamentals of Chemistry) or an equivalent course. The student is urged to correct any deficiency in this area early in the program. (See General Education Requirements under the Graduation section of this catalog.)

REQUIRED COURSES (67-72 CREDIT HOURS)

Course Number	Course Title	Credit Hours	Prerequisites
Core Courses - A grade of C or better is required for graduation.			
YCA 163	Introduction to Youth Care	3	
AJS 146	Child Abuse Intervention and Protection		
or ECE 114	Effective Parenthood	3	
AJS 212	Juvenile Justice Procedures	3	
ECE 117	Child Growth and Development	3	
SSE 135	Group Work	3	
SSE 234	Casework Methods II	3	SSE 134**
YCA 263	Youth Care Methods	3	YCA 163
YCA 264	Issues in Youth Care	3	YCA 163

Support Courses:

YCA 290	Field Experience	3	*
REA	Reading requirement	0-4	*

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

English Composition	6
Humanities and Fine Arts	9
Biological and Physical Sciences	8
BIO 201-202 satisfies the general education requirement for rehabilitation majors only at the University of Arizona. For other associate of arts degree majors, see the course list in the Graduation section of this catalog.	
Mathematics (MTH 150 or above)	3
Social and Behavioral Sciences	9
Other Requirements	5-6

Suggested Course Sequence

See a youth care faculty advisor.

*For additional prerequisite information, check Course Section.

**This course may be waived if student has completed YCA 163 and is in the YCA program.

Courses



COURSE NUMBERING SYSTEM AND PREREQUISITES

In general, courses numbered from 001-099 are those unique to the community college and are normally not 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	Financial Accounting	3 cr. hrs.	3 periods
course prefix	course number	course title	semester hours of credit	hours of lecture and/or lab per week

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. Prerequisites may be waived by the instructor.

Consult the semester Schedule of Classes for specific offerings each semester.

ACCOUNTING**ACC 050 Practical Accounting Procedures /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

A practical approach to the study of accounting for office, sales and small business personnel. 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 Financial Accounting /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to financial accounting. The basic accounting model, the measurement processes involved, and the data classifications and technology which are essential to the interpretation and effective use of financial statements. Emphasis on the communication of financial information.

ACC 102 Managerial Accounting /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: ACC 101 and MTH 070.

Introduction to managerial accounting. Includes full cost, differential and responsibility accounting. Emphasis on criteria and tools for planning, directing day-to-day operations, and controlling.

ACC 173 Introduction to Fund Accounting /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: ACC 101.

Accounting practices in governmental units, such as city, county, and state agencies, and other not-for-profit organizations.

ACC 199 Co-op Related Class in ACC /1 cr. hr./1 period (1 lec.)

□Prerequisite: Concurrent enrollment in ACC 199 Co-op Work.

Introduction to Cooperative Education for first-year students (instruction which provides for success in securing and retaining a training job related to subject area). Social and psychological reasons for working, methods of securing employment, preparation of career and job-related objectives and evaluation of student work experience. May be taken two times for a maximum of two credit hours.

ACC 199 Co-op Work in ACC /1-8 cr. hrs./5-40 periods (5-40 lab)

□Prerequisite: Concurrent enrollment in ACC 199 Co-op Related Class.

A supervised cooperative work program for students in a related occupation area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement. May be taken two times for a maximum of 16 credit hours.

ACC 200 Accounting Practice on the Microcomputer /3 cr. hrs./ 4 periods (3 lec., 1 lab)

□Prerequisite: ACC 050 or 101.

Fundamentals of commercial accounting programs used on microcomputers. Includes use of general ledger, accounts receivable, accounts payable and payroll accounting systems. Accounting applications for the electronic spreadsheet are also covered. Hands-on experience is emphasized.

ACC 201 Intermediate Accounting I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: ACC 102.

Accounting theory and practice applicable to current assets, fixed assets, liabilities, sources and application of funds. For those who plan to specialize in accounting.

ACC 202 Intermediate Accounting II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: ACC 201.

Accounting theory and practice applicable to corporate net worth accounts, investments, reserves and income. For those who plan to specialize in accounting.

ACC 203 Cost Accounting /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: ACC 102.

Interpretation, use and analysis of cost data for management planning, coordination and control. Emphasis on the application of theories and concepts which underlie cost accounting and budgeting.

ACC 204 Individual Tax Accounting /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Principles of federal taxation of individuals and sole proprietorships.

ACC 205 Corporate and Partnership Tax Accounting /4 cr. hrs./ 4 periods (4 lec.)

□Prerequisite: ACC 101.

Principles of federal taxation of partnerships and corporations (including S corporations). Gift, trust, and estate taxation are also covered.

ACC 299 Co-op Related Class in ACC /1 cr. hr./1 period (1 lec.)

□Prerequisite: Concurrent enrollment in ACC 299 Co-op Work.

Principles of job success. Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, and evaluation of student work experience. Emphasis on attitude adjustment. May be taken two times for a maximum of two credit hours.

ACC 299 Co-op Work in ACC /1-8 cr. hrs./5-40 periods (5-40 lab)

□Prerequisite: Concurrent enrollment in ACC 299 Co-op Related Class.

A supervised cooperative work program for students in an occupation related area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement. May be taken two times for a maximum of sixteen credit hours.

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

□Prerequisite: None.

Theory of rough-and-tumble fighting. Includes fundamentals, precautions, close-in defense and attack, control over an adversary, the armed and unarmed opponent, club maneuvers, prisoner handling and control, and physical fitness.

AJS 071 Patrol Procedures /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: AJS 101 or concurrent enrollment or consent of instructor.

Patrol as one of the primary police operations. Includes conspicuous presence as a means of suppressing crime and preserving peace; organization and functions of police patrol; methods, techniques and responsibility in patrol operations; use of special equipment; and application of laws on arrest, search and seizure.

AJS 101 Introduction to Administration of Justice Systems /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: None.

History and philosophy of administration of justice in America. Includes recapitulation of the system; identifying the various sub-systems; role expectations and their interrelationships; theories of crime, punishment and rehabilitation; ethics, education and training for professionalism in the system; and career opportunities related to local criminal justice agencies.

AJS 102 Peace Officer Certification I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Part A of basic entry level training program for reserve peace officers leading to certification by Arizona Law Enforcement Officers Advisory Council (ALEOAC) Governor's Office as limited reserve officers (LRO). Includes introduction to law enforcement, law and legal matters and police proficiency skills. For admission to program, student must comply with ALEOAC employment standards for peace officers and be sponsored by a law enforcement agency recognized by ALEOAC.

AJS 103 Peace Officer Certification II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: AJS 102 or concurrent enrollment.

Part B of basic entry level training program for reserve peace officers leading to certification by the Arizona Law Enforcement Officers Advisory Council (ALEOAC) Governor's Office as limited reserve officers (LRO). Includes basic patrol procedures, basic traffic control, basic accident investigation and police proficiency skills. For admission to program, student must comply with ALEOAC employment standards for peace officers and be sponsored by a law enforcement agency recognized by ALEOAC.

AJS 104 Peace Officer Certification III /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: AJS 103 or concurrent enrollment.

Part C of basic entry level training program for reserve peace officers leading to certification by the Arizona Law Enforcement Officers Advisory Council (ALEOAC) Governor's Office as limited reserve officers (LRO). Includes basic criminal investigation, basic community and police relations, records, reports and police proficiency skills. For admission to program, students must comply with ALEOAC employment standards for peace officers and be sponsored by a law enforcement agency recognized by ALEOAC.

AJS 105 Survey of Microcomputer Uses /3 cr. hrs./4 periods (3 lec., 1 lab)

Same as CSC 105.

AJS 106 Traffic Safety Functions—Vehicle Code /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Traffic law enforcement and the police officer's role in overseeing the movement of vehicles and pedestrians. Includes fundamentals of accident investigation and reporting, traffic court procedures and public education for traffic safety against a background of Arizona law.

AJS 109 Criminal Law /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Historical development and philosophy of law and constitutional provisions. Includes definitions, classifications of crime and their application to the system of administration of justice, legal research, study of case law, methodology and concepts of law as a social force.

AJS 115 Criminal Procedures /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: AJS 101 or concurrent enrollment or consent of instructor.

Overview of the system used in the U.S. to administer criminal cases. Includes implications for civil rights, the police process, the prosecuting attorney, the defense attorney, courts, grand jury, trial jury, coroner-medical examiner, judicial process and the trial and its aftermath.

AJS 123 Corrections as a System /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Overview of corrections as a system and as a part of the justice process. Includes history, theories, systems of operations in corrections, analysis of the objectives of correctional administration, relevant law and public relations.

AJS 146 Child Abuse Intervention and Protection /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Overview of the principles and methods of dealing with child abuse. Includes the many definitions and forms of child abuse, recognition of its symptoms, family dysfunctions, the interaction with and counseling of the parental abuser, and the utilization of available community resources.

AJS 152 Beginning Marksmanship /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Introduction to firearms. Includes moral and legal aspects of firearms, safety and range practice. (Same as REC 152.)

AJS 163 Introduction to Youth Care /3 cr. hrs./3 periods (3 lec.)

Same as YCA 163.

AJS 201 Rules of Evidence /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: AJS 109 or concurrent enrollment or consent of instructor.

The origin, development, philosophy and constitutional basis of evidence. Includes constitutional and procedural considerations affecting arrest, search and seizure; degrees of evidence and rules governing admissibility; judicial decisions interpreting individual rights; and case studies.

AJS 204 Criminal Investigation and Report Preparation /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: AJS 109 or concurrent enrollment or consent of instructor.

Fundamentals of modern criminal investigation. Includes procedures and skills in search and investigation, conduct at the crime scene, collection and preservation of evidence, developing sources of information, preparation of cases for court prosecution, and report-writing requirements for administration and court use.

AJS 208 Police Administration /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: AJS 101 or consent of instructor.

Introduction to the principles of police organization, administration and service. All phases of police administration are discussed, including recruitment, training, promotion, complaints, records and communications.

AJS 210 Police Community and Human Relations /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: AJS 101 or concurrent enrollment.

Survey of the police officer's role in attaining and maintaining public support. Includes recognition and understanding of community problems, community action programs, methods of coping with crisis situations, ethnic and minority cultures, various environments, crime prevention, and police operations in relation to these cultures and environments.

AJS 212 Juvenile Justice Procedures /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Analysis of the philosophy, organization, functions and jurisdiction of juvenile agencies and courts. Includes Arizona juvenile statutes, detention, court procedures and case disposition; custody and treatment of the offender; and crime prevention methods and reporting procedures applicable to juvenile offenders.

AJS 214 Firearms /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisites: Student must be a law enforcement major and have previous firearms training.

Principles and methods of using firearms. Includes moral aspects, legal provisions, safety precautions, restrictions, combat procedures for police, and target analysis and range drill procedures. Taught on the range. Students must furnish their own pistols and ammunition.

AJS 220 Organized Crime Investigation /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Comprehensive historical and social survey of organized crime. Includes its origin, development, modus operandi and effect upon society.

AJS 225 Crime and Delinquency /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of the nature, extent and control of crime and delinquency. Includes comparison of theoretical and practical approaches to causation, prevention, punishment and treatment; and current problems. (PSY 100 or SOC 100 recommended.)

AJS 240 Detention Supervision Methods /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: Second-year major in AJS or corrections, and AJS 101 or concurrent enrollment, or consent of instructor.

Examination of institutional procedures and staff member functions. Includes reception, classification, program assignment, security and release procedures. Emphasis on the role of the correctional officer.

AJS 245 Treatment of the Offender: Institutional and Field /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: AJS 101 or concurrent enrollment or consent of instructor.

Survey of correctional services and treatment. Includes philosophy, history, correctional models by type and function, institutional treatment, parole operations, community based treatment and special treatment programs.

AJS 256 Justice System Administration /5-3 cr. hrs./5-3 periods (5-3 lec.)

□Prerequisite: AJS 101 or consent of instructor.

Exploration of selected topics in justice system administration. Includes current system issues. Specific content will vary with topic offered.

AJS 277 Advanced Criminalistics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Consent of instructor.

Examination of firearms identification, pathology, toxicology, related matters and courtroom procedures.

AJS 290 Administration of Justice Field Experience /3 cr. hrs./ 16 periods (1 lec., 15 lab)

□Prerequisite: Consent of instructor.

Participation in community administration of justice agencies to provide experience in the practical application of classroom instruction. Biweekly seminars are conducted to discuss theory and practice pertinent to the agency experience. May be taken two times for a maximum of six credit hours.

AJS 299 Co-op Related Class in AJS /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

AJS 299 Co-op Work in AJS /1-3 cr. hrs./5-15 periods (5-15 lab)

See Cooperative Education for description.

ADVERTISING ART

ADA 100 Applied Computer Graphics /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

The microcomputer as a graphics machine. Includes production, manipulation and printing of simple illustrations. Also includes presentation graphics and desk top publishing. (Same as TIL 100.)

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

□Prerequisite: None.

Basic layout procedures for the various advertising media, including direct mail, newspaper ads, magazine ads, billboards, brochures, stationery and television. Also includes a general survey of advertising art, its history, objectives, and career opportunities.

ADA 102 Advertising Design I /3 cr. hrs./5 period (2 lec., 3 lab)

□Prerequisite: None.

Basic principles of design, color and typography applicable to advertising design. Includes composition, color mixing and relationships, and screen applications.

ADA 103 Advertising Drawing I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

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

ADA 104 Beginning Illustration /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Basic principles and methods of illustration. Includes a wide range of subject matter and media (pencil, colored pencil, pen and ink, watercolor, designer's gouache, markers, acrylics and oils). Emphasis on composition and technique.

ADA 105 Airbrush Techniques I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Use and application of the air brush in the advertising art field.

ADA 106 Advertising Drawing II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 103.

Application of basic drawing techniques to a variety of compositions. Includes principles of head drawing.

ADA 107 Airbrush Techniques II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 105.

Continuation of ADA 105. Advanced airbrush techniques for advertising art, editorial art and industrial applications.

ADA 108 Television Commercial Design /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

The language and procedures used by advertising agencies in producing a television commercial. Includes conceptualization, storyboarding, art directing and producing. Does not include the technical aspects of television production which are covered in MEC 125, 175, and 225.

ADA 109 Cartooning /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Basic principles and methods of cartoon illustration for advertising and editorial purposes. Includes pen and ink techniques, expressive drawing, creativity and a marketable cartooning style.

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

□Prerequisite: MTH 060 or equivalent or concurrent enrollment.

Basic skills in preparing art work for printing. Inking, paste-up, type specifications, copy fitting, photo-sizing, photo-cropping, photostat making, and keyline and overlay cutting for color areas.

ADA 112 Cartooning II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 109.

Continuation of ADA 109. Further development in principles and methods of cartoon illustration of advertising and editorial purposes. Includes pen-and-ink techniques, expressive drawing, creative thinking and marketable cartooning style.

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

□Prerequisites: ADA 102 and 103.

Advanced layout techniques, combining product images with typography for various advertising media. Continued practice in type selection and the use of size, contrast, organization and color.

ADA 131 Computer Art I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 100 or competency in computer graphics.

Drawing and painting computer-generated, two-dimensional graphics for graphic design, illustration, television and business presentations.

ADA 199 Co-op Related Class in ADA /1 cr. hr./1 period (1 lec.)

□Prerequisites: ADA 102, 120 and 210, and concurrent enrollment in ADA 199 Co-op Work in ADA.

See Cooperative Education for description.

ADA 199 Co-op Work in ADA /2 cr. hrs./10 periods (10 lab)

□Prerequisites: ADA 102, 120 and 210, and concurrent enrollment in ADA 199 Co-op Related Class in ADA.

See Cooperative Education for description.

ADA 201 Airbrush Techniques III /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 107.

Continuation of ADA 107. Additional techniques for advertising art, editorial art and industry applications. Emphasis on development of an individual style and an area of specialization.

ADA 202 Airbrush Techniques IV /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 201.

Continuation of ADA 201. Each student will develop an area of specialization in one of the following: photo retouching, medical illustration, advertising art, fine art, or technical illustration.

ADA 204 Advanced Illustration /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 104.

Continuation of ADA 104. Includes advanced techniques in a variety of media with emphasis on developing an individual style.

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

□Prerequisite: ADA 106.

Advanced techniques for rendering proportions, light, shading, form and anatomy of the human figure.

ADA 207 Advertising Drawing IV /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 205.

Application of advanced techniques to compositions featuring a variety of products. Emphasis on use of colored markers in preparing layouts.

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

□Prerequisite: ADA 120.

Application of advanced techniques for the design and layout of ads, brochures, billboards, stationery, logos, direct mail, menus, posters and television commercials.

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

□Prerequisites: ADA 111, and MTH 060 or an understanding of fractions and decimals as determined by instructor.

Continued practice and development of production skills, including two-color printing techniques. Practice in designing and producing brochures, posters, flyers, and camera-ready and keylined ads.

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

□Prerequisite: ADA 211.

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

ADA 213 Production Techniques and Processes IV /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 212.

Continuation of ADA 212. Practice and development of production art skills required for complex color printing. Includes the development of speed, accuracy, and organizational skills on multifaceted publications and portfolio preparation.

ADA 215 Desk Top Publishing I for Advertising Art /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ADA 100 or competency in computer graphics.

Desk top publishing for advertising art. Includes creating advertisements, brochures, newsletters and catalogs that require skills in layout and design.

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

□Prerequisite: ADA 210.

Continued practice and skill development in layout and design. Emphasis on completing a portfolio.

AIR CONDITIONING**ACD 101 Principles and Psychometrics /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introduction to air conditioning and heating. Includes principles of operation, definition of terms, and use of charts and tables pertaining to the study and calculation of air properties and controlled changes.

ACD 120 Electricity, Circuitry and Controls /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Electricity for air conditioning and heating. Includes basic electrical theory, single-phase and three-phase circuits, reading electrical schematics, testing and hookup of high voltage components and low voltage control components.

ACD 125 Troubleshooting and Service /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Mechanical skills needed to troubleshoot and repair air conditioning and heating equipment. Includes hands-on practice in working with tubing, charging and dehydration of air conditioning units, measurement of temperatures and velocities of air flow, measurement of refrigerant charges, and analysis of air conditions and heating system capacities.

ACD 126 Pneumatic HVAC Controls /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisites: ACD 120 and 125, or appropriate field experience. Pneumatic controls for HVAC systems. Includes major components, controlled devices, relays, thermostats and calibration.

ACD 199 Co-op Related Class in ACD /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

ACD 199 Co-op Work in ACD /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education for description.

ACD 210 Commercial Refrigeration /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Advanced electrical theory for commercial refrigeration systems. Includes measurement of resistance, amperage, and voltage; calculation of horsepower and efficiencies; schematic reading; trouble-shooting; repairs; and operation of heat pumps and low temperature commercial equipment.

ACD 220 Load Calculation and Air Distribution /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Heating and cooling requirement estimating, using textbook techniques and manual ASHRAE forms. Includes air flow requirements, duct sizing and design, and air distribution pressure balancing.

ACD 250 Estimating /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic principles 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 299 Co-op Related Class in ACD /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

ACD 299 Co-op Work in ACD /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education for description.

AIRCRAFT MANUFACTURING TECHNOLOGY

AMT 120 Aviation Basic Electricity /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Direct and alternating current electrical systems in aircraft. Includes electron theory, common circuit design, the use of Ohm's law in understanding aircraft schematics and the basic techniques of trouble-shooting aircraft DC electrical systems.

AMT 170 Basic Avionics Systems /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Operation of currently utilized avionics equipment. Includes communications and navigation equipment, such as VHF, HF, SECAL, VOR, ADF, DME, ILS, radar, flight directors, VLF Omega, glide slope, transponders, marker beacons, and area navigation and autopilot systems.

ANTHROPOLOGY

ANT 101 Human Origins and Prehistory /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of physical anthropology and archaeology with emphasis on the emergence of the human species from its origins based on our understanding of the archaeological and fossil record. (Same as ARC 101.)

ANT 102 Introduction to Cultural Anthropology and Linguistics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of cultural anthropology and linguistics and introduction to the comparative study of cultures.

ANT 121 Contemporary Indian Groups of the Southwest /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of contemporary Indian cultures of the Southwest with emphasis on Arizona.

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

Same as HIS 122.

ANT 123 The Anthropology of Music and Dance /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to music and dance in their cultural context. Emphasis on the American Southwest.

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

Same as HIS 127.

ANT 128 The Mexican-American in Transition /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

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

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

Same as ART 135.

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

Same as ART 136.

ANT 141 Introduction to Southwestern Prehistory /3 cr. hrs./5 periods (2 lec., 3 lab)

Same as ARC 141.

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

□Prerequisite: None.

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

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

Same as HIS 148.

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

Same as HIS 150.

ANT 160 History and Peoples of Latin America I /3 cr. hrs./3 periods (3 lec.)

Same as HIS 160.

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

Same as HIS 170.

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

□Prerequisite: None.

The interaction of human biology and culture as found among various peoples and their environment.

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

□Prerequisite: ANT 102.

In-depth exploration of theories and methods used in studying and comparing cultures. Selected topics are pursued.

ANT 215 The Nature of Language /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to the basic concepts of linguistics and their implications for the study of culture and society.

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

Same as ARC 225.

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

Same as ARC 250.

ANT 275 Archaeological Excavation /3 cr. hrs./9 periods (9 lab)

Same as ARC 275.

ANT 276 Archaeological Exploration I /3 cr. hrs./9 periods (9 lab)

Same as ARC 276.

ANT 280 Field Projects /3 cr. hrs./9 periods (9 lab)

□Prerequisite: Consent of instructor.

Participation in a field project in one of the subfields of anthropology. (Same as ARC 280.)

ANT 287 Field Techniques & Equipment /3 cr. hrs./9 periods (9 lab)

Same as ARC 287.

ANT 288 Archaeological Exploration II /3 cr. hrs./9 periods (9 lab)

Same as ARC 288.

ANT 296 Individual Studies /1-3 cr. hrs./1-3 periods (1-3 lec)

□Prerequisite: Consent of instructor.

Students independently continue their development in anthropology with the help of a faculty member. May be taken three times for a maximum of nine credit hours. (Same as ARC 296.)

ARCHAEOLOGY**ARC 075 Field Archaeology /3 cr. hrs./9 periods (9 lab)**

□Prerequisite: None.

Participation in archaeological field activities. A nontechnical course with an emphasis on local field work.

ARC 101 Human Origins and Prehistory /3 cr. hrs./3 periods (3 lec.)

Same as ANT 101.

ARC 105 Survey of Microcomputer Uses /3 cr. hrs./4 periods (3 lec., 1 lab)

Same as CSC 105.

ARC 141 Introduction to Southwestern Prehistory /3 cr. hrs./ 5 periods (2 lec., 3 lab)

□Prerequisite: None.

Prehistory of the American Southwest from its earliest inhabitants to European contact based on our understanding of the archaeological record. Field trips are included. (Same as ANT 141.)

ARC 180 Artifact Identification /1 cr. hr./3 periods (3 lab)

□Prerequisites: None.

Introduction to the recognition, identification and classification of the various types of artifacts recovered from local archaeological sites.

ARC 199 Co-op Related Class in ARC /1 cr. hr./1 period (1 lec.)

□Prerequisite: Concurrent enrollment in ARC 199 Co-op Work.

Introduction to Cooperative Education for first-year students (instruction which provides for success in securing and retaining a training job related to subject area). Social and psychological reasons for working, methods of securing employment, preparation of career and job-related objectives and evaluation of student work experience. May be taken two times for a maximum of two credit hours.

ARC 199 Co-op Work in ARC /1-8 cr. hrs./5-40 periods (5-40 lab)

□Prerequisite: Concurrent enrollment in ARC 199 Co-op Related Class.

A supervised cooperative work program for students in a related occupation area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement. May be taken two times for a maximum of 16 credit hours.

ARC 225 Archaeology /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of the concepts and methods which archaeologists use to reconstruct human prehistory. (Same as ANT 225.)

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

□Prerequisite: ARC 180.

Laboratory experience in the curating, processing and analysis of prehistoric and historic artifacts recovered from archaeological sites. (Same as ANT 250.)

ARC 275 Archaeological Excavation /3 cr. hrs./9 periods (9 lab)

□Prerequisite: None.

Introduction to the techniques of archaeological mapping, excavation and recording. Includes field experience in southern Arizona. (Same as ANT 275.)

ARC 276 Archaeological Exploration I /3 cr. hrs./9 periods (9 lab)

□Prerequisite: ARC 180 or concurrent enrollment.

Techniques and methods for recognizing, locating and recording archaeological sites. Includes fieldwork in southern Arizona. (Same as ANT 276.)

ARC 280 Field Projects /3 cr. hrs./9 periods (9 lab)

Same as ANT 280.

ARC 287 Field Techniques and Equipment /3 cr. hrs./9 periods (9 lab)

□Prerequisite: ANT/ARC 275.

Instruction in using optical, electronic sensing and related instruments for mapping, surveying, and data collection on archaeological sites. (Same as ANT 287.)

ARC 288 Archaeological Exploration II /3 cr. hrs./9 periods (9 lab)

□Prerequisites: ARC 276 and consent of instructor.

Continuation of ARC 276 with emphasis on use of field instruments and selected field projects. (Same as ANT 288.)

ARC 296 Individual Studies /1-3 cr. hrs./1-3 periods (1-3 lab)

Same as ANT 296.

ARC 299 Co-op Related Class in ARC /1 cr. hr./1 period (1 lec.)

□Prerequisite: Concurrent enrollment in ARC 299 Co-op Work.

Principles of job success. Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, and evaluation of student work experience. Emphasis on attitude adjustment. May be taken two times for a maximum of two credit hours.

ARC 299 Co-op Work in ARC /1-8 cr. hrs./5-40 periods (5-40 lab)

□Prerequisite: Concurrent enrollment in ARC 299 Co-op Related Class.

A supervised cooperative work program for students in an occupation related area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement. May be taken two times for a maximum of 16 credit hours.

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

□Prerequisite: None.

Introduction to the elements of visual design, such as line, shape, value, texture, volume and color. Includes skill development in organizing these elements and applying the principles of harmony, variety, balance and tension.

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

□Prerequisite: ART 100.

Introduction to drawing. Includes use of graphic media: pencil, charcoal and ink on paper. Emphasis on elements of design as applied to representational drawing. The student will have a set of finished drawings at the conclusion of the semester.

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

□Prerequisite: ART 100.

Extension of design principles introduced in ART 100. Includes analyzing color and creating the illusions of dimension, light and transparency with color. Projects use a variety of media. Emphasis on color theory and relationships.

ART 120 Sculptural Design /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100.

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

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

□Prerequisite: None.

Slide and lecture discussions of art forms of western civilization from prehistoric art through Gothic art. May be taken as a humanities elective.

ART 131 Art and Culture II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Slide and lecture discussions of art forms from the Renaissance into the 20th century. May be taken as a humanities elective.

ART 132 Modern Art Survey /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Slide and lecture discussions of modern art forms as seen in the art developments of the latter 19th century and the 20th century. May be taken as a humanities elective.

ART 133 Survey of American Art /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

American painting, architecture and sculpture from 1650 to the present. Emphasizes the history and culture of each period.

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

□Prerequisite: None.

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

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

□Prerequisite: None.

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

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

□Prerequisite: ART 100.

Introduction to black and white photography as an art form with a general inquiry into basic techniques of making silver images. Includes developing, printing, enlarging, aesthetic language of photography, perspective and photography as an art form. Individual and group work.

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

□Prerequisite: ART 140.

Extension of ART 140. Includes use of the medium as an art form with optimum creativity, technical skill and visual finesse. Also includes portfolio and book production, field trips and research.

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

□Prerequisite: ART 141.

Introduction to commercial fields in photography and principles and practice of photography as a business. Includes studio management, laboratory techniques, pricing, record keeping, advertising, portraiture, weddings, and industrial and aerial work.

ART 160 Ceramics I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100 or concurrent enrollment.

Introduction to ceramics, including wheel- and hand-built forms and basics of glazing.

ART 170 Metalwork I: Jewelry /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100.

Exploration of the basic techniques and design approaches used in the fabrication of jewelry and other metalwork. Includes construction, casting, forming, surface embellishment and other techniques.

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

□Prerequisite: ART 100.

Weaving on a four-harness loom. Projects involve color, texture, pattern and the use of tabby, twill, tubular, textural and tapestry weaves in the creation of clothing and fiber art.

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

□Prerequisite: ART 100.

Exploration of fiber as an art medium. Includes skill development in such techniques as paper making, basketry, crocheting, plaiting and macrame. Projects will involve sculptural form as well as two-dimensional design.

ART 199 Co-op Related Class /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

ART 199 Co-op Work in Art /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education for description.

ART 210 Drawing II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 110.

Continuation of ART 110. Emphasis on further development of imaginative and technical skills in the use of space and graphic design. Students complete the course with a portfolio of finished drawings.

ART 211 Commercial Graphics /3 cr. hrs./4 periods (3 lec., 1 lab)

Same as DES 211.

ART 212 Printmaking I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100.

Printmaking processes such as silk-screen, etching, block printing and monotypes. Students may choose to work in areas of particular interest.

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

□Prerequisite: ART 100. (ART 110 is recommended.)

Drawing the human figure using the two-dimension concept as a graphic vehicle of expression. Students have opportunities to work in various media. Drawing proficiency is stressed.

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

□Prerequisites: ART 100 and 212.

Continuation of ART 212. Advanced problems in intaglio, etching, monotypes, screen and block printing processes.

ART 215 Painting I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 110. (ART 115 is recommended.)

Studio course in beginning oil painting. Introduction to still-life object painting, landscape and figure studies. Palette-mixing technique and stretcher bar building are also introduced.

ART 216 Screenprinting I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 100.

Introduction to screenprinting. Includes screen construction, the use of cut film, photo film, stencil making techniques, printing techniques and one-color and multi-color work.

ART 217 Painting II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: ART 110, 115 and 215.

Continuation of ART 215. Further principles and practice of painting techniques. Includes mixed media, the art market and contemporary painting methods.

ART 218 Screenprinting II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: ART 100 and 216.

Continuation of ART 216. Advanced work in cut film, photo film and experimental stencil making techniques. Students may select areas of interest for concentration and refinement of skills.

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

□Prerequisite: ART 120.

Exploration of various methods and materials used in sculpture. Methods may include modeling, casting, metal forming, construction techniques and carving. Materials may include plaster, clay, cement, bronze, aluminum, steel, copper, wood, plastics, wax and mixed media.

ART 225 Foundations in Art Education /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: 9 credit hours in ART.

Examination of the history and theory of art education with emphasis on the origin and development of art teaching policies and practices.

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

□Prerequisite: None.

Intensive study of the history of photography as an art form and its relationship to the other arts and to society. Includes development of the technical aspects of photography, styles and movements from 1839 to contemporary schools, and important photographers.

ART 231 History, Philosophy and Psychology of Art and Design / 1-3 cr. hrs./1-3 periods (1-3 lec.)

□Prerequisite: Consent of instructor.

Movements, periods, ideas and problems in art and design. Specific subjects are offered each semester in separate sections or for individual study, according to need. May be taken four times for a maximum of twelve credit hours.

ART 260 Ceramics II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 160.

Continuation of ART 160. Further development in wheel- and hand-built forms, glazes and color blends.

ART 261 Ceramics III /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: ART 160 and 260.

Advanced study for students who demonstrate mastery of ceramics skills and principles taught in ART 160 and 260. Includes clay composition, glaze calculations and advanced design problems.

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

□Prerequisites: ART 100 and 170.

Jewelry design and production techniques. Includes casting, construction, cold forging and stone setting in precious and nonprecious metals.

ART 271 Metalwork II: Smithing and Casting /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 170.

Design and production of aesthetic and functional objects. Includes hot and cold forging, raising, forming and casting using various metals such as copper, silver, bronze, steel, iron and aluminum.

ART 280 Weaving II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ART 180.

Advanced study for students experienced on multi-harness looms. Students may select areas of interest for in-depth exploration.

ART FOR PERSONAL DEVELOPMENT**APD 008-070 Art for Personal Development**

A series of non-transfer workshop and lecture courses designed to develop skill in or knowledge of various media.

APD 009 Introduction to Freehand Sketching /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Beginning freehand sketching for interested persons with little or no previous art experience. Not intended for art majors. Not transferable.

APD 010 Drawing /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Workshop designed to develop skill in drawing. Not transferable.

APD 011 Designing Home Interiors /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Introduction to the basic principles of interior design. Emphasis on the planning of residential interiors that will satisfy individual and family needs, values and life styles. Consumer education regarding the selection of home furnishing materials is also stressed.

APD 012 Photography /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Workshop designed to develop skill in photography. Not transferable.

APD 013 Advanced Photography /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: APD 012.

Advanced techniques for still and portrait photography. Includes advanced darkroom techniques.

APD 014 Painting I: Acrylic and Oil /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Exploration of design and composition using basic techniques in oil and/or acrylic. Emphasis on how to build a painting.

APD 015 Applied Sketching Techniques /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Elements of freehand drawing and advanced techniques and concepts. Includes review of fundamentals. Not intended for art majors. Not transferable.

APD 016 Painting II: Mixed Media /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: APD 014.

Continuation of APD 014. Intermediate studio painting. Further study and practice of basic techniques and processes of painting with oil, acrylic and mixed media. Emphasis on producing a complete painting.

APD 017 Painting III: Techniques and Composition /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: APD 016.

Continuation of APD 016. Advanced studio painting. Emphasis on technique and composition as related to realism, expressionism and abstractionism. May be taken two times for a maximum of four credit hours.

APD 018 Calligraphy I /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

The classic art of lettering and the illumination and decoration of manuscripts.

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

□Prerequisite: APD 018.

Continuation of APD 018. Advanced techniques of the classic art of lettering and the illumination and decoration of manuscripts.

APD 020 Ceramics /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Workshop designed to develop skill in ceramics. Not transferable.

APD 021 Portrait and Figure Painting /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Comprehensive introduction to the fundamentals of portrait and figure painting in a choice of media. Live models, photos and sketches will be used.

APD 022 Weaving I /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Workshop designed to develop skill in weaving. Not transferable.

APD 023 Weaving II /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: APD 022.

On- and off-loom weaving techniques. Includes man-made and natural fibers, their characteristics and working properties.

APD 024 Figure Sculpture /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: None.

Practice in working from the model using clay, plaster and wax. Emphasis on individual development rather than producing a permanent product.

APD 025 Drawing Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: None.

Exploration of the drawing process. Includes practice in traditional and contemporary approaches to basic drawing problems.

APD 026 Introduction to Jewelry Fabrication /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: None.

Techniques used in the construction of jewelry, including sawing, soldering, polishing and simple bezel setting of stones. Also includes an introduction to jewelry design.

APD 027 Knife Making and Ornamentation /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: None.

Introduction to essential processes used in knife making. Includes design, layout, materials, angle structure, forging, heat treating, and finishing. Also includes ornamentation methods such as inlay, engraving, chasing and etching.

APD 028 Stone Carving /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: None.

Introduction to basic stone carving methods and techniques. Emphasis on the use of hand tools.

APD 029 Lost Wax Sculpture Casting /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: None.

Fundamentals of art metal casting using the ceramic shell mold process. Includes wax working, mold making and casting in bronze or aluminum.

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

□Prerequisite: None.

Examination of the evolution of American Indian art from prehistoric to modern times. Designed primarily for sales persons and serious amateur collectors. Includes the place of art in contemporary cultures, appreciation of Indian art objects and appraisal techniques.

APD 031 Papermaking /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: None.

Introduction to papermaking as an art form. Includes use of various fibers, beating the pulp, forming and pressing sheets, and casting three dimensional forms.

APD 032 Needlepoint /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Development of skills in needlepoint stitching and transferring designs to canvas for stitching. Includes a variety of needlepoint stitches, materials and ways to finish a project.

APD 033 Weaving III: Fiber Art /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: APD 023.

Continuation of APD 023. Development of skills and techniques in such fiber arts as three-dimensional weaving, sculptural form, felting, crocheting and advanced basketry, all using principles of color and design.

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

□Prerequisite: None.

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

APD 035 Kiln Workshop /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: Demonstrated experience in ceramics.

Advanced study for the ceramicist in the art of kiln construction and firing. This course is especially designed for the ceramic artist or studio potter. Includes historical evolution, refractories, principles of kiln design and construction, kiln maintenance and repair, combustion and firing systems, electric kilns, and the art of firing.

APD 036 Introduction to Lapidary /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: None.

Fundamental techniques of cutting, grinding and polishing stones for jewelry. Includes the forming of cabochon and eccentric shapes. Medium hard stones such as agates and jaspers will be used.

APD 037 Raku Pottery /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: None.

An introduction to Raku, a low temperature, quick-firing ceramics method developed in 16th century Japan. Traditional and contemporary approaches involved in clay body composition, in the forming, glazing and firing of pots and in Raku kiln building.

APD 038 Non-Silver Photography /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: None.

Non-traditional methods of photography. Includes use of gum prints, litho film, photo silkscreen and emulsion.

APD 039 Beginning Spinning /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: None.

Techniques of spinning wool on a drop spindle and spinning wheel, plus carding, blending, plying and caring for hand-spun yarn.

APD 041 La pintura mural en Mexico /2 cr. hrs./4 periods (1 lec., 3 lab)

□Requisito: Ninguno.

Es un seminario para desarrollar la habilidad en la pintura mural. No es transferible.

APD 042 Pastelería creativa I /2 cr. hrs./4 periods (1 lec., 3 lab)

□Requisito: Ninguno.

Seminario diseñado para desarrollar la habilidad en la pastelería creativa. No es transferible.

APD 043 Pastelería creativa II /2 cr. hrs./4 periods (1 lec., 3 lab)

□Requisito: Ninguno.

Es una continuación de APD 042. Es un seminario diseñado para desarrollar aun más la habilidad en la pastelería creativa. No es transferible.

APD 044 Pastelería creativa III /2 cr. hrs./4 periods (1 lec., 3 lab)

□Requisitos: APD 042 y 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 051 Música de Mariachi I /2 cr. hrs./4 periods (1 lec., 3 lab)

□Requisito: Ninguno.

Seminario diseñado para desarrollar la habilidad en la música de mariachi. No es transferible.

APD 054 Color Photography /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Processing and printing of color negatives and color slide materials.

APD 063 Pastel Painting /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Principles and techniques of using the pastel medium in developing a painting.

APD 065 Watercolor I /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Introduction to methods and basic techniques of watercolor painting. Emphasis on the development of imagination and creativity.

APD 066 Watercolor II /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: APD 065.

Continuation of APD 065. Techniques of painting with water-based media on paper. For beginning and intermediate painters. Personal creativity, color theory and composition are stressed.

APD 067 Watercolor III /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: APD 065.

Introduction to the fundamentals of landscape painting in water-based media of the student's choice. Includes the use of photos and sketches as starting points for creativity.

APD 068 Watercolor IV /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: APD 065.

Exploration of design and composition using basic and advanced techniques in water-based media. Includes the stroke technique.

APD 070 Community Theater Dramatics /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Fundamentals of acting and community theater production to develop the student's dramatic talent. May be taken twice for credit.

APD 072 Música de Mariachi II /2 cr. hrs./4 periods (1 lec., 3 lab)

□Requisito: APD 051.

Continuación de APD 051. Seminario diseñado para desarrollar mayor conocimiento y de destrezas en música de mariachi.

APD 073 Música de Mariachi III /2 cr. hrs./4 periods (1 lec., 3 lab)

□Requisito: Ninguno.

Este curso es el tercero en una serie de curso de música de mariachi diseñados para proveer a los estudiantes la oportunidad para desarrollar los destrezas necesarias y la mejor comprensión de este género musical.

APD 075 Blacksmithing for Artists /1 cr. hrs./1.7 periods (.7 lec., 1 lab)

□Prerequisite: None.

Introduction to design, layout, materials fuels, forge making and practices. Includes hot-working ferrous and non-ferrous metals, tool making and heat treating.

APD 076 Art Appreciation /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Examination of contemporary art and understanding of the artistic heritage in visual world art. Includes museum and gallery visits, discussion with artists and visits to their studios. Experimental drawing and sculpture done in class.

ASTRONOMY**AST 050 Project Universe /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introduction to the science of astronomy for general interest. Includes origin, characteristics and evolution of the solar system, stars, galaxies and the universe. May not be taken as a liberal arts science requirement for transfer.

AST 051 Cosmos /3 cr. hrs./13 periods (13 lec.)

□Prerequisite: None.

Examination of the evolution of the universe, earth, humanity and perceptions about them. Not an introductory astronomy course, but rather an interdisciplinary study of science placed in a humanistic perspective.

AST 101 Solar System /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Descriptive and historical introduction to the science of astronomy focusing on the sun and its family of planets. Includes comets, origin of the solar system, the space program, and critiques of related pseudosciences, e.g., astrology.

AST 102 Stars, Galaxies, Universe /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to the universe beyond the solar system. Includes the nature of light, how astronomers and telescopes work, the possibilities of alien life in the universe, quasars, pulsars and black holes. Also includes the origin, nature and future of the universe.

AST 111 Solar System Laboratory /1 cr. hr./3 periods (3 lab)

□Prerequisite: None.

Laboratory for AST 101, involving exercises, star gazing sessions and field trips to planetariums and observatories.

AST 112 Stars, Galaxies, Universe Laboratory /1 cr. hr./3 periods (3 lab)

□Prerequisite: None.

Laboratory for AST 102, involving exercises, star gazing sessions and field trips to planetariums and observatories.

AUTO BODY REPAIR**ABR 112 Auto Body Repair I /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisite: None.

Introduction to auto body repair. Body working tools, welding, brazing, heat shrinking and metal straightening.

ABR 113 Auto Body Repair II /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: ABR 112.

Continuation of ABR 112. Body shop materials, body construction, bumper assemblies, body panel adjustments, repairing rust damage, body trim and glass work.

ABR 114 Auto Body Repair III /4 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: ABR 113.

Continuation of ABR 113. Advanced techniques of straightening, replacing and reconstructing collision damaged parts of automobiles. Includes estimating costs of labor, materials and shop expenses.

ABR 115 Automotive Painting I /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: None.

Introduction to automobile painting. Includes equipment, paint, paint products, preparation and painting techniques.

ABR 116 Automotive Painting II /4 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: ABR 115.

Continuation of ABR 115. Advanced automobile painting. Includes painting techniques, applying metallic finishes, matching paint color, paint rub-out, detailing finishes and applying accent stripes.

AUTOMOTIVE SERVICE REPAIR

ASR 090 Computer Controlled Automotive Systems (American Motors) /1.5 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: None.

Diagnosis, repair, and maintenance of computerized systems in American Motors vehicles. Designed to update professional mechanics.

ASR 091 Computer Controlled Automotive Systems (Chrysler) /1.5 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: None.

Diagnosis, repair, and maintenance of computerized systems in Chrysler vehicles. Designed to update professional mechanics.

ASR 092 Computer Controlled Automotive Systems (Ford Motors) /1.5 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: None.

Diagnosis, repair, and maintenance of computerized systems in Ford Motors vehicles. Designed to update professional mechanics.

ASR 093 Computer Controlled Automotive Systems (General Motors) /1.5 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: None.

Diagnosis, repair, and maintenance of computerized systems in General Motors vehicles. Designed to update professional mechanics.

ASR 094 Computer Controlled Automotive Systems (Imports) /1.5 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: None.

Diagnosis, repair, and maintenance of computerized systems in imported vehicles. Designed to update professional mechanics.

ASR 100 Auto Service Repair: Lubrication and Cooling /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: None.

Theory of operation, diagnosis and repair of engine lubrication and cooling systems.

ASR 102 Auto Service Repair: Brakes /3 cr. hrs./5 periods (1 lec., 4 lab)

□Prerequisite: None.

Theory of operation, diagnosis and repair of automotive brake systems.

ASR 104 Auto Service Repair: Electrical Systems /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: None.

Theory of operation, diagnosis and repair of automotive electrical systems.

ASR 106 Auto Service Repair: Tune-up /4 cr. hrs./6 periods (1 lec., 5 lab)

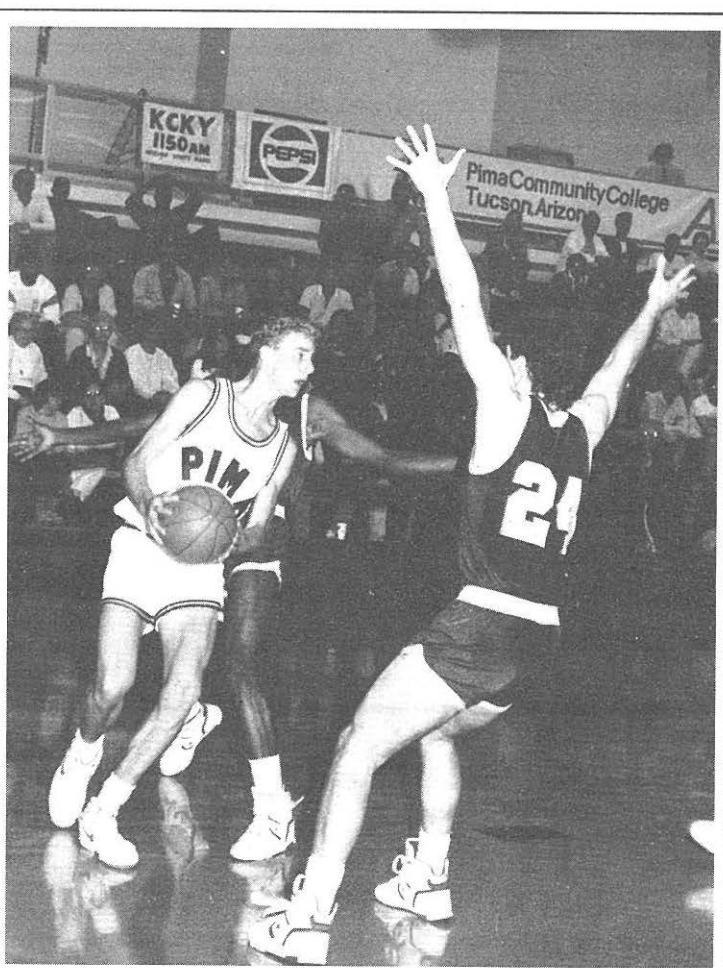
□Prerequisite: None.

Theory of operation, diagnosis and repair of ignition and carburetor systems.

ASR 108 Auto Service Repair: Air Conditioning /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: None.

Theory of operation, diagnosis and repair of automobile air conditioning systems.



AUTOMOTIVE TECHNOLOGY**AUT 101 Automotive Maintenance /2 cr. hrs.**

□Prerequisite: None.

Techniques of routine vehicle maintenance. For those who have little or no automotive service experience.

AUT 111 Automotive Body and Fender Repair /3 cr. hrs.

□Prerequisite: None.

Fundamentals of sheet metal repair using basic metalworking tools. Instruction is limited to minor damage repair, parts replacement and alignment.

AUT 120 Internal Combustion Engines /4 cr. hrs.

□Prerequisite: None.

Construction, design and operation principles of internal combustion engines. Includes removal and replacement of internal and external parts and components of several types of internal combustion engines and description of how these engines convert heat energy into mechanical energy. Also includes the part played by the lubrication, cooling and air/fuel management system of the engines.

AUT 122 Automotive Engine Service Repair /3 cr. hrs.

□Prerequisite: None.

Procedures for removing, repairing and replacing engine parts. Includes evaluation of internal and external engine parts, valve grinding and removal and replacement of camshaft crankshaft, timing chain, insert bearings and piston rings. Also includes assembling the engine to given specifications.

AUT 124 Automotive Diesel Engine Tune-up /3 cr. hrs.

□Prerequisite: None.

Maintenance of automotive diesel engines. Includes tune-up, assembly and calibration of fuel injectors, and diagnosis and repair of glow plug electronic control systems.

AUT 125 Automotive Engine Tune-Up /4 cr. hrs.

□Prerequisite: None.

Tune-up principles and procedures. Includes evaluating internal and external ignition and fuel system parts, performing tune-ups on four types of engines and using diagnostic and emission detecting equipment to adjust engines to given emission standards.

AUT 126 Emission Certification Training /1 cr. hr.

□Prerequisite: None.

Technician training for emission system adjustment using Arizona certified infrared exhaust analyzer in preparation for Arizona certification examination.

AUT 128 Automotive Electrical Fundamentals /3 cr. hrs.

□Prerequisite: None.

Fundamentals of electricity as applied to automotive electrical problems. Includes use of electrical test instruments to measure voltage, current and resistance in automotive electrical system.

AUT 129 Automotive Electrical Component Repair and Adjustment /3 cr. hrs.

□Prerequisite: None.

Diagnosis, repair, replacement and/or adjustment of electrical components used on the modern automobile. Includes starters, generators, distributors, computer controls, solenoids, switches and connecting wires.

AUT 132 Automatic Transmission Removal, Replacement and In-Car Repair /4 cr. hrs.

□Prerequisite: None.

Removal, repair, adjustment and replacement of automatic transmissions in popular use today. Includes in-car repairs and adjustments, transmission removal, replacement and tear down. These operations are performed according to factory time limitations and specifications.

AUT 133 Automatic Transmission Rebuilding /4 cr. hrs.

□Prerequisite: None.

Duties of an automatic transmission builder. Includes overhauling automatic transmissions in popular use today within a given time and to specifications.

AUT 136 Automotive Driveline /4 cr. hrs.

□Prerequisite: None.

Training in automotive driveline components. Includes removal and replacement of manual transmissions and clutches and overhauling of manual transmissions, universal joints and differentials.

AUT 138 Automotive Chassis /4 cr. hrs.

□Prerequisite: None.

Training in automotive chassis components. Includes wheel alignments, wheel balancing and overhaul of suspension system, manual and power steering gears, and power steering pumps.

AUT 140 Automotive Brakes /4 cr. hrs.

□Prerequisite: None.

Diagnosis and repair of hydraulic brake systems, both standard and power. Includes evaluating and machining brake drums and discs.

AUT 142 Automotive Air Conditioning /3 cr. hrs.

□Prerequisite: None.

Diagnosis and repair of automotive air conditioning systems. Includes discharging and recharging air conditioning systems.

AUT 199 Co-op Related Class in AUT /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

AUT 199 Co-op Work in AUT /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education for description.

AUT 299 Co-op Related Class in AUT /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

AUT 299 Co-op Work in AUT /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education for description.

AVIATION MECHANICS

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

□Prerequisite: None.

Aircraft preventive maintenance principles and procedures for use by pilots. Includes engine design and function, aircraft design and function, operational safety standards, federal aviation regulations and an examination of industry maintenance practices.

AVM 120 Aviation Electricity I /4 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: None.

Theory and application of direct- and alternating-current electrical systems in aircraft. Includes electron theory, common circuit design, aircraft schematics, and the application of Ohm's Law in trouble-shooting aircraft DC and AC electrical systems.

AVM 201 Aircraft Composite Repair /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: None.

The spectrum of materials and processes used in the construction and repair of composite aircraft. Includes repair techniques of advanced composite materials, i.e., fiberglass, kevlar and graphitic fibers and safety and equipment usage in the handling of resins, chemicals and fibrous materials.

AVM 220 Airframe Structures /6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisite: 30 months of experience, concurrently performing the duties of airframe and power plant maintenance, or 18 months of experience performing the duties appropriate to this rating.

Principles and techniques of maintaining, repairing and building airframe structures. Includes federal aviation regulations, aerodynamic principles, assembly and rigging, weight and balance, woodworking techniques, welding and metallurgy, fabric coverings, aircraft finishes and structural repair.

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

□Prerequisite: 30 months of experience, concurrently performing the duties of airframe and power plant maintenance, or 18 months of experience performing the duties appropriate to this rating.

Theory of operation, repair and maintenance of various aircraft systems and components. Includes direct current electrical systems, repair and trouble-shooting, hydraulic and pneumatic systems, aircraft instrumentation, communication and navigation systems, air conditioning and pressurization, fire detection and extinguishing systems, and aircraft fuel systems.

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

□Prerequisite: 30 months of experience, concurrently performing the duties of airframe and power plant maintenance, or 18 months of experience performing the duties appropriate to this rating.

Repair and maintenance of aircraft power plants. Includes reciprocating and gas turbine engines, theory of operating construction, overhaul procedures, lubrication systems, fuel metering systems, ignition systems, propellers and engine testing.

BIOLOGY

BIO 093 Oceanus: Marine Environment /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The marine environment as a unique feature of the planet Earth. Includes the formation of oceans, world-wide weather patterns, life forms in ocean environments from the intertidal zone to deep-sea rifts, the status of dolphins and whales and the future of the oceans in relation to the human species.

BIO 100 Biology Concepts /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

A one-semester introductory course covering basic principles and concepts of biology. Methods of scientific inquiry and behavior of matter and energy in biological systems are explored. Recommended for students prior to entrance into nursing and other allied health programs. May not be used with BIO 101 or BIO 102 as part of a two-semester biology sequence.

BIO 101 General Biology (Non-Majors) I: Selected Topics /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Selected biological topics, including methods used by biologists to make discoveries and evaluate scientific data. Includes scientific investigation, cell biology, immunology, genetics and diversity of living organisms.

BIO 102 General Biology (Non-Majors) II: Additional Topics /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Biological topics not covered in BIO 101. Reviews methods used by biologists to make discoveries and evaluate scientific data. Includes plant and animal structure and function, evolution and environmental biology.

BIO 105 Environmental Biology /4 cr. hrs./6 periods (3 lec., 3 lab.)

□Prerequisite: None.

Fundamentals of ecology and their relevance to human impact on natural ecosystems.

BIO 109 Natural History of the Southwest /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Study of the common plants and animals of the Southwest including their distribution, adaptation, behavior and ecology.

BIO 115 Wildlife of North America /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Introduction to the mammals, birds, fish, reptiles, amphibians and selected invertebrates of North America. Native Arizona species are stressed. Includes discussion of national, state and private wildlife agencies.

BIO 160 Introduction to Human Anatomy and Physiology /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Study of structure and dynamics of the human mechanism. For students who require a one semester course in anatomy and physiology.

BIO 184 Plant Biology /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: BIO 101 and 102 or one-year of high school biology. Study of principles and processes in plant biology with emphasis on vascular plants. Includes survey of plant kingdom.

BIO 190 Animal Biology /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: High school biology and/or high school chemistry. Study of principles and processes in animal biology from molecular to population levels of organization. Includes survey of major animal groups.

BIO 193 Marine Biology /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

A survey of marine environments and their biotic communities with emphasis on the natural history of marine organisms (from sponges to whales). Lab work included. Field trip required.

BIO 195 Biology of Cells /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: CHM 151 and concurrent enrollment in CHM 152. Principles of cell and molecular biology. For biology majors.

BIO 201 Human Anatomy and Physiology I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: BIO 100 or equivalent, and college reading requirement. College chemistry recommended.

A study of the structure and function of the body, emphasizing cellular and biochemical aspects. For students in health careers, not for biology or pre-med majors. Includes an introduction to cells and tissues and to the skeletal, muscular and circulatory systems.

BIO 202 Human Anatomy and Physiology II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: BIO 201.

Continuation of BIO 201. Emphasis on nervous, respiratory, digestive, urinary and reproductive systems.

BIO 204 Survey of Human Diseases /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: BIO 160.

Examination of disease processes and their effects on the systems of the human body. Primarily for students in the health occupation programs, but also open to students who wish to take a lab-science course.

BIO 205 Microbiology I /4 cr. hrs./7 periods (3 lec., 4 lab)

□Prerequisite: One semester of a biological science.

Study of microorganisms and their relationship to health, ecology, and related fields.

BIO 207 Microbiology II /4 cr. hrs./7 periods (3 lec., 4 lab)

□Prerequisite: BIO 205.

Medical implications of microbes. Includes infection and immunity by a variety of microbial agents on a variety of hosts and an introduction to food and water microbiology.

BIO 210 Communicable Diseases /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: One semester of biological science.

The causes, prevention and control of microbial diseases with emphasis on those of importance to national and international public health.

BIO 226 Ecology /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: One semester of biology or geology.

Introduction to the concepts and principles of ecology including organization, function and development of ecosystems; biogeochemical cycles; population dynamics; and other related topics.

BIO 230 Wildflowers of Arizona /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: BIO 184.

Identification of common and important native or naturalized plants found in Arizona. Emphasis on grass, rose, legume, composite, and pine families.

BIO 242 General Genetics /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: BIO 190, 195 or 184; CHM 151, 152 and concurrent enrollment in CHM 236.

Basic principles and concepts of inheritance.

BIO 243 Genetics Laboratory /1 cr. hr./3 period (3 lab)

□Prerequisites: BIO 190, 195 or 184; CHM 151, 152, and concurrent enrollment in CHM 236.

Laboratory investigations of basic principles of genetics.

BIO 298 Special Projects /1-4 cr. hrs./3-12 periods (3-12 lab)

□Prerequisite: One year of biology.

Exploration of special interest areas. Content to be determined by student and facilitator/instructor.

BUSINESS

BUS 050 Fundamentals of Tax Preparation /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Basic skills needed to prepare federal tax returns. Course designed by the Internal Revenue Service for beginners.

BUS 051 Mathematics of Business /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 060 or satisfactory assessment test score.

Basic mathematical procedures as applied to business problems. Includes mark-up, payroll, and simple and compound interest.

BUS 100 Introduction to Business /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of fundamental characteristics and functions of modern business. Business principles, marketing, record keeping, risks, and an historical review of business development, including the viewpoint of various ethnic groups.

BUS 105 Survey of Microcomputer Uses /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: None.

Not for programming or engineering majors. Overview of micro-computer uses with emphasis on software. Includes use of computers as tools in business, the home, education and the social and natural sciences. Also includes application software evaluation. (Same as CSC 105.)

BUS 106 Business Spreadsheet Applications /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: None.

Introduction to the use of the electronic spreadsheet to solve business problems. Includes creation, manipulation, and production of spreadsheets and graphs for a variety of business applications. Students gain hands-on experience using a personal computer to complete class projects.

BUS 107 Business Data Base Applications /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Introduction to personal computer data-base software, emphasizing applications for the business environment. Topics covered include file creation, data manipulation, and preparation of reports. Students gain hands-on experience using a personal computer to complete class projects.

BUS 200 Business Law I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles and sources of business law. Law of contracts, torts, agency consumer credit protection and sales. Includes an overview of the judicial system.

BUS 201 Business Law II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: BUS 200.

Continuation of BUS 200, including the law of personal property, real property, partnerships, corporations, government regulation of business and environmental law.

BUS 205 Statistical Methods in Economics and Business I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 170 or concurrent enrollment.

Introduction to statistical techniques and their application to economics and business decision making. Data structures, frequency distribution, probability, probability distributions, normal distribution, testing, hypothesis making, Chi-square distribution, regression and correlation analysis.

BUS 206 Statistical Methods in Economics and Business II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: BUS 205.

Continuation of BUS 205. Variance, sampling, statistical quality control, Bayesian decision making, non-parametric statistics, multiple and nonlinear regression, time series and index numbers.

BUS 210 International Business /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to international business, focusing on the environmental and strategic complexities that arise when business activities transcend international borders. Includes the language of international business and the basic do's and don'ts within various foreign business societies.

BUS 295 Business Seminar I /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Laboratory portion of the Business Administration program. Credit is given for working in an approved training station. Student must work an average of 15 hours each week under supervision and will be evaluated by a supervisor and the instructor/coordinator.

BUS 296 Business Seminar II /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Continuation of BUS 295.

CERAMIC MANUFACTURING**CMT 101 Safety and Ceramic Parts Handling /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Safety, OSHA requirements and parts handling in a ceramic manufacturing plant. Includes hand tool, machine, electrical and chemical safety procedures. Also includes ceramic parts preparation and green, fired and finished ceramic parts handling.

CMT 102 Hand Tool Operations /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Hand tool terminology and applications. Includes cutting and non-cutting tools.

CMT 103 Precision Measuring Equipment /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: CMT 102.

Nomenclature, types and use of precision measuring equipment. Includes micrometers, verniers, gage blocks, and inside, depth and height instruments.

CMT 104 Ceramic Lathe Operations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: CMT 103.

Lathe set-up, turning and cutting procedures in ceramic manufacturing. Includes safety, diamond cutting tools, speeds, feeds and tracer attachments.

CMT 105 Ceramic Press Operations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Set-up and operation of punch, extender and wet bag presses. Includes material preparation, parts identification, assembly and insertion of molds, and clean up procedures.

CMT 106 Ceramic Saw Operations /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Procedures for ceramic manufacturing, using cut-off and slitting saws. Includes operating procedures, cycle movements, value controls and diamond cut-off wheel operations.

CMT 107 Basic Electricity for Ceramic Manufacturing Operations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic electricity and applications for the operation and maintenance of ceramic manufacturing machines. Includes static electricity, AC/DC current, resistance and measurements.

**CMT 201 Finishing Processes for Ceramic Materials /3 cr. hrs./
3 periods (3 lec.)**

□Prerequisite: CMT 101.

Set-up and operation of various finishing processes used in the production of ceramic products. Includes the ultrasonic cleaner and tumbling, lapping and grinding machines.

**CMT 202 Operation and Maintenance of Ceramic Furnaces /1 cr. hr./
1 period (1 lec.)**

□Prerequisite: CMT 107.

Minor maintenance of furnaces used in the production of ceramic products. Includes kiln operation, globar failure and replacement, and controller operation and programming. Also includes operation of the visual defects camera.

**CMT 203 Automated Manufacturing Systems /2 cr. hrs./2 periods
(2 lec.)**

□Prerequisite: CMT 107.

Applications of robotics and mechanics to power components in ceramic manufacturing machines.

CHEMISTRY

**CHM 080 Preparation for General Chemistry /3 cr. hrs./3 periods
(3 lec.)**

□Prerequisite: MTH 070.

Fundamentals of chemistry. Includes nomenclature, atomic structure, bonding, chemical equations, moles, stoichiometry, the periodic table, conversions, problem-solving techniques and study skills. Designed to prepare students for CHM 151.

CHM 121 Introductory Chemistry /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisite: None.

Basic chemistry and its relationship to everyday experiences. Designed to meet the needs and interests of non-science majors. Includes classification and structure of matter, basic principles of chemical reactions, and their environmental and societal impact.

CHM 130 Fundamentals of Chemistry /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisite: None.

Inorganic chemistry as a basis for the study of some life processes. Includes the classification, structure and general chemical behavior of inorganic matter. Adapted to the needs of students in allied health programs.

**CHM 140 Fundamentals of Organic and Biochemistry /5 cr. hrs./
7 periods (4 lec., 3 lab)**

□Prerequisites: CHM 130, high school chemistry within the last three years or consent of instructor.

Continuation of CHM 130. Organic chemistry as the basis for the study of some important life processes. Includes the classification, structure and general chemical behavior of organic and biochemical systems. Adapted to the needs of students in nursing and other allied health programs.

**CHM 141 Introductory Organic and Biochemistry /5 cr. hrs./7 periods
(4 lec., 3 lab)**

□Prerequisite: CHM 121.

Continuation of CHM 121. Organic chemistry as it relates to consumer products and pollution of our environment. Includes biochemistry and physiochemistry and their relationship to medicines, drugs, health and food products.

CHM 151 General Chemistry I /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisites: MTH 130 and either pass the entrance exam or complete CHM 080 with a grade of A or B.

Basic chemistry for science majors. Includes examination of atomic structure and bonding with some historical background, fundamental chemical and scientific relationships, chemical reactions and energy, states of matter and solutions.

CHM 152 General Chemistry II /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisite: CHM 151.

Continuation of CHM 151 with emphasis on certain chemical concepts such as equilibrium, kinetics, acids, bases, complex ions and oxidation-reduction.

CHM 192 Electronic Industrial Chemistry /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: ETR 104, and CHM 130 or CHM 151.

Principles of chemistry and laboratory techniques. For students interested in microelectronic technology. Includes material properties (thermal and electrical resistivity, coefficient of expansion, heat capacity, chemical reactivity and mechanical strength), use and location of published references, safety in use of materials, polymer formation, plating methods and problems, cleaning methods and clean room principles. Some materials to be studied are ceramics, glasses, solders, polymers, and materials which are required to fabricate microelectronic circuits (gold, silver, platinum, palladium, ruthenium, copper, nickel, kovar and silicon).

CHM 196 Independent Studies in Chemistry /1-4 cr. hrs./3-12 periods (3-12 lab)

□Prerequisite: None.

Laboratory projects varying with students' interests and reasons for enrolling.

CHM 235 General Organic Chemistry I /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisite: CHM 152.

Fundamentals of organic chemistry, including classification, occurrence, synthesis, analysis and reaction mechanisms of important classes of organic compounds. Alkanes, aromatics and arenes are classes stressed.

CHM 236 General Organic Chemistry II /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisite: CHM 235.

Continuation of CHM 235 with emphasis shifting to synthesis and the use of chemical and instrumental methods as a means of identification. The remaining classes of organic compounds are discussed.

CHINESE**CHI 050 Conversational Chinese I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Listening to and speaking Mandarin Chinese. Designed for persons with no previous knowledge of Chinese. Includes language skills needed for buying and selling, telling time, giving directions and making comparisons.

CHI 051 Conversational Chinese II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: CHI 050.

Continuation of CHI 050, expanding on Mandarin Chinese conversational skills. Designed for persons able to ask and respond to simple questions. Includes language skills needed to communicate about people, places, travel, and food.

COMMUNICATION WORKERS TECHNOLOGY**CWT 100 Working in the Communications Systems Industry /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Overview of the telecommunications industry. Includes history, present occupations and technologies and projected trends in employment and technology.

CWT 101 Communications Industry Tools and Equipment /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Familiarization with the tools and equipment used in the communications industry. Includes selection, use, maintenance, repair and safety.

CWT 102 Color Code /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Use of color codes in the telecommunications industry. Includes cable color code, cable group layout, binders and core lay up.

CWT 103 Safety and Health in the Communication Industry /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Health and safety hazards of the job environment and necessary precautions. Includes introduction to the Occupational Safety and Health Act, workers compensation and safety measures to use off the job.

CWT 104 Communications Test Equipment /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Function and operation of test equipment for the communications industry. Includes volt-ohm meter, oscilloscope, and audio frequency generator.

CWT 110 Electronics /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Basic concepts of electronics and application of mathematical skills. Includes resistance, conductance, EMF, Ohm's Law and mathematical equations.

CWT 112 Basic Circuit Reading /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Interpretation of electronic circuit and schematic diagrams. Includes current flow, polarity, placement of test equipment, common electronic components, series circuits and application of Ohm's Law to basic series circuits.

CWT 120 Direct Current Fundamentals /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: CWT 110 and 112.

Basic direct current electronics. Includes series, parallel and series-parallel circuits; current and voltage dividers; wire gauges; fuses; circuit breakers; switches; batteries; and problem solving.

CWT 121 Graphing and Linear Equations /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: CWT 110.

Mathematical fundamentals as a problem-solving tool in the telecommunications industry. Includes measures of central tendency, interpreting data, graphing and solving systems of linear equations.

CWT 130 Alternating Current Fundamentals I /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: CWT 120.

Basic principles of alternating current. Includes uses of trigonometry for alternating current and magnetism, alternating current principles and applications, alternating voltage and current, and inductance, resistance, capacitance and time constants.

CWT 140 Solid State Devices /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: CWT 130.

Overview of basic solid state devices. Includes basic digital theories and circuits, transistors, rectifiers and the characteristics of circuits in which these devices are used.

CWT 142 Telephony Systems and Equipment I /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: CWT 130.

Basic principles and applications of telephone multiplexing techniques, carrier systems and electrical filters. Includes the basic elements of a telephone system, principles of wire transmission, telephone transmission practices, frequency division multiplex systems and the modulation and demodulation processes.

CWT 144 Data Transmission I /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: CWT 130.

Transmission capabilities provided by new technology. Includes fiber optics, microwave, satellites and packet switching.

CWT 150 Digital Electronics /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: CWT 140.

Fundamentals of digital electronics. Includes digital numbers, simple logic gates, binary operations, simplified logic circuits in registers, counter, light-emitting displays, analog-to-digital conversion, Boolean logic and microprocessors.

COMPUTER SCIENCE

CSC 060 Data Entry Microcomputer Proficiency Certification / .5 cr. hr./1 period (1 lab)

□Prerequisite: None.

Skill building and certification for data entry on a microcomputer. Includes data input and a certification speed test. May be taken four times for a total of two credit hours.

CSC 061 Key to Disk Proficiency Certification /.5 cr. hr./1 period (1 lab)

□Prerequisite: None.

Skill building and certification for data entry on a key to disk machine. Includes keying and loading programs, inputting data, verifying input, and a certification speed test. May be taken four times for a total of two credit hours.

CSC 090 The Microcomputer as a Tool for Personal Records / 1 cr. hr./1.5 periods (1 lec., .5 lab)

□Prerequisite: None.

Basics of computer operation and simple programming for personal use. Includes 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)

□Prerequisite: None.

Basics of computer operation and simple programming for instructional use. Emphasis on teaching 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)

□Prerequisite: None.

Continuation of CSC 092. Microcomputer programming techniques for instructional use. Emphasis on 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)

□Prerequisite: None.

Basics of computer operation and simple programming for use in small businesses. Includes using the computer to control and report inventory, cash flow, personnel records, payroll, capital depreciation and record keeping.

CSC 098 Supervised Independent Microcomputer Programming / 1 cr. hr./1.5 periods (1 lec., .5 lab)

□Prerequisite: None.

Assistance for students in developing programs.

CSC 100 Introduction to Computers /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: MTH 070.

General introduction to computer hardware and software. Includes computer and data processing terminology and programming concepts (e.g., program design, coding and documentation). Problems are programmed in the BASIC language.

CSC 104A Beginning Spreadsheets /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Beginning concepts of spreadsheet processing in microcomputer environments. Lecture topics include how to create, manipulate and print a simple spreadsheet. Students will work with popular spreadsheet software.

CSC 104B Intermediate Spreadsheets /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: CSC 104A.

Intermediate concepts of spreadsheet processing in microcomputer environments. More sophisticated features, such as functions, two windows, logical operators, and graphics are covered. A commercial spreadsheet package will be used in the course.

CSC 104C Advanced Spreadsheets /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: CSC 104B.

Advanced concepts of spreadsheet processing in microcomputer environments. Lecture topics include creating and using macros, and the spreadsheet database. Students will work with advanced spreadsheet software.

CSC 105 Survey of Microcomputer Uses /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: None.

Not for programming or engineering majors. Overview of micro-computer uses with emphasis on software. Includes use of computers as tools in business, the home, education and the social and natural sciences. Also includes application software evaluation. (Same as ARC 105, AJS 105 and BUS 105.)

CSC 106A Data Base Concepts: Introduction /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Beginning concepts of data base processing in microcomputer environments. Lecture topics include how to set up a database, access information interactively and produce reports. Students will work with popular data base software.

CSC 106B Data Base Concepts: Intermediate /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: CSC 106A.

Intermediate concepts of data base processing in microcomputer environments. Lecture topics include modification of the data base structure, manipulation and reorganization of the data base, use of functions, and producing complex reports. A commercial data base package will be used in the course.

CSC 106C Data Base Concepts: Advanced /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: CSC 106B or permission of instructor.

Advanced concepts of data base processing in microcomputer environments. Lecture topics include macros, programming with a procedural data base language, and customizing data entry and output. A commercial data base package will be used in the course.

CSC 108A Microcomputer Operating Systems: Introduction /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

This introductory course on microcomputer operating systems will teach operating system fundamentals, functions, structures, storage, and text editing. MS-DOS is the operating system of choice in the course.

CSC 108B Microcomputer Operating Systems: Intermediate /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: CSC 108A.

This intermediate course on microcomputer operating systems will teach more advanced concepts such as the use of subdirectories, multi-tasking, redirection, piping, debugging, and backing up files. MS-DOS is the operating system of choice in the course.

CSC 108C Microcomputer Operating Systems: Advanced /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: CSC 108B.

This course will cover advanced topics on microcomputer operating systems. MS-DOS is the main operating system in the course, but another microcomputer operating system will be taught for comparison.

CSC 125 Data Entry Principles, Controls & Operations I /3 cr. hrs./ 4 periods (3 lec., 1 lab.)

□Prerequisite: None.

Entering and verifying simulated production data from several types of source documents utilizing magnetic, terminal and on-line simulation devices. Emphasis on low error rate production.

CSC 125A Data Entry Principles, Controls and Operations I: Key-to-Disk /1 cr. hr./1.4 periods (1 lec., .4 lab)

□Prerequisite: None.

Introduction to the magnetic method of computer input. Emphasis on operational skills and procedures.

CSC 125B Data Entry Principles, Controls and Operations I: On-Line Simulation /1 cr. hr./1.4 periods (1 lec., .4 lab.)

□Prerequisite: None.

Introduction to the on-line method of computer input. Emphasis on operational skills and procedures.

CSC 125C Data Entry Principles, Controls and Operations I: Micro-computer /1 cr. hr./1.4 periods (1 lec., .4 lab.)

□Prerequisite: None.

Introduction to data entry using a microcomputer. Emphasis on low error rate production.

CSC 126 Data Entry Principles, Controls and Operations II /3 cr. hrs./ 4 periods (3 lec., 1 lab.)

□Prerequisite: CSC 125.

Advanced training at the job entry level in the operation of data entry devices. Includes permanent programs, labeling, error conditions and correction, verification, keying data, temporary program correction, program chaining, copying, field totaling, record inserting, production statistics, speed building and multiformatting.

CSC 126A Data Entry Principles, Controls and Operations II: Key-to-Disk /1 cr. hr./1.4 periods (1 lec., .4 lab.)

□Prerequisite: CSC 125.

Development of skill and efficiency in the operation of magnetic input methods. Includes operational procedures, making a program diskette with permanent programs and the use of the operator's manual. Emphasis on building experience through assignments that resemble actual working conditions.

CSC 126B Data Entry Principles, Controls and Operations II: On-Line Simulation /1 cr. hr./1.4 periods (1 lec., .4 lab)

□Prerequisite: CSC 125.

Development of advanced on-line procedures using various formatted screens and source documents. Includes documentation on payroll, general ledger, basic programming and point of sale. Emphasis on increasing production rate.

CSC 126C Data Entry Principles, Controls and Operations II: Micro-computer /1 cr. hr./1.4 periods (1 lec., .4 lab)

□Prerequisite: CSC 125.

Operational skills and procedures to increase understanding and efficiency in the data entry operator's use of microcomputers. Includes speed building exercises to increase production rate.

CSC 127 Data Entry Principles, Controls and Operations III /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: CSC 126.

Procedures for microcomputer, terminal and on-line types of data entry equipment. Includes setup, keying, verifying, record keeping, printing and recycling on terminal devices. Also includes keying, saving, printing and file selection using appropriate data entry database software.

CSC 127A Data Entry Principles, Controls and Operations III: Key-to-Disk /1 cr. hr./1.4 periods (1 lec., .4 lab)

□Prerequisite: CSC 126.

Development of operational skills and procedures for field totaling and multiple program usage. Includes an emphasis on increasing speed and accuracy in keying and verifying.

CSC 127B Data Entry Principles, Controls and Operations III: On-Line Simulation /1 cr. hr./1.4 periods (1 lec., .4 lab)

□Prerequisite: CSC 126.

Procedures for keying, saving and printing data captured from source documents using appropriate data entry software on a micro-computer. Timed drills are used to build speed and accuracy.

CSC 127C Data Entry Principles, Controls and Operations III: Micro-computer /1 cr. hr./1.4 periods (1 lec., .4 lab)

□Prerequisite: CSC 126.

Procedures for microcomputers. Includes creating files, learning and applying record keeping techniques, copying disks, verifying data keyed by use of a comparison disk, reading and following directions for help, index and parameter files, and displaying operator statistics.

CSC 128 Data Entry Skills Update /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: CSC 127.

Data entry techniques and procedures, using current equipment and software, designed to upgrade skills of data entry operators. Includes creating files, making permanent programs on a program disk, inputting data, search-and-find exercises, speed building, inserting, deleting, comparing, verifying, printing and recording statistics.

CSC 130 Programming Fundamentals /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: CSC 100 or satisfactory score on CSC 100 test.

Structured programming principles and techniques. Includes problem analysis, the algorithm, structured program design, the program development cycle, table processing and file handling. Although emphasis is on logic rather than on a language, PASCAL is taught to reinforce basic principles.

CSC 135 Introduction to Computer Operations /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: CSC 100.

Examination of basic computer hardware and software concepts. Includes operating systems, time sharing, file organization, utilities and multiprogramming. Instruction and lab experience make use of available text editors.

CSC 136 Microcomputer Components /2 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Primary components of common microcomputer systems, monitors, hard and floppy drives, printers and accessory boards and cables. How to upgrade a basic system, the use of interfacing equipment, troubleshooting techniques and simple maintenance practices.

CSC 140 FORTRAN Programming /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisites: CSC 100, and MTH 070 or satisfactory score on math assessment test.

Principles and techniques of FORTRAN programming. Includes the writing of programs on-line via a text editor and the designing of logic algorithms and/or flow charts as preparation for writing FORTRAN code. Selection of programs includes engineering or business applications.

CSC 160 COBOL Programming /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisites: CSC 130 and 135.

Comprehensive study of and practice in writing programs using COBOL (standard business language). Includes proper documentation, programming standards and programming techniques for utilizing auxiliary storage devices.

CSC 170 RPG Programming /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: CSC 130.

Introduction to the solutions of business oriented problems through writing and executing Report Program Generator programs. RPG is the primary language of most small-scale computers.

CSC 175 Advanced BASIC Programming /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisites: CSC 130 and BASIC programming experience.

Advanced programming techniques in BASIC on microcomputers. Includes sequential file manipulation, string and array processing, sorting, master versus transaction files, updates and menus using business examples. Different versions of BASIC are explained.

CSC 195 Job Entry Procedures /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Principles and techniques for successful job hunting. Includes application letter and resume writing, interviewing and related topics.

CSC 196 Work Standards and Job Attitudes /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Development of proper work standards and job attitudes. Includes ethics, work relationships and human relations using role playing.

CSC 197 Edit Language for Programmers and Operators /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Use of a text editor to build and alter files for storage and retrieval. Includes learning the keyboard and functions of special keys.

CSC 198 Data Processing Projects I /1-3 cr. hrs./3-9 periods (3-9 lab)

□Prerequisite: None.

Practical work experience on assigned data processing projects in data entry, controls and operations. May be taken 3 times for a maximum of nine credit hours.

CSC 199 Co-op Related Class in CSC /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

CSC 199 Co-op Work in CSC /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

CSC 204 Comparative Spreadsheets /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: CSC 104C.

Advanced concepts in electronic spreadsheet software systems. Students will compare the utilization and operation of multiple advanced spreadsheet software packages.

CSC 206 Data Base Projects /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisites: CSC 106C and 130.

Advanced data base topics such as updates, modifications of the structure of data base files, report writer features, macros and associated procedural data base language. Multiple data base packages will be used in the course.

CSC 230 Programming in Pascal /4 cr. hrs./6 periods (4 lec., 2 lab)

□Prerequisite: CSC 130 or CSC 131.

Advanced topics in PASCAL programming including user-defined data types, subranges, arrays of records processing, packed arrays, sorting, file manipulation, pointers, sets, recursion, linked lists, stacks, queues, and binary trees.

CSC 235 Advanced Computer Operations /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: CSC 135.

Advanced operating system control commands involving utility control programs with emphasis on job and batch job stream organization. Includes overall system characteristics and detailed coding of selected functions. Operating systems and computers used vary because of diversity of campus facilities, but overall course emphasis remains constant.

CSC 238 Integrated Package Project /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: CSC 204 and 106.

Installation of horizontally integrated software to solve information processing problems. Integrated software functions in the micro-computer environment, such as electronic spreadsheets, data base, graphics, telecommunications and programming languages.

CSC 250 Introduction to Assembly Language /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisites: CSC 130 and one of the following: CSC 140, 160, 175 or 190.

Basic concepts of assembly language. Includes computer architecture, machine language programming, assembly programming, input/output and console operations. Simple microprocessors will be used as a teaching vehicle.

CSC 255 Microprocessor Applications /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: CSC 250.

Comparison of the architecture and features of available microprocessors. Includes application of microprocessors to monitor and control physical processes, displays, lights, switches, instruments, etc.

CSC 256 Microcomputer Software Applications /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisites: CSC 130 and ACC 102.

Study of microcomputer applications. Includes a word processor, a spread sheet, a micro level data base, a graphics system and a widely based microcomputer operating system. Also includes a short overview of available microcomputer accounting systems.

CSC 260 Advanced COBOL and File Management /4 cr. hrs./6 periods (4 lec., 2 lab)

□Prerequisites: CSC 160 and 135.

Development of advanced COBOL programming techniques and use of language features. Includes report writer, sorts, multidimensioned array manipulation, sub-programs, interactive programming and on-line debugging aids. Students create, retrieve and update files using sequential, index sequential and direct organization methods.

CSC 265 The C Programming Language /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisites: Two high level languages and an assembly language. Principles and techniques of C language syntax, using many standard software tools. In lab, students write C programs in portable code to facilitate systems programming concepts. Standard run time libraries are used.

CSC 270 IBM/370 Assembly Language (BAL) /4 cr. hrs./6 periods (4 lec., 2 lab)

□Prerequisite: CSC 250.

Assembly level language and its relationship to machine language. Includes debugging techniques, basic input/output control and linkage. Emphasis on standard and decimal instruction sets, subroutine control and linkage.

CSC 274 DEC Assembly Language (MACRO) /4 cr. hrs./6 periods (4 lec., 2 lab)

□Prerequisite: CSC 250.

Programming in the native instruction set of one of the large Digital Equipment Corporation computers, (either the DEC/10, DEC/20 or VAX/11). Includes bit and character manipulation, program modularity, file handling and linkage between machine language and high level languages.

CSC 275 Advanced Programming and File Management /4 cr. hrs./6 periods (4 lec., 2 lab)

□Prerequisites: CSC 175 and 280.

Advanced programming techniques with emphasis on Random Access/ISAM file structures, linked records, graphs and documentation. Students design, program, implement and document a small business system. BASIC is the usual language, but occasionally another language may be used.

CSC 276 Advanced Programming in VAX Macro /4 cr. hrs./6 periods (4 lec., 2 lab)

□Prerequisite: CSC 274.

Creation and use of program sections and shareable, executable images. Accessing VAX system services. Using the Record Manager System (RMS) to work with sequential, direct and indexed files. Creation of subprocesses. Interprocess communication.

CSC 277 Advanced Programming in C /4 cr. hrs./6 periods (4 lec., 2 lab)

□Prerequisite: CSC 265.

Use of structures, pointers, linked lists, files, "enum" variables and "typedef's." Analysis of machine-code produced by typical C programs. Students will write portions of an actual C compiler.

CSC 280 Systems Analysis /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: CSC 160.

Tools of systems analysis. Includes documentation methods (systems flow chart, decision table, etc.), user communication, record layout, code design, file design (batch and on-line data base concepts) and documentation design (source and printed output). Selected business system applications are used to apply the above tools.

CSC 281 Systems Design /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: CSC 280.

Application of the tools of systems analysis covered in CSC 280 to design a total system. The case study approach is used. The student will prepare a feasibility study to present alternatives or a systems proposal to recommend a course of action.

CSC 290 Systems Programming Theory /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: CSC 274.

Writing of compilers, operating systems and utility programs. Includes sorting and timing techniques.

CSC 291 Data Base Concepts /4 cr. hrs./6 periods (4 lec., 2 lab)

□Prerequisites: CSC 260 and 280.

Fundamentals of data structures and generalized data management systems. Includes hierarchical, network and relational systems. System 1032 will be used as the laboratory data base tool.

CSC 294 Current Topics in Computer Science /3-4 cr. hrs./4-6 periods (3-4 lec., 1-2 lab)

□Prerequisites: CSC 260, 270 and 274.

Selected topics which reflect the most current technological and systems software concepts in the field of computer science. May include such topics as teleprocessing, data base concepts, structured programming and minicomputers. May be taken four times for a maximum of twelve credit hours.

CSC 296 Operating Systems /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisites: CSC 270 and 274.

Design and functions of a computer's operating system. Includes system generation as affected by computer size, configuration, needed library routines and macros. Students work through the 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. Includes instruction and practice in preparing project proposals; project management; interfacing with potential users of a system; and design, programming, implementation and documentation of a project.

CSC 299 Co-op Related Class in CSC /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

CSC 299 Co-op Work in CSC /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

CONSTRUCTION**CON 061 Basic Math for the Construction Trade /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

An introduction to mathematics. Focuses on basic terms, concepts, and calculations used frequently in the construction industry.

CON 062 Drafting for Personal Use /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: None.

Beginning construction drafting for students who have little or no drafting or construction experience and who may have a project they wish to work on. Work will include floor plans, elevations and sections. Not intended for drafting majors.

CON 100 Principles of Construction /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Methods used to determine types of materials, equipment and labor required for construction projects to meet building codes. Includes blueprint reading, building codes, electrical and mechanical systems, inspection, testing and properties of concrete, timber, steel and soil.

CON 110 Construction: Civil Blueprint Reading I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Fundamentals of civil engineering blueprint reading. Includes road construction layout, grade staking, excavation and embankment layout, site development layout and construction, and utility construction layout.

CON 111 Construction: Commercial Blueprint Reading I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Residential and light commercial blueprint reading. Includes blueprint symbols and terminology; construction materials; applications and specifications for commercial buildings; light frame and brick veneer construction; and appropriate mathematics.

CON 112 Construction Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Introduction to drafting. Includes developing the following working drawings for a small single family residence: plot plan, floor plans, sections, details, and structural, mechanical, electrical and plumbing plans. Emphasis on line weights, lettering and composing working drawing sets.

CON 119 Building Materials /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: CON 100 and MTH 110.

Construction standards and specific types of building materials used in commercial, industrial and private construction projects. Includes industrial and local area standards and properties of materials (wood, concrete, masonry and other standard construction materials).

CON 130 Construction: Piping Systems /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Principles and techniques of piping system construction. Includes project planning, piping design, installation, safety parameters, inspection criteria and maintenance.

CON 140 Construction: Electricity /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: MTH 110.

Principles of electrical system construction. Includes basic theory of electricity, circuit components, distribution systems, electrical equipment, power consumption, costs and the National Electric Code.

CON 149 Independent Study in Drafting /1-3 cr. hrs./3-9 periods (3-9 lab)

Same as DFT 149.

CON 150 Construction: Concrete/Masonry /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: CON 119.

Principles and techniques of masonry construction. Includes preparation, composition, protection, placement and curing of concrete, mortar and plaster. Also includes construction using brick, concrete block and stone.

CON 151 Construction: Safety, Terminology and Ethics of Work /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Basic concepts in construction, safety, terminology and ethics of work. Includes proper use of safety equipment and on-site safety procedures. Emphasizes ethics of work such as punctuality, regular attendance and work readiness. Substance abuse is also discussed.

CON 152 Construction: Laborer Skills and Material for Pipelaying Operations /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: CON 151.

Covers laborer skills, safety practices, material selection, pipe selection and soil preparation for pipelaying. Includes pipe crew and laydown crew skills, compaction testing, moisture content analysis, soil characteristics, the operation of compaction equipment and proper operation and maintenance of small power tools.

CON 153 Grade Checking for Trenching and Earthmoving /3 cr. hrs./ 4 periods (2 lec., 2 lab)

□Prerequisites: CON 151 and concurrent enrollment in CON 110.
Grade checking for water, electric and sewer underground utilities and earth moving for roads, subdivisions and drainageways. Includes reading plans and stakes, staking a project, earthmoving guidelines, stake chasing and checking curb grades and appropriate safety practices.

CON 160 Construction: Carpentry I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Residential and commercial carpentry. Includes safety, construction materials, blueprint reading, site layout and preparation, excavation, forming, framing and use of commercial concrete.

CON 162 Construction Drafting II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: CON 112 and MTH 090 or 110.

Practical application of construction drafting principles. The student will develop a complete set of working drawings for a wood frame and masonry building, using a systems-drafting format.

CON 170 Construction: Carpentry II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: CON 160.

Continuation of CON 160. Exterior and interior finishing for wood and concrete construction. Includes installation of outside wall coverings, cornices, door installations, and concrete forms for architectural and structural concrete.

CON 199 Co-op Related Class in CON /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

CON 199 Co-op Work in CON /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education for description.

CON 200 Soil Mechanics /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: CON 119 and MTH 120.

Techniques of soil mechanics. Emphasis on sound solutions to construction problems in the area of foundation work and earth structures. Includes basic soil relationships, permeability, consolidation, shear strength, cuts and slopes, lateral pressures, soil exploration and sampling, compaction and stabilization.

CON 205 Construction: Civil Blueprint Reading II /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: CON 110.

Continuation of CON 110. Includes advanced road construction and utility plans, advanced site development layout, box culvert construction, drainage way installation, bridges, aqueduct structures and appropriate mathematics to handle these topics.

CON 206 Construction: Commercial Blueprint Reading II /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: CON 111.

Continuation of CON 111. Blueprint reading and specifications for general and heavy commercial construction. Includes heavy timber, structural steel and reinforced concrete construction for townhouses and large commercial buildings.

CON 210 Building and Material Cost Estimating /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: CON 119.

Principles of building and material cost estimating. Includes specifications; site work; concrete, steel, masonry, electrical, piping, carpentry and alteration take-offs; job overhead; subcontractor's bids; and pricing.

CON 212 Construction Drafting III /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: CON 162.

Advanced construction drafting principles and applications. Using various media and specialized techniques, the student will develop drawings based on the following types of drafting problems: structural, architectural, mechanical, plumbing and electrical.

CON 212A Construction Drafting: Structural /1 cr. hr./1.5 periods (.75 lec., .75 lab)

□Prerequisite: CON 162.

Advanced structural drafting principles and applications using various media and specialized techniques.

CON 212B Construction Drafting: Architectural /1 cr. hr./1.5 periods (.75 lec., .75 lab)

□Prerequisite: CON 212A.

Advanced architectural drafting principles and applications using various media and specialized techniques.

CON 212C Construction Drafting: Mechanical /1 cr. hr./1.5 periods (.75 lec., .75 lab)

□Prerequisite: CON 212B.

Advanced mechanical (HVAC and Plumbing) drafting principles and applications using various media and specialized techniques.

CON 212D Construction Drafting: Electrical /1 cr. hr./1.5 periods (.75 lec., .75 lab)

□Prerequisite: CON 212C.

Advanced electrical drafting principles and applications using various media and specialized techniques.

CON 215 Introduction to Microcomputers for the Construction Industry /3 cr. hrs./5 periods (1 lec., 4 lab)

□Prerequisites: CON 100, 119 and 162.

Introduction to microcomputers in structural, mechanical, plumbing and electrical design. Includes solar calculations, specifications writing, cost estimating and an introduction to computer aided graphics.

CON 220 Construction: Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Construction management procedures, including analysis of the general provisions of contracts and review of material submittals.

CON 222 Site Development Drafting /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: CON 162 and MTH 120 or MTH 155.

Introduction to drafting principles involved in the development of construction sites. Topography, grading and drainage, boundary descriptions and site planning.

CON 262 Construction Drafting IV /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: CON 212 and 222.

Further advanced construction drafting principles and applications.

CON 299 Co-op Related Class in CON /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

CON 299 Co-op Work in CON /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education for description.

COOPERATIVE EDUCATION

199 Co-op Related Class /1 cr. hr./1 period (1 lec.)

□Prerequisite: Concurrent enrollment in 199 Co-op Work.

Introduction to Cooperative Education for first-year students (instruction which provides for success in securing and retaining a training job related to subject area). Social and psychological reasons for working, methods of securing employment, preparation of career and job-related objectives and evaluation of student work experience. May be taken two times for a maximum of two credit hours.

199 Co-op Work /1-8 cr. hrs./5-40 periods (5-40 lab)

□Prerequisite: Concurrent enrollment in 199 Co-op Related Class.

A supervised cooperative work program for students in a related occupation area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement. May be taken two times for a maximum of 16 credit hours.

299 Co-op Related Class /1 cr. hr./1 period (1 lec.)

□Prerequisite: Concurrent enrollment in 299 Co-op Work.

Principles of job success. Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, and evaluation of student work experience. Emphasis on attitude adjustment. May be taken two times for a maximum of two credit hours.

299 Co-op Work /1-8 cr. hrs./5-40 periods (5-40 lab)

□Prerequisite: Concurrent enrollment in 299 Co-op Related Class.

A supervised cooperative work program for students in an occupation related area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement. May be taken two times for a maximum of 16 credit hours.

CED 199 Co-op Related Class in Liberal Arts /1 cr. hr./1 period (1 lec.)

See description above.

CED 199 Co-op Work in Liberal Arts /1-8 cr. hrs./5-40 periods (5-40 lab)

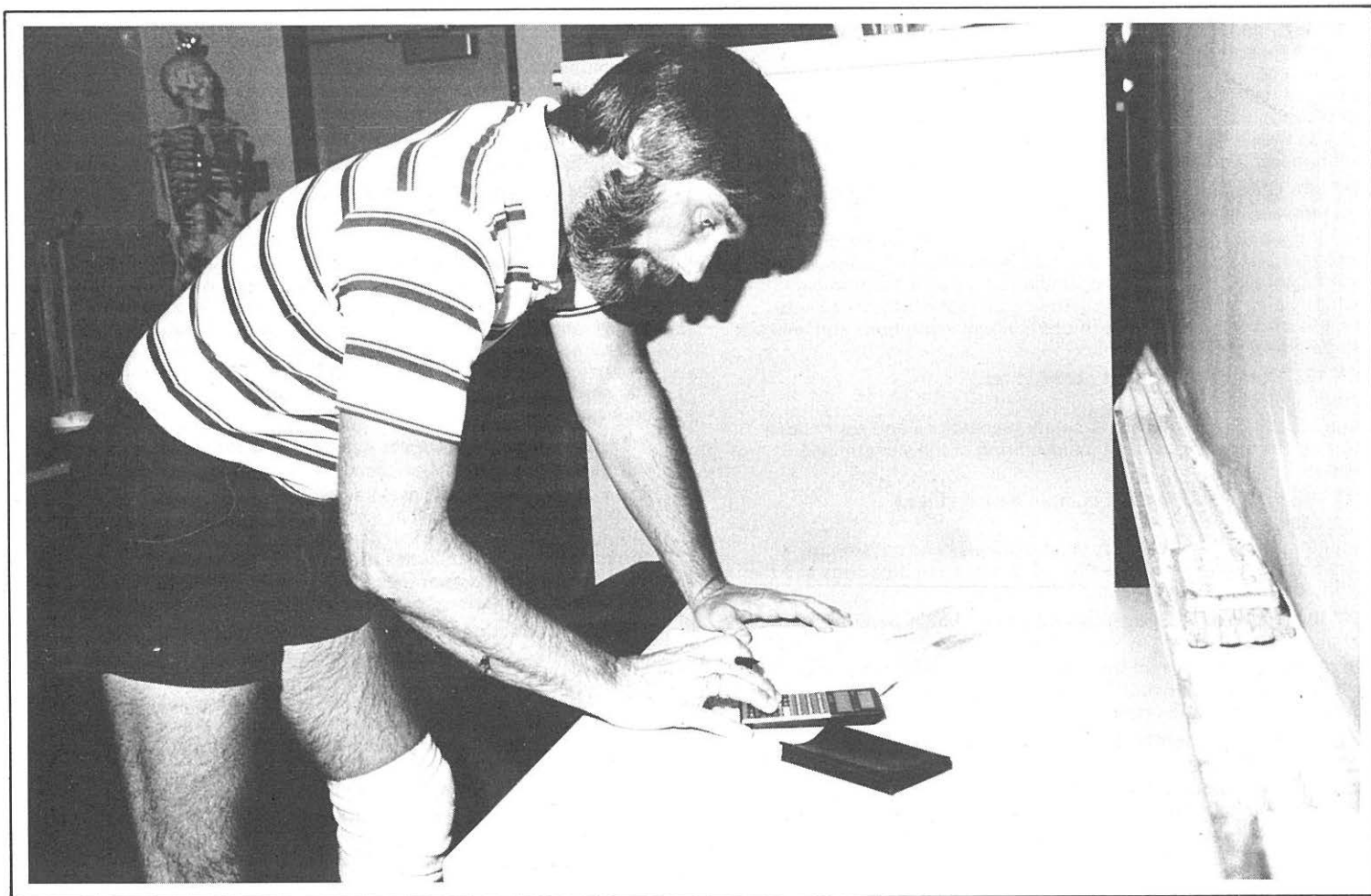
See description above.

CED 299 Co-op Related Class in Liberal Arts /1 cr. hr./1 period (1 lec.)

See description above.

CED 299 Co-op Work in Liberal Arts /1-8 cr. hrs./5-40 periods (5-40 lab)

See description above.



CORRECTIONAL OFFICERS TRAINING**COT 100 Corrections as a System /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Philosophy and history of correctional services and a survey of the correctional sub-systems of institutions, by type and function, probation concepts, and parole operations. Includes correctional employee responsibilities as applied to offender, behavior modification via supervisory control techniques and rehabilitation goals as they affect individual and inmate cultural groups in both confined and field settings.

COT 101 Correctional Institutions /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of correctional institutions with an emphasis on personnel and security measures, care and treatment programs and institutional planning. Includes familiarization with the criminal justice system and matters of custody and treatment. Inmate sub-cultures, and organized crime in correctional institutions and jails will also be discussed.

COT 102 Firearms /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Moral aspects, legal provisions, safety precautions and restrictions covering the use of firearms. Includes firing of the sidearm and shotgun.

COT 103 Prisoners' Rights /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Overview of prisoners' procedural due process and substantive constitutional rights. Includes the rights of pretrial detainees and the liability of police and correctional officers.

COT 104 Methods of Crisis Intervention /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Use of appropriate conflict resolution techniques by police and correctional officers. Includes use of assertive communication, force, safety procedures, and referrals.

COT 106 Firearms Certification /1 cr. hr./3 periods (3 lab)

□Prerequisite: None.

Training and practical application in the use of firearms. Includes qualification in the use of .38 caliber revolver, .22 caliber rifle, and the 12-gauge shotgun.

COT 107 Communication in Criminal Justice /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Barriers to effective communication in the field of criminal justice. Development of effective intradepartmental and interdepartmental communication as well as communication with the community and within the courtroom.

CORRECTIONS OFFICER ACADEMY**COA 124 Corrections Officer Academy I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Part A of the basic entry level training program for corrections officers. Designed to meet or exceed standards established by COTA (Arizona Correctional Officer Training Academy) for entry level correctional officers. Includes introduction to corrections law, legal issues, ethics, professionalism, and interpersonal communication skills. For admission to program, students must comply with Arizona Department of Corrections or Pima County Corrections employment standards for correctional officers and be sponsored by a state or county correctional agency.

COA 125 Corrections Officer Academy II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: COA 124 or concurrent enrollment.

Part B of the basic entry level training program for corrections officers. Designed to meet or exceed standards established by COTA (Arizona Correctional Officer Training Academy) for entry level corrections officers. Includes basic operational procedures, inmate management, stress awareness, officer survival, conflict resolution, and general correctional officer proficiency skills.

COA 126 Corrections Officer Academy III /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: COA 125 or concurrent enrollment.

Part C of the basic entry level training program for corrections officers. Designed to meet or exceed standards established by COTA (Arizona Correctional Officer Training Academy) for entry level correctional officers. Includes correctional supervision issues, search and seizure, and general correctional officer proficiency skills. Includes 3 units on-site orientation and training.

COA 140 Cardiopulmonary Resuscitation (CPR) /1 cr. hr./1 period/ (1 lec.)

□Prerequisite: None.

A cardiopulmonary resuscitation (CPR) modular system which provides emergency first aid for respiratory failure and cardiac arrest in victims of all ages. Includes mouth-to-mouth breathing, CPR and clearing an obstructed airway. (Same as HED 140B.)

COSMETOLOGY**COS 150 Cosmetology Update: Hair Coloring /2 cr. hrs./3 periods (1 lec., 2 lab)**

□Prerequisite: Students must be licensed cosmetologists or barbers. Seminar for professional cosmetologists to review hair and product chemistry, hair analysis, product selection and application of chemicals. Includes styling and application of color on model.

COS 151 Cosmetology Update: Permanent Waving /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: Students must be licensed cosmetologists or barbers. Techniques of using permanent waving with related tools to achieve current styles in hair design, texture and form. Includes hair and product chemistry.

COS 152 Cosmetology Update: Ethnic Hair /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: Students must be licensed cosmetologists or barbers. Cutting and styling of ethnic hair. Includes hair chemistry and chemicals used to treat hair.

COS 153 Cosmetology Update: Platform Artistry /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Students must be licensed cosmetologists. Basic teaching techniques and development of instructional materials. Includes platform performance techniques to make the best use of model and products.

COS 154 Cosmetology Update: Salon Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None. Advertising, product selection and training of operators. Includes compensation plans, employee benefits, supervisory techniques, bookkeeping systems and taxation.

COS 155 Cosmetology Update: Men's Haircutting /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: Students must be licensed cosmetologists or barbers. Latest techniques in men's haircutting. Includes understanding the competition head, preparing for the perfect cut, precision cutting with shears and the razor, cutting the neckline and clipper cuts made simple.

COS 156 Cosmetology Update: Designer Cuts and Styling /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: Students must be licensed cosmetologists or barbers. Latest techniques in women's haircutting. Includes understanding the competition head, preparing for the perfect cut, precision cutting with shears and the razor, cutting the neckline and clipper cuts made simple. Also includes thermal waving, curling and blow-dry styling.

COS 157 Cosmetology Update: Nails /1 cr. hr./1 period (1 lec.)

□Prerequisite: Students must be licensed cosmetologists or barbers. Advanced techniques of nail care and manicuring. Includes nail shapes, structure and growth, safety rules in manicuring, sculptured and artificial nails, nail problems and disorders.

CREDIT MANAGEMENT**CRM 177 Fundamentals of Credit Management /2 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

Historical roots and role of commercial credit, the credit function in financial management, determination of credit policies and procedures, and administration of credit departments. Introduction to sources of information for financial analysis.

CRM 207 Applied Credit Management /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: CRM 177.

Application of credit management procedures to the diagnosis and solution of credit problems; financial statement analysis, evaluation, ratios, and credit management specialties.

CRM 208 Advanced Credit Management /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: CRM 207.

Survey of laws and regulations in commercial credit including contract and corporate law, negotiable instruments, and bankruptcy. Includes credit correspondence.

CRM 217 Credit Administration I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: CRM 208.

Management theory and practices for credit managers. Staff selection, training and review, negotiation strategies, and collection techniques.

CRM 218 Credit Administration II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: CRM 217.

Application of credit management principles, financial analysis, theory and use of liquidity, solvency, efficiency and profitability ratios, and credit law.

DENTAL ASSISTING

DAE 059 Preparation for Oral Radiography Certification /2 cr. hr./ 2 periods (2 lec.)

□Prerequisite: None.

Principles and practices of oral radiography. Designed to prepare the student for the written radiography certification examination for dental assistant.

DAE 060 Orientation to Dental Care /1 cr. hr./1 period (1 lec.)

□Prerequisite: Consent of program coordinator.

Introduction to the field of dental care. Includes the dental health team, ethics, jurisprudence and professional organizations.

DAE 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. Includes anatomy, physiology, histology, microbiology and nutrition as it affects total dental health.

DAE 062 Dental Assisting I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: Consent of program coordinator.

Basic principles and techniques of dental assisting. Includes morphology of human dentition and dental instruments and their use in various operative procedures.

DAE 063 Oral Radiography /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: Consent of program coordinator.

Use of dental roentgenography as a diagnostic aid. Includes safety factors when exposing radiographs; training in exposing, processing, mounting, labeling and filing radiographs; and training in recognizing radiographs that are acceptable for diagnosis.

DAE 064 Dental Materials /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: Consent of program coordinator.

Chemical and physical properties of dental materials and their uses in specific operative procedures. Includes units of measure, various measuring devices and maintenance of all related equipment.

DAE 065 Pre-Clinical Procedures /2 cr. hrs./5 periods (1 lec., 4 lab)

□Prerequisite: Consent of program coordinator.

Basic procedures of chair side assisting in general and specialty dental practices.

DAE 066 Dental Assisting II /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: DAE 060 through 065.

Principles and techniques of pharmacology, therapeutics and emergency medical-dental care as applied to dental assisting.

DAE 067 Dental Assisting III /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: DAE 061 through 065.

Principles and techniques of dental practice management and oral health education as applied to dental assisting.

DAE 068 Clinical Procedures /8 cr. hrs./24 periods (24 lab)

□Prerequisites: DAE 061 through 065.

Application of acquired skills in clinical environment 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 program director.

Development and structure of teeth and construction of dentures. Includes configuration of hard and soft areas of the jaws, as related to denture construction. Emphasis on principles in tooth design and balanced occlusion with regard to normal and abnormal ridge relationship. Plaster sculpture is used in the production of a full complement of anatomical teeth.

DLT 102 Nonmetallic Dental Materials /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Consent of program director.

Principles of chemistry and physics as related to dental materials. Products reviewed include gypsum materials, plastic and elastic duplicating materials, denture base materials, acrylic resin teeth, dental waxes, separating media and dental porcelain.

DLT 103 Complete Dentures /4 cr. hrs./10 periods (1 lec., 9 lab)

□Prerequisite: Consent of program director.

Complete examination of the relationship between upper and lower dentures as interpreted on a functional articulator. Includes casting of models, trays, bite blocks, setting up dentures in balanced occlusion, investing, packing, curing and finishing of dentures.

DLT 104 Dental Laboratory I /4 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisites: DLT 101, 102 and 103.

Chemistry and metallurgy of dental alloys, the compositions of plating solutions and principles of electroplating. Includes use of cast gold alloys, abnormal castings, base metal casting alloys, metallographic techniques, and wrought metal bars and clasps. A full complement of teeth is sculptured from wax ivory blocks and set up to occlusion. Upper and lower partial frame structures are constructed in cast chromium-cobalt alloy.

DLT 105 Partial Denture Construction /4 cr. hrs./10 periods (1 lec., 9 lab)

□Prerequisites: DLT 101, 102 and 103.

Construction of partial dentures and appliances. Includes wrought metal lingual bars and clasps; investing and soldering techniques of bilateral appliances; processing partial dentures in acrylic in three techniques; fabrication of dies of inlays and abutments; and repair and relining of dentures.

DLT 106 Orthodontics and Maxillofacial Construction /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: DLT 101 through 105.

Construction and theory of simple orthodontic and maxillofacial appliances. Includes construction utilizing wrought wire and/or cast metal frames as retentive devices and the processing of acrylic to form final appliances.

DLT 201 Dental Laboratory II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: DLT 101 through 106.

Principles of fixed bridgework, abutments, inlays and crowns. Includes theory of spanning spaces with various types of artificial teeth in complete fixed and cantilever bridgework; importance of stress, function and aesthetics in the design of fixed bridgework; handling of wax patterns, investments, casting techniques and making dies from impressions; and techniques in waxing, investing, casting inlays, three-quarter crown, full crown and veneers. Tooth carving techniques taught in previous semester are used.

DLT 202 Dental Metallurgy I /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: DLT 101 through 106.

Examination of metals currently used by the dental technician. Includes physical properties of metals, crystal structure, manufacturing processes, theory of alloys, soldering, casting investments and heat treatment of gold alloys.

DLT 203 Fixed Bridgework /4 cr. hrs./10 periods (1 lec., 9 lab)

□Prerequisites: DLT 101 through 106.

Construction of fixed bridgework. Includes waxing, investing and finishing simple and complex inlays, full crowns, veneers and three-quarter crowns; and construction of bridges of various designs utilizing metal, porcelain and plastic, separately or in conjunction with one another.

DLT 204 Dental Laboratory III /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: DLT 201, 202 and 203.

Principles of surveying, design of cast partials, and technical applications of metallurgy and engineering principles. Includes composition and physical properties of gold and chromium-cobalt alloys and their working qualities. All types of known designs and principles of retention are used in the construction of removable bridgework.

DLT 206 Dental Ceramics /4 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisites: DLT 201, 202 and 203.

Skill development in porcelain and porcelain-on-metal techniques. Includes composition and physical properties, as well as the fundamentals of manipulating porcelain and metal. Emphasis on low- and high-fusing porcelains, their vitrification, control of form, control of color, design of metal structure, and application of stain and glaze.

DLT 207 Advanced Dental Laboratory Technology—Complete Dentures /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisites: DLT 201, 202 and 203.

Five-week module on advanced denture construction, including balanced occlusion, problem ridges, overdentures and soft denture bases. Students must enroll in three of the six DLT 207 modules.

DLT 207 Advanced Dental Laboratory Technology—Partial Denture /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisites: DLT 201, 202 and 203.

Five-week module on advanced partial denture construction, including RPI clasp design, intra-coronal and extra-coronal attachments and their applied uses. Students must enroll in three of the six DLT 207 modules.

DLT 207 Advanced Dental Laboratory Technology—Crown and Bridge /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisites: DLT 201, 202 and 203.

Five-week module on advanced crown and bridge construction, including use of semi- or fully adjustable articulators and use of all veneering materials. Students must enroll in three of the six DLT 207 modules.

DLT 207 Advanced Dental Laboratory Technology—Ceramics Work /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisites: DLT 201, 202 and 203.

Five-week module on advanced dental ceramics, including the principle of anthology and the incorporation of both precious and nonprecious precision attachments. Students must enroll in three of the six DLT 207 modules.

DLT 207 Advanced Dental Laboratory Technology—Ortho Appliances /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: DLT 201, 202 and 203.

Five-week module on advanced orthodontics, including the technology of major tooth movements and split arch appliances. Students must enroll in three of the six DLT 207 modules.

DLT 207 Advanced Dental Laboratory Technology—Maxillofacial Appliances /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: DLT 201, 202 and 203.

Five-week module on advanced maxillofacial construction. Includes construction of intraoral appliances and artificial eyes, ears, noses and other visible soft tissue prosthetics. Students must enroll in three of the six DLT 207 modules.

DESIGN

DES 080 Applied Design /3 cr. hrs./11 periods (1 lec., 10 lab)

□Prerequisite: None.

Firsthand experience in interior or functional design. Student must work with a professional a minimum of eight hours per week. May be taken two times for a maximum of six credits.

DES 111 Industrial Graphics /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: None.

Representation of products and equipment, or exteriors and interiors, in perspective through shaded and line drawings in several media.

DES 140 Design Concepts Review /1-3 cr. hrs./1-3 periods (1-3 lec.)

□Prerequisite: Consent of instructor.

Directed to NCIDQ design test topics. Includes design concepts, program requirements, building and barrier free codes, space planning, plumbing, furniture scale and arrangement, appropriateness of design, furniture selection, finish materials, lighting, electrical, HVAC, cabinet section and perspective/axometric sketch.

DES 150 Functional Design /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: None.

Design of objects and systems. The development of design solutions for particular design problems. Students select their own areas of design interest.

DES 151 Lightweight Structure Design /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: None.

Design concepts and application of various types of practical and inexpensive methods of shelter, including domes, pre-stressed membranes, inflatables and other innovative methods.

DES 155 Home Furnishings /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of various types of home 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.)

□Prerequisite: None.

Basic principles of functional interior design and their application. Intended for career-oriented interior design students and those who wish to decorate their own surroundings. Includes composition, traffic flow, proportion, color usage and different styles.

DES 210 Marketing For Designers /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Techniques for selling to clients and employers. Includes solving major design problems associated with a comprehensive marketing plan. Product development design, package design, merchandise display design and retail environment.

DES 211 Commercial Graphics /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: None.

Training in principles and techniques of commercial graphics. Includes composition, layout, typography, color selection and design of logos, catalogs and brochures. Emphasis on preparation for the advertising and graphics industries. (Same as ART 211.)

DES 222 Advanced Commercial Graphics /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: DES 211.

Continuation of DES 211. Advanced graphic design and production skills, including preparation of mechanical art work for printing. Emphasis on portfolio preparation.

DES 250 Industrial Function Design /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: None.

Principles and techniques of industrial functional design. Emphasis on solutions to problems in fabrication and reproductivity of various products.

DES 255 Spatial Design /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Creative and technical use of design principles applied to specific problems in designing living areas. For the serious design student.

DES 256 Interior Environmental Design /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Theory and practice of interior design. For the student seeking career preparation in interior design. Includes customer-client relationships, financial problems, custom and built-in furnishings and home entertainment equipment.

DRAFTING**DFT 101 Blueprint Reading/Sketching /4 cr. hrs./5 periods (3 lec., 2 lab)**

□Prerequisite: None.

Reading blueprints and freehand technical sketching in orthographics, lettering, sections and auxiliaries, dimensioning, manufacturing operations and tolerance of position and form.

DFT 101A Blueprint Reading /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Blueprint reading involving many areas of trade and industry. Includes orthographics, lettering, sections and auxiliaries, dimensioning, manufacturing operations, and tolerance of position and form.

DFT 101B Sketching /1 cr. hr./2 periods (2 lab)

□Prerequisite: None.

Freehand sketching involving many areas of trade and industry. Includes orthographics, lettering, sections and auxiliaries, dimensioning, manufacturing operations, and tolerance of position and form.

DFT 102 Techniques of Dimensional Tolerancing /1 cr. hr./1 period (1 lec.)

□Prerequisite: DFT 101 or the ability to interpret blueprints at the machinist level.

Principles of limits and fits as applied to working drawings. Includes basic dimensions, unilateral and bilateral tolerancing, and true positional tolerancing.

DFT 149 Independent Study in Drafting /1-3 cr. hrs./3-9 periods (3-9 lab)

□Prerequisite: Consent of instructor.

Independent work on a special project not included in regular courses. The student is required to obtain a sponsoring instructor in this area and establish objectives, a method of procedure and a method of evaluation.

DFT 150 Technical Drafting I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Introduction to technical drafting concepts and techniques. Students proceed through problems they will meet in their association with engineers and designers, becoming familiar with drafting tools, sketching, lettering, geometric construction, orthographic projection, dimensioning, isometrics, sections and auxiliary views.

DFT 150A Technical Drafting I—Basic Procedures /1 cr. hr./1.5 periods (.8 lec., .7 lab)

□Prerequisite: None.

Introduction to basic tools and procedures of drafting, including lettering, line work, scales, geometric construction and view visualization.

DFT 150B Technical Drafting I—Multi-Views and Basic Dimensioning /1 cr. hr./1.5 periods (.8 lec., .7 lab)

□Prerequisite: DFT 150A.

Introduction to orthographic projection, freehand sketching and size dimensioning.

DFT 150C Technical Drafting I—Problem Solving /1 cr. hr./1.5 periods (.8 lec., .7 lab)

□Prerequisite: DFT 150B.

Drawing problems, including machine operations, conventional practices and pictorial representations.

DFT 150D Technical Drafting I—Sections and Auxiliaries /1 cr. hr./1.5 periods (.8 lec., .7 lab)

□Prerequisite: DFT 150C.

Further uses of orthographic projection, involving auxiliary views, sectional drawings and location dimensioning.

DFT 151 Technical Drafting II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: DFT 150, and DFT 180 or concurrent enrollment in DFT 180.

Continuation of DFT 150. Includes review of basic technical drafting and problems in dimensioning, tolerancing, detail and assembly drawing boards and computer aided drafting equipment for drawing projects.

DFT 151A Technical Drafting II—Advanced Problem Solving / 1 cr. hr./1.5 periods (.8 lec., .7 lab)

□Prerequisite: DFT 150.

Continuation of DFT 150, furthering the student's skills. Includes threads, developments and tolerances.

DFT 151B Technical Drafting II—Production Drawings / 1 cr. hr./1.5 periods (.8 lec., .7 lab)

□Prerequisite: DFT 151A.

Completion of simple drawings upon vellum to ANSI specifications. Includes introduction to standard checking techniques and drawing changes.

DFT 151C Technical Drawing II—Advanced Production Drawings / 1 cr. hr./1.5 periods (.8 lec., .7 lab)

□Prerequisite: DFT 151B.

Completion of complex drawings to ANSI specifications. Includes auxiliary projections, sectional views and introduction to metric drawings in both hard and soft change.

DFT 151D Technical Drawing II—Assembly Drawings / 1 cr. hr./1.5 periods (.8 lec., .7 lab)

□Prerequisite: DFT 151C.

Completion of assemblies and subassemblies in both plan and pictorial representation. Includes use of the standard parts list and the change block.

DFT 154 Electronic Drafting / 4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: ETR 001 and DFT 150.

Basic concepts and techniques of drafting for the electronics industry. Primarily for the electronics technical drafting student. Emphasis on schematics, logic diagrams, printed circuits and integrated circuits.

DFT 155 Electro-Mechanical Design I / 4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: DFT 151 and DFT 154.

Practical packaging applications common to the electronics industry. Includes electronic, mechanical, environmental, functional and manufacturing aspects of electro-mechanical gear design. Students will utilize drawing boards and computer aided drafting equipment for drawing projects.

DFT 160 Geometric Dimensioning and Tolerancing / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: DFT 152.

Introduction to geometric dimensioning and tolerancing. Practice in the use of the current system of tolerancing (ANSI Y14.5M) used by the United States government and many commercial firms. Designed to increase the student's awareness of dimensioning and tolerancing techniques.

DFT 170 Microelectronic Drafting / 4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: DFT 155 or consent of instructor.

Introduction to the fundamentals of drafting oriented towards microelectronic design. Includes schematics, logic diagrams, and the design and drafting of thin and thick microcircuits. Students will utilize drawing boards and computer aided drafting equipment for drawing projects.

DFT 180 Computer Aided Drafting I / 4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: DFT 150 or consent of instructor.

Principles and techniques of the CAD system. Includes terminology, commands to draw lines, angles, arcs, circles, and ellipses, geometric construction, pictorials, multi-view projection, sectional views, and dimensioning. Generation of library symbols, formatting, and plotting.

DFT 199 Co-op Related Class in DFT / 1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

DFT 199 Co-op Work in DFT / 1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education for description.

DFT 240 Manufacturing Processes I / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Background information on various manufacturing materials and fundamental types of manufacturing methods. Includes introduction to automation to acquaint the student with modern practice of numerical control.

DFT 245 Manufacturing Processes II / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Background information on casting and foundry practices. Includes familiarization with the production of simple molds, their care and casting, and basic heat treatment inspection and testing using both destructive and nondestructive methods.

DFT 256 Mechanical Design I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: DFT 151.

Advanced technical drawing concepts, techniques, and problems in mechanical design, typical of industry, to develop skill, accuracy and speed. Students will utilize drawing boards and computer aided drafting equipment on drawing projects.

DFT 257 Mechanical Design II /4 cr. hrs./6 periods (4 lec., 2 lab)

□Prerequisite: DFT 256.

Continuation of DFT 256. Complex mechanical design problems. Introductions to and application of geometric dimensioning and tolerancing (ANSI Y14.5M) as used by the United States government and many industrial firms. Designed to increase the student's awareness of dimensioning and tolerancing techniques, and computer aided drafting equipment.

DFT 280 Computer Aided Drafting II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: DFT 180.

Continuation of DFT 180. Principles and techniques for operating more advanced CAD equipment. Includes terminology, commands and advanced problems in production drawings.

DFT 299 Co-op Related Class in DFT /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

DFT 299 Co-op Work in DFT /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education for description.

DRAMA**DRA 051 Theater Workshop /3 cr. hrs./5 periods (2 lec., 3 lab.)**

□Prerequisite: None.

Development and enhancement of a variety of theatrical skills for personal growth and enjoyment. Includes a range of activities which may vary according to the goals of the members of the class—from scene study, to staged plan readings, to full theatrical production. May be repeated twice for a maximum of 9 credits.

DRA 060 Theater Appreciation /3 cr. hrs./3 periods (1.5 lec., 1.5 lab)

□Prerequisite: None.

Examination and evaluation of various modes of theatrical presentations and techniques. Includes reading, attending and criticizing ten to twelve theatrical productions of various types, periods and styles as performed by producing groups with varying goals, training and purposes.

DRA 103 Voice and Movement for the Actor I /1 cr. hr./2 periods (2 lab)

□Prerequisite: None.

Principles and practice of beginning voice and movement skills for the actor. Includes phonetics, physical isolation, and awareness exercises. May be taken two times for a maximum of two credit hours.

DRA 104 Voice and Movement for the Actor II /1 cr. hr./2 periods (2 lab)

□Prerequisite: DRA 103.

Continuation of DRA 103. Includes development and practice of stage dialects and physicalization of character. May be taken two times for a maximum of two credit hours.

DRA 109 Special Topics in Theater /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Experience in and study of selected styles and forms in theater. One topic is covered each time course is offered. Examples: ethnic theater (Chicano-Latino theater or Black theater), children's theater, commedia del arte, mime theater and musical theater.

DRA 111 Stagecraft /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Principles of the operation and effects of various types of stages and stage scenery. Includes the construction of stage scenery and the history and construction of costumes and properties.

DRA 112 Stagecraft Laboratory /1 cr. hr./3 periods (3 lab)

□Prerequisite: Concurrent enrollment in DRA 111 and 113.

Practical application of techniques for constructing stage scenery and properties. Includes uses of various materials; construction of flats, steps and platforms; and rigging systems. May be taken three times for a maximum of three credit hours.

DRA 113 Stagecraft Crew /1 cr. hr./3 periods (3 lab)

□Prerequisite: Concurrent enrollment in DRA 111 and 112.

Preparing, organizing, setting up, running and shifting of theatrical sets, properties and costumes for approved theatrical productions. May be taken three times for a maximum of three credit hours.

DRA 115 Make-up /1 cr. hr./3 periods (1 lec., 2 lab)

□Prerequisite: None.

Principles and practice of straight and character make-up under various conditions. Includes special effects, masks, clown make-up and fantasy make-up.

DRA 118 Basic Theater Graphics /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Principles and practice of graphic skills necessary in the planning of theatrical productions. Includes drafting and mechanical drawing, perspective drawing and watercolor painting techniques.

DRA 140 History of Theater I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of theater, drama and audiences from ancient Greece to the late 18th century. Includes changes in theaters, stages and theatrical conventions; and representative plays from each period.

DRA 141 History of Theater II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of theater, drama and audiences from the 18th century to the present. Includes changes in theaters, stages and theatrical conventions; and representative plays from each period.

DRA 149 Introduction to Acting I /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: None.

Introduction to performance techniques and the development of physical skills for effective performance. Includes techniques of acting and characterization.

DRA 151 Introduction to Acting II /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisites: DRA 103 or concurrent enrollment, and DRA 149.

Further skill development in performance techniques. Includes methods of developing and projecting a character's physical scope, emotional inner life and the employment of sub-text (unspoken thoughts) in performances. Also includes techniques for character and script analysis.

DRA 201 Independent Studies in Drama /1-4 cr. hrs./3-12 periods (3-12 lab)

□Prerequisite: None.

Students work at various assigned tasks in theatrical productions under the guidance of an instructor. Alternatively, students may design their own projects with the instructor's approval.

DRA 220 Stage Lighting /2 cr. hrs./2 periods (2 lec.)

□Prerequisites: Concurrent enrollment in DRA 221 and 222.

Principles of stage lighting design and practice. Includes study of stage lighting, instruments and their capabilities, construction, and uses in various theatrical applications.

DRA 221 Stage Lighting Laboratory /1 cr. hr./3 periods (3 lab)

□Prerequisites: Concurrent enrollment in DRA 220 and 222.

Practical application of stage lighting techniques. Includes mounting, hanging, and focusing from design; adjustments and repair of instruments; organizing and operation of control systems; and safety practices. May be taken three times for a maximum of three credit hours.

DRA 222 Stage Lighting Crew /1 cr. hr./3 periods (3 lab)

□Prerequisites: Concurrent enrollment in DRA 220 and 221.

Organizing, setting up and operating of stage lighting for approved theatrical productions. May be taken three times for a maximum of three credit hours.

DRA 223 Scene Design /2 cr. hrs./2 periods (2 lec.)

□Prerequisites: DRA 118 and concurrent enrollment in DRA 224 and 225.

Principles of scene design for various types of stage and models of productions. Includes ground plans, color design, painting techniques, and uses of plastic materials and fabric design.

DRA 224 Scene Design Laboratory /1 cr. hr./3 periods (3 lab)

□Prerequisites: DRA 118 and concurrent enrollment in DRA 223 and 225.

Practical application of scene design techniques. Includes base and paint application in various styles, mixing and blending of painting materials, and forming and mounting set decorations. May be taken three times for a maximum of three credit hours.

DRA 225 Scene Design Crew /1 cr. hr./3 periods (3 lab)

□Prerequisites: DRA 118 and concurrent enrollment in DRA 223 and 225.

Planning, painting and decorating stage settings for approved theatrical productions. May be taken three times for a maximum of three credit hours.

DRA 245 Principles of Dramatic Structure /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Consent of instructor.

Examination of the structural elements of major dramatic forms and styles. Includes reading and viewing of representative plays and analysis of their structures in relationship to modes of presentation and the resulting effects.

DRA 250 Intermediate Acting I /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisites: DRA 103 and 112 or concurrent enrollment, and DRA 149.

Theory and practice of creating sustained and logical character portrayals using all types of dramatic literature from various cultures. Includes rehearsal and performances of scenes in representational and presentational styles and practice in auditioning techniques.

DRA 251 Intermediate Acting II /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisites: DRA 104 and 112 and either DRA 151 or 250 (DRA 104 and 112 may be taken concurrently with DRA 251).

Continuation of DRA 250. Includes scene and monologue development and focusing on conventions of non-realistic styles.

EARLY CHILDHOOD EDUCATION

ECE 106 The Growing Years /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of forces which shape the growing child. Includes the interplay of biological factors, human interaction and social structure from earliest womb environment into adolescence.

ECE 107 Human Development and Relations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Interdisciplinary and intercultural approach to human development and interpersonal relationships from birth to death.

ECE 108 Literature/Social Studies for Children /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of materials, principles and techniques for the selection and presentation of children's literature and social studies concepts.

ECE 110 Communication Skills for Children /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Language and communication in early childhood education. Includes developing materials, using existing programs and using computers in language development.

ECE 111 Techniques for the Special Child /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Techniques, procedures and trends in special education as they relate to the following areas of exceptionality: visually impaired, auditorially impaired, mentally impaired, physically impaired, emotionally disturbed, speech impaired and learning disabled.

ECE 112 Music/Art for Children /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Materials, activities and procedures for developing children's musical and artistic skills.

ECE 114 Effective Parenthood /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of parental factors contributing to optimal physical, intellectual, affective and moral development of children. Includes a variety of specific problem-solving techniques.

ECE 117 Child Growth and Development /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Growth, development and acculturation of the child from conception to adolescence.

ECE 118 Introduction to Education /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Educational theories and philosophies. Includes supervised fieldwork to provide exposure to varied educational settings.

ECE 120 Supervision and Administration /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of administrative responsibilities within all areas of early childhood education.

ECE 124 Math/Science for Children /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Concepts, methods and materials used in teaching mathematics and science to children. Includes developing materials and using existing programs and computers.

ECE 126 Teaching Techniques /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Theory and practice of classroom management techniques with supervised field experience.

ECE 128 Preschool Education /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Acquisition and development of competencies required by child care personnel in the education of preschool children.

ECE 130 Day Care Programs /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Acquisition and development of required competencies in day care programs. Includes classroom instruction and supervised experience in care of infants, toddlers and school-age children.

ECE 199 Co-op Related Class in ECE /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

ECE 199 Co-op Work in ECE /2 cr. hrs./10 periods (10 lab)

See Cooperative Education for description.

ECE 296 Independent Studies in Early Childhood Education / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Departmental approval.

Students independently continue their development in Early Childhood Education under the guidance of a faculty member. May be taken two times for a maximum of six credit hours.

ECE 299 Co-op Related Class in ECE /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

ECE 299 Co-op Work in ECE /2 cr. hrs./10 periods (10 lab)

See Cooperative Education for description.

EARTH SCIENCES

(See also GEOGRAPHY)

ESC 070 Earth, Sea, Sky /3 cr. hrs./3 periods/ (3 lec.)

□Prerequisite: None.

Overview of earth sciences, including segments taken from astronomy, meteorology, climatology, oceanography and geology. Does not include a lab.

ECONOMICS

ECO 100 Introduction to Microeconomics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 070.

Basic principles of economic theory. Includes analysis of consumer and producer choices; how prices and incomes are determined in the U.S. economy; and applications of economic principles to such issues as monopoly, pollution and different economic systems.

ECO 101 Introduction to Macroeconomics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 070.

Basic economic principles as they apply to the economy as a whole. Includes determinants of gross national product, level of employment and prices; the role of money and banking institutions; and applications of economic principles to such issues as inflation, recession, federal government tax and expenditure policies.

ECO 160 Personal and Family Finance /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles to assist individuals and families in making decisions regarding earning, spending and investing money. Includes choosing a career, making major purchases, sources of consumer information and putting one's dollars to work. (Same as HEC 160).

ECO 200 Principles of Economics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 070.

The microeconomic principles of consumer and producer choices and how markets work. The macroeconomic principles of how the U.S. economy works, the role of money, and the banking system. Not open to students who have taken or are taking ECO 100 and/or ECO 101.

ECO 210 Survey of Economic Theory /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 175.

Introduction to current economic theory. Designed for engineering majors. The microeconomics of consumer and producer choice and the macroeconomics of gross national product, employment and price level determination. Not open to students who have taken or are taking ECO 100 and/or ECO 101.

ECO 230 Money and Banking /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: ECO 101.

Basic principles of the U.S. financial system. Nature of money and credit, how money and credit influence the economy, the role of commercial banks and the Federal Reserve Bank, interest rate determination, and international monetary policies.

ECO 298 Topics in Contemporary Economics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: ECO 100 or 101.

Supervised independent study of economic topics determined by student interest.

EDUCATION

EDU 100 Principles of Bilingual Education /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of basic principles of bilingual education. Includes philosophy, history, rationale, legislation and models.

EDU 107 Arte para el niño /3 cr. hrs./3 periods (3 lec.)

□Requisito: Ninguno.

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.)

□Prerequisite: None.

Examination of social studies in various subject areas (e.g., politics and history) through literary genres. Emphasis on utilizing this approach in the elementary school as part of the curriculum.

EDU 115 Actividades creativas /3 cr. hrs./3 periods (3 lec.)

□Requisito: Ninguno.

Materias selectas y técnicas para la enseñanza de actividades para niños. Se emplearán música, juegos, rimas, poemas, y drama de las culturas anglo y mexicana para desarrollar y aumentar la creatividad de los niños.

EDU 201 Teaching Math & Science in the Native Language /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

This course is designed to facilitate and assist the teacher in developing ways to design procedures and methods for implementing the functions of instruction, curriculum development and evaluation in the areas of mathematics and science in a bilingual education classroom.

EDU 202 Teaching Language Arts and Social Studies in the Native Language /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

This course is designed to facilitate and assist the teacher in developing ways to design methods and procedures for implementing the functions of instruction, curriculum development, and evaluation in the areas of teaching language arts and social studies in the native language.

EDU 203 Instructional Strategies for Secondary Bilingual Education /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Development of classroom management skills and instructional techniques using two languages. Designed for the middle school, junior high school, and high school bilingual teacher. Special attention is given to assessment skills as tools for improving learning and instruction and to curriculum material development based on the language and culture of the student population.

EDU 205 Teaching Civics to Bilingual/Bicultural Populations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Training teachers in adult education civics. Includes principles and techniques of teaching civics bilingually/biculturally to learners from diverse educational backgrounds who are preparing for permanent residence and/or citizenship under the requirements of the Immigration Reform and Control Act of 1986 (IRCA).

ELECTRONICS**ETR 001 Introduction to Electronics /4 cr. hrs./6 periods (2 lec., 4 lab)**

□Prerequisite: MTH 070 or concurrent enrollment.

Introduction to the field of electronics through the use of basic electronic test equipment and the construction of a transistor radio. A pre-program course for students who have not had previous training in electronics or who require some knowledge of electronic principles to support their major program.

ETR 050 FCC Amateur License Preparation /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: None.

Preparation for the FCC Amateur Radio Examination at the Novice or General Class level. Includes 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 receivers and transmitters. Does not satisfy major requirements in the electronics program.

ETR 100 Fundamentals of Electronics /6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisites: MTH 115 or MTH 130 (MTH 115 or MTH 130 may be taken concurrently.)

Topics include fundamentals of direct and alternating current and passive circuit elements.

ETR 101 Basic DC Electronic Circuit Analysis /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisites: MTH 115 or MTH 130 or concurrent enrollment.

Fundamentals of direct current electronic circuit theory.

ETR 102 Basic AC Electronic Circuit Analysis /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: ETR 101.

Continuation of ETR 101. Fundamentals of alternating current electronic circuit theory.

ETR 104 Introduction to Microelectronics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to all areas of microelectronics technology. For students interested in working in the microelectronics industry. Includes employment opportunities, historical development, economic rationale and current state of the art. Also includes an overview of technical areas, including thick and thin film materials and processes, monolithic integrated circuits, hybrid assembly and packaging, art work and design, quality control and reliability. (Same as MRE 104.)

ETR 105 Electronic Circuits /6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisites: ETR 100 or ETR 102 and MTH 125 or MTH 150 or concurrent enrollment.

Introduction to the electronic behavior of active devices. Includes transistor circuit analysis, power supplies, regulators, amplifiers (class A, B, AB, and C), 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)

□Prerequisite: MTH 115 or MTH 130.

The fundamentals of digital electronics, binary, octal, hexadecimal arithmetic, digital logic, discrete and integrated circuits, programming of a computer in the BASIC language. May be taken concurrently with ETR 105.

ETR 121 Electronic Solder Assembly /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: None.

Basic skills required to perform hand soldering on electronic equipment. Includes component preparation and insertion, terminal installation and soldering, wire interconnections and construction of a printed circuit board assembly. Also includes inspection methods and techniques. (Same as MRE 121.)

ETR 122 Electronics Construction & Assembly /3 cr. hrs./4.5 periods (1.5 lec., 3 lab)

□Prerequisites: ETR 100 and MTH 115.

Basic skills required to work on electronic equipment. Includes assembly techniques, soldering and desoldering, printed circuit board fabrication, wire wrapping, and cable construction. Also includes discussion of machine shop and power tools.

ETR 123 Electronic Fabrication and Processing /2 cr. hrs./ 3 periods (1 lec., 2 lab)

□Prerequisite: None.

Basic skills required for manufacturing printed circuit boards and related electronic hardware. Includes printed circuit board art work, patterning, lay-up, etching, plating, drilling, routing, and inspection methods and techniques. (Same as MRE 123.)

ETR 124 Electronic Measurements /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: ETR 105 or concurrent enrollment.

Techniques to perform AC and DC measurements on passive and active component circuits. Requires the use of a variety of measuring devices such as recorders, transducers, audio and radio frequency generators, frequency counters, spectrum analyzers and distortion analyzers, with emphasis on oscilloscope operation.

ETR 125 Printed Circuit Board Solder Assembly /3 cr. hrs./5 periods (1 lec., 4 lab)

□Prerequisite: None.

Procedures and skills required for assembling components and for high reliability soldering of these components on printed circuit boards to appropriate military specifications. Includes defect recognition, component preparation, component recognition, installation and high reliability soldering of these components to a printed circuit board. (Same as MRE 125.)

ETR 143 Television Theory and Servicing /6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisites: ETR 105 and 110 and MTH 125.

Principles and techniques of television servicing. For students who wish to become troubleshooting television electronic technicians or those with other majors who wish to learn or sharpen troubleshooting skills on analog and linear circuitry. Includes tools of the trade, television standards, circuit analysis, alignment techniques, troubleshooting, signal tracing and signal substitution.

ETR 150 Home Entertainment Equipment Repair /6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisites: ETR 105, 110 and 143 and MTH 125.

Repair of home entertainment equipment other than television receivers. Includes theory and repair of audio amplifiers, AM-FM-MPX receivers, tape decks, cassette decks, turntables, and Dolby and other noise reduction devices.

ETR 160 Microcomputers and Programming Techniques /3 cr. hrs./ 4 periods (2 lec., 2 lab)

□Prerequisite: MTH 070.

Microcomputer operation, including terminology, reading and understanding specifications, system start up, disk operations, programming simple electronic problems. Also includes an introduction to assembly language and number systems.

ETR 180 Linear Integrated Circuits /6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisites: ETR 105 and MTH 125.

The theory and applications of linear integrated circuits, emphasizing operational amplifier applications in both linear and non-linear modes of operation, includes amplifier configurations, applications of operational amplifiers in analog systems, audio and radio frequency applications, active filters, linear and switching voltage regulators, timers and phase locked loops are studied. Impedance matching, attenuation, noise considerations, by-passing, and grounding problems are investigated.

ETR 222 Transducers /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: ETR 180.

Theory and application of electronic sensors used in modern process control systems. Attention is given to solution of interface problems, the physics of the sensor and methods of application.

ETR 235 Communications /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisites: ETR 110 and 180.

Communications circuit fundamentals, including audio and radio frequency amplifiers, resonant and coupling circuits, modulation techniques (amplitude, frequency, and phase modulation), power supply, and system noise problems.

ETR 250 Digital Devices /4 cr. hrs./6 periods/(3 lec., 3 lab)

□Prerequisites: ETR 105 and ETR 110.

Digital integrated circuits, primarily TTL. Includes power requirements, propagation delay, input and output electrical characteristics, counters, latches, multiplexors, decoders, flip-flops, and other digital devices. Also include digital circuit troubleshooting.

ETR 251 Analog Circuits /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: ETR 180 and 250. (ETR 250 may be taken concurrently.)

Advanced analog circuits used in current digital systems. Power supplies, power failure, surge protection, and power amplifiers.

ETR 255 Microcomputer Systems I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: ETR 160 and ETR 250 or concurrent enrollment.

Microcomputer operation, including operating systems, diagnostics, system monitor, assemblers, linking loaders and backup procedures. Also includes machine language, assembly language, and subroutine calls from higher level languages.

ETR 256 Microcomputer Systems II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: ETR 255.

In-depth study of microcomputer hardware to the component level. Includes microprocessors, bus structure and timing, memory, input/output, interrupt, DMA and troubleshooting.

ETR 257 Computer Peripherals /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: ETR 251 and ETR 256 (both may be taken concurrently with ETR 257).

Computer peripheral equipment and its interface to the parallel data transmission methods. Includes modems and selected microcomputer applications, such as data acquisition, peripheral control and automated component testing.

ETR 265 Communications/RF Microwave /4 cr. hrs./6 periods (3 lec., 3 lab.)

□Prerequisite: ETR 235.

Advanced circuit analysis, including RF amplifiers, transmission lines, wave guides, microwave device theory, and applications of RF and microwave circuits.

ETR 266 Fiber-Optics and Laser Communications /4 cr. hrs./ 6 periods (3 lec., 3 lab)

□Prerequisite: Concurrent enrollment in ETR 235.

Laser and fiber optics communications systems, including laser and fiber-optic devices and components, system problems, and system measurements.

ETR 270 Rotating Machines and Prime Movers /6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisite: ETR 180.

Theory and application of single and polyphase AC and DC motors and generators, stepper motors and linear actuators. Includes support equipment (i.e., starters, contractors, safety devices and speed controls).

ETR 276 Industrial Electronic Systems /6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisites: ETR 180.

Study of electronic control systems with emphasis on industrial applications. Several types of closed loop systems are analyzed with respect to errors, instability, and frequency response. Both analog and digital computers are studied in the process control context.

ETR 290 General Radiotelephone FCC License /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: ETR 230 or equivalent experience.

Preparation for FCC general radio telephone certificate examination. Includes review of electronic circuit analysis, basic radio theory, laws and regulations.

ETR 299 Co-op Related Class in ETR /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

ETR 299 Co-op Work in ETR /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education for description.

EMERGENCY MEDICAL TECHNOLOGY

EMT 051 Basic Emergency Medical Technology /5 cr. hrs./6 periods (4 lec., 2 lab)

□Prerequisite: None.

Introduction to all techniques of pre-hospital emergency medical care currently considered as responsibilities of the emergency medical technician. Practice in recognizing symptoms of illness and injuries and proper procedures of emergency care.

EMT 057 Review Topics in Basic EMT /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: EMT certificate.

Review course for the basic emergency medical technician pursuing recertification. Includes practice in the manipulative skills, mechanical aids to BLS, MAST, splinting and intravenous monitoring.

EMT 058 Refresher Training for EMT /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisites: EMT 051 and graduation from the basic program at least one year prior to enrollment.

For students in the Emergency Medical Services field who must meet refresher training requirements for recertification.

EMT 059 Emergency Cardiac Care /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: EMT 051.

Introduction to more advanced techniques for pre-hospital care of the cardiac patient. Includes anatomy and physiology of the heart, the conductive system, EKG recording and basic interpretation, physical assessment of the cardiovascular and respiratory systems, and mechanisms of cardiovascular disease processes.

EMT 100 Basic Cardiac Life Support /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Principles and techniques of basic cardiac life support. Includes techniques of airway care and cardiopulmonary resuscitation, introduction to the common types of equipment used in basic cardiac life support, introduction to the pathogenesis of coronary artery disease, electric shock, drowning and sudden death. Designed to train and certify allied health personnel and other interested individuals. Upon course completion, the student may be eligible for basic life support certification by the American Heart Association.

EMT 101 Intermediate Emergency Medical Technology I /6 cr. hrs./7 periods (6 lec., 1 lab)

□Prerequisite: EMT 051.

Continuation of training in techniques of pre-hospital emergency medical care and examination of aspects of human anatomy and physiology surveyed in EMT 051. Includes pharmacology; the respiratory, cardiovascular, and central nervous systems; soft tissue and musculoskeletal injuries; obstetrics/gynecological emergencies; rescue techniques; and communications.

EMT 102 Intermediate Emergency Medical Technology II /4 cr. hrs./5 periods (4 lec., 1 lab)

□Prerequisite: EMT 101.

Continuation of training in techniques of pre-hospital emergency medical care. The recognition, management and pathophysiology involved with the respiratory, nervous and cardiovascular systems. Expands on disorders of hydration, including progression of shock. Also includes a study of blood and its components and techniques of management. Emphasis on patient assessment and the importance of report writing.

EMT 103 Intermediate Emergency Medical Technology III /4 cr. hrs./5 periods (4 lec., 1 lab)

□Prerequisite: EMT 102.

Continuation of training in techniques of pre-hospital emergency medical care. Includes methods used by the I-EMT for interviewing in a medical emergency; a survey of the eight clusters of a medical situation associated with medical emergencies with exposure to environmental extremes.

EMT 104 Intermediate Emergency Medical Technology IV /4 cr. hrs./5 periods (4 lec., 1 lab)

□Prerequisite: EMT 103.

Continuation of training in techniques of pre-hospital emergency medical care. Includes techniques involved in rescue, communications, and the systems approach to medical emergencies with emphasis on oral evaluation and skills evaluation. Also provides rotations through clinical settings, which allows for further exposure to I-EMT skills.

EMT 201 Introduction to Paramedicine /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Introduction to the paramedic career field. Includes medico-legal implications, psycho-social aspects and interpersonal communication skills for pre-hospital emergency medicine. Also includes shock and fluid therapy, anatomy and physiology, and medical terminology. Lab portion provides basic EMT skills application at the paramedic level.

EMT 202 Paramedicine: Pharmacology /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Drug information and administration. Includes action of drugs, weights and measures, and principles and techniques of drug administration for effective paramedical pre-hospital care.

EMT 203 Pathophysiology and Management of Respiratory Emergencies /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Advanced techniques for life support in the pre-hospital setting. Includes airway management, oxygen therapy, respiratory system, pathophysiology and assessment.

EMT 204 Advanced Life Support: Cardiology /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Principles of cardiology and advanced cardiac life support skills for the paramedic. Includes cardiac disease states, electrocardiography, and identification and field management of cardiac arrhythmias.

EMT 205 Pathophysiology and Management of Neurological Problem /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Advanced life support approaches to neurological injuries, including head trauma, spinal injury and other medical problems.

EMT 206 Pathophysiology and Management of Soft Tissue Injuries /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Advanced life support approaches to soft-tissue injuries, including patient assessment and techniques and management of soft tissue injuries.

EMT 207 Pathophysiology and Management of Musculoskeletal Injuries /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Advanced life support approaches to traumatic injuries, including fractures, dislocations, sprains, strains and various splinting devices.

EMT 208 Pathophysiology and Management of Medical Problems /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Advanced life support approaches to emergency medical problems. Includes diabetic, anaphylactic reaction, environmental, alcoholism and drug abuse, poisoning, abdomen genitourinary aquatic, and management of these problems.

EMT 209 Pathophysiology and Management of Gynecologic Emergencies /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Advanced life support approaches to gynecologic emergencies. Includes complications and abnormal delivery, breech birth, multi-birth, postpartum hemorrhage and ruptured uterus.

EMT 210 Pathophysiology and Management of Pediatric and Neonatal Patient /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Advanced life support approaches to the pediatric and neonatal patient under emergency situations, including SIDS, croup, epiglottitis and battered child.

EMT 211 Emotional Aspects of Illness and Injury /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Advanced life support skills approaches to emergency care of the emotionally disturbed, including psychiatric disorders, high anxiety and stress in emergencies.

EMT 212 Extrication/Rescue Techniques /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Advanced life support approaches to extrication and rescue. Includes devices used for extrication and aspects of rescue that directly relate to patient care.

EMT 213 Telemetry and EMS Communications /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Introduction to the capabilities of telemetry and communication systems used by the paramedic.

EMT 214 Paramedic Procedures: Hospital /3 cr. hrs./15 periods (15 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
In-hospital clinical procedures for the paramedic.

EMT 215 Paramedic Procedures: Ambulance /5 cr. hrs./25 periods (25 lab)

□Prerequisite: Acceptance into Advanced Paramedic Program.
Clinical procedures, on ambulance, for the paramedic.

ENGINEERING

ENG 110 Construction Surveying /3 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: MTH 110.

Principles and techniques of construction surveying. Includes use of surveying instruments, measurement of horizontal distances, leveling, angle measurements, traversing, locating details, stadia surveys, topographic mapping and grade staking.

ENG 120 Engineering Graphics /3 cr. hrs./7 periods (1 lec., 6 lab)

□Prerequisite: DFT 150.

Principles and techniques of engineering graphics. Includes freehand technical sketching, instrument working drawings, projection, descriptive geometry and applications to engineering space problems.

ENG 130 Elementary Surveying /3 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisites: MTH 150 and 155, or 160.

Basic principles and techniques of surveying. Includes measurement of horizontal distances, use of surveying instruments, angle measurements, traverse surveys and computations, topographics, government land surveys and solar observations.

ENG 140 Introduction to Electrical Engineering /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: MTH 150 and 155 (or 160), and high school physics.
Introduction to the professional fields of electrical, electronic and computer engineering. Includes selected fundamental concepts and techniques encountered in the practice of these fields.

ENG 210 Engineering Mechanics: Statics /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: PHY 131 or 210, and concurrent enrollment in MTH 215.

Engineering analysis of static mechanical systems. Includes vector algebra, equilibrium, momentum, couples, centroids, trusses, machines, friction and equivalent force systems.

ENG 220 Engineering Mechanics: Dynamics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: ENG 210.

Engineering analysis of dynamic mechanical systems. Includes rectilinear motion, curvilinear motion, kinetics of rigid bodies, plane motion of rigid bodies and mechanical vibrations.

ENG 230 Mechanics of Materials /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: ENG 210.

Analysis of mechanical properties of materials and their engineering applications. Includes material behavior, external forces on rigid and elastic bodies, stress, strain, load analysis and design factors.

ENG 240 Introduction to Digital Systems /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: ENG 140 and CSC 140.

Basic principles of digital systems. Includes digital coding of information, basic logic design, number systems, sequential circuit design and computer organization.

ENG 241 Microprocessors /3 cr. hrs./5 periods (2 lec., 3 lab.)

□Prerequisite: ENG 240.

Introduction to microprocessor programming. Includes assembly language, input/output, stacks and interrupts.

ENG 250 Numerical Analysis for Engineers /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: CSC 140 and MTH 185.

Applications of numerical methods and computer programming techniques for the creation of mathematical models of engineering systems.

ENG 260 Elements of Electrical Engineering /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: PHY 132 and MTH 185.

Introductory survey of the electrical engineering discipline with emphasis on electrical power applications.

ENG 261 Elements of Electronics /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ENG 260.

Introductory survey of the principles of electronics and instrumentation. Includes semiconductor devices, operational amplifiers, digital logic, microprocessors, transducers, and analog, digital and hybrid applications.

ENG 280 Introduction to Circuits and Electronics I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: ENG 140 and concurrent enrollment in MTH 215. Basic principles of electronics circuits and components. Includes analysis of resistive networks, nodal and mesh analysis, power, resistive two-ports, nonlinear two-ports, diode networks, and bipolar and field-effect transistors in elementary configurations.

ENG 281 Introduction to Circuits and Electronics II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: ENG 280 and concurrent enrollment in MTH 219. Continuation of ENG 280. System functions, transient response, Laplace transforms, impedance concepts, network stability, sinusoidal steady-state, pole-zero concepts, power, op amp circuits, transistor amplifiers, power supplies and silicon controlled rectifier circuits.

ENGLISH AS A SECOND LANGUAGE

The ESL curriculum is designed for bilingual and foreign students to help them develop proficiency in oral and written English by practicing basic skills in listening to, speaking, reading and writing American English. Students will be placed in the program according to assessment test results and teacher evaluation.

ESL 061 Elementary Listening, Speaking and Pronunciation / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

A beginning-level course designed to develop good listening skills and standard pronunciation of American English. It is recommended that the course be taken concurrently with ESL 062 and/or ESL 063. May be taken twice for a maximum of six credit hours.

ESL 062 Elementary Grammatical Patterns I /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: ESL 061 or satisfactory placement on ESL assessment test.

Development of elementary 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 063 Elementary Grammatical Patterns II /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: ESL 062 or satisfactory placement on ESL assessment test.

Continued 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 064 Elementary Reading /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None. May be taken concurrently with ESL 061, 062, 063.

A basic reading class for beginning ESL students. Includes: vocabulary building, comprehension, analysis of the main idea and supporting details, and interpretation of different types of reading.

ESL 071 Intermediate Listening, Speaking and Pronunciation / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: ESL 061 or 063 or satisfactory placement on ESL assessment test.

An intermediate-level course designed to improve listening and pronunciation skills and to help in the acquisition of conversational ease. It is recommended that the course be taken concurrently with ESL 072. May be taken twice for a maximum of six credit hours.

ESL 072 Intermediate Grammatical Patterns /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: ESL 063.

Development of intermediate listening and speaking skills in the frequently used patterns of American English. Reading and writing are introduced to reinforce these patterns.

ESL 073 Intermediate Reading /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: ESL 064 or satisfactory placement on ESL assessment test.

A basic reading class for intermediate ESL students. Includes: vocabulary building, comprehension, analysis of the main idea and supporting details, and interpretation of different types of reading including selected modified readings from American and English literary classics.

ESL 074 Intermediate Writing /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: ESL 063 or satisfactory placement on ESL assessment test.

A basic writing skills course on the intermediate level. Includes basic word order, usage, basic verb tenses, sentence patterns, paragraph development, and punctuation.

ESL 081 Advanced Listening, Speaking and Pronunciation /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: ESL 071 or 072.

An advanced level course designed to develop fluency in American English pronunciation through the use of oral reading, conversational practice and exercises. May be taken concurrently with ESL 082, 083 and 084.

ESL 082 Advanced Grammatical Patterns /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: ESL 072.

Development of advanced listening and speaking skills in the frequently used patterns of American English. Reading and writing are introduced to reinforce these patterns. May be taken concurrently with ESL 081, 083 and 084.

ESL 083 Advanced Reading /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisites: ESL 073 or satisfactory placement on ESL assessment test.

Improvement of speed and comprehension in reading through conscious analysis of paragraph structure and recognizing the progressive development of ideas.

ESL 084 Advanced Writing /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: ESL 074 or satisfactory placement on ESL assessment test.

Skill development in grammar, sentence patterns, paragraph development and organization at an advanced level. May be taken concurrently with ESL 081, 082 and 083.

ESL 090 English with Ease /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: ESL 063 or satisfactory placement on ESL assessment test. May be taken concurrently with ESL 072, 073, 074, and 081.

A conversational class for intermediate (or above) ESL students to promote fluency in the English language. Includes production and retention of idioms and their practice in a variety of contexts.

ENVIRONMENTAL TECHNOLOGY

ENV 101 Introduction to Water and Wastewater Technology / 3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Introduction to basic concepts of groundwater production, water distribution and wastewater collection and treatment. Emphasis on ponds and package plants. Designed to prepare students for Grade I Certification.

ENV 103 Small Treatment Plants /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Operation and maintenance of small treatment plants. Includes wastewater lagoons (both stabilization ponds and aerated lagoons) and extended aeration package plants. Activated sludge methods are stressed. Designed to prepare students for Grade I Certification and portions of Grade II Certification.

ENV 105 Quality Monitoring /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Principles and techniques of wastewater quality monitoring. Includes flow measuring devices, sampling equipment, use of tables, calculations, and basic monitoring and operational tests. Designed to prepare students for Grades I, II and III Certification.

ENV 107 Hydraulics of Water /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: MTH 110.

Practical aspects of the hydraulics of water. Includes flow measurements, pipe friction, pumps, flumes, detention times, velocity, valves, hydrostatics and sedimentation. Designed to prepare students for Grades I and II Certification.

ENV 110 Sewerage System Maintenance /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Principles and practice of sewerage system maintenance. Includes plant mechanical and electrical components, safety, collection, maintenance, conventional cleaning methods and inspection. Designed to prepare students for certification on all grade levels.

ENV 112 Chemical Control Processes /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Principles and techniques of controlling plant processes. Includes common and alternative methods of disinfection using chemical and microbiological means. Designed to prepare students for certification on all grade levels.

ENV 114 Water Treatment Safety /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Safe use and storage of chemicals. Includes OSHA requirements and the development of a plant and collection system safety program. Designed to prepare students for certification on all grade levels.

ENV 115 Intermediate Biological Wastewater Treatment /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ENV 101.

Operation and maintenance of wastewater treatment plants utilizing the activated sludge and trickling filter processes. Includes pretreatment, aeration, settling, aerobic and anaerobic sludge treatment, sludge thickening and disposal, effluent disposal, and safety. Also includes use of laboratory results in operation and monitoring as well as the development of a maintenance program. Designed to prepare students for Grades II and III Certification.

ENV 130 Introduction to Water Treatment /3 cr. hrs./3 period (3 lec.)

□Prerequisite: None.

Survey of water treatment and distribution. Includes basic math, chemistry, micro-aeration, sedimentation, chlorination, pumps, valves, regulations and standards. Prepares operators for Grade II water certification.

ENV 135 Water Distribution Systems /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: None.

Basic water distribution system operation and maintenance. Includes storage and distribution facilities, water quality principles, operation, maintenance, disinfection, and safety.

ENV 199 Co-op Related Class in ENV /1 cr. hr./1 period (1 lec.)

□Prerequisite: Consent of instructor.

See Cooperative Education section for description.

ENV 199 Co-op Work in ENV /1-8 cr. hrs./5-40 periods (5-40 lab)

□Prerequisite: Consent of instructor.

See Cooperative Education section for description.

ENV 201 Advanced Biological Wastewater Treatment /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ENV 115.

Advanced techniques using laboratory results in the activated sludge process and in tertiary treatment. Includes safety and the development of a maintenance program. Designed to prepare students for Grade III Certification.

ENV 203 Applied Chemistry in Water and Wastewater /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Practical application of commonly used chemical and microbiological tests found in both water and wastewater facilities. Designed for supervisory personnel as well as to prepare students for Grades III and IV Certification.

ENV 205 Wastewater Treatment Processes /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: ENV 203.

Laboratory treatment processes required within wastewater pilot-plants. Designed to prepare students for Grades III and IV Certification.

ENV 209 Wastewater Collection Systems /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ENV 107.

Principles and techniques of collection system maintenance. Includes inspection, cleaning, repair, record keeping, safety and development of a maintenance program. Designed to prepare students for Grades II and III Certification.

ENV 215 Applied Chemical and Microbiological Analysis /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ENV 203.

Introduction to the chemical and laboratory techniques necessary to perform and analyze tests 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. Designed to prepare students for Grades III and IV Certification.

ENV 220 Wastewater Hydraulics /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ENV 107.

Theory and practical application of wastewater hydraulics. Includes 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. Designed to prepare students for all grade levels of certification, particularly requirements in Grades III and IV.

ENV 225 Physical-Chemical Sewage Treatment /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: ENV 201, 203.

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. Designed to prepare students for Grades III and IV Certification as well as special certification requirements in physical-chemical treatment.

ENV 230 Water Treatment Processes /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: ENV 130.

Unit processes involved in the treatment of both ground and surface water. Includes pretreatment, coagulation, mixing, flocculation, sedimentation, filtration, disinfection, colored turbidity removal, softening, chlorination, fluoridation, and taste and odor removal.

ENV 233 Cross Connection Control /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Recognition of potable water cross connections and training and repair on backflow assemblies. Includes theory of cross connection, regulations and local plumbing codes, and inspector and tester responsibilities. Emphasis on laboratory work in hydraulic testing, backflow assembly repair and troubleshooting.

ENV 235 Wastewater Treatment Plant and Collection System Design and Construction /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: ENV 107, 201.

Plan reading and basic engineering design for wastewater treatment plants and collection systems. Includes design criteria, specifications, cost estimation, types of sewer line materials and treatment plant materials for specified uses, proper installation and construction inspection. Designed to prepare students for Grades III and IV Certification.

ENV 299 Co-op Related Class in ENV /1 cr. hr./1 period (1 lec.)

□Prerequisite: Consent of instructor.

See Cooperative Education section for description.

ENV 299 Co-op Work in ENV /1-8 cr. hrs./5-40 periods (5-40 lab)

□Prerequisite: Consent of instructor.

See Cooperative Education section for description.

EQUINE SCIENCE

EQS 084 Advanced Equine Animal Science /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: GTC 083.

Continuation of GTC 083. Management theories and practices as they relate to both small equine businesses and the equine industry as a whole. Includes breeding, nutrition, preventive medicine, management and marketing of horses.

EQS 089 Equine Training for Show Competition /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Covers the principles of presenting horses for show competition. Includes terminology, techniques for judging conformation, and the concepts of behavioral psychology and its application to showing horses. Specific skills for preparing a horse for presentation, using equipment correctly, and free lunging are emphasized.

EQS 100 Beginning Western Horsemanship /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

An introduction to the basics of Western horsemanship. Includes proper horse-handling procedures such as grooming, haltering, leading, saddling, bridling and basic riding skills for the Western style horse. Emphasis on developing beginning rider's ability to apply precise, prompt, smooth aids while guiding the horse through various schooling maneuvers.

EQS 110 Introduction to English Horsemanship /3 cr. hrs./ 5 periods (2 lec., 3 lab)

□Prerequisite: None.

An introduction to English horsemanship. Includes proper horse-handling procedures such as grooming, haltering, leading, saddling, bridling, posting and basic riding skills for the English style horse. Emphasis on developing beginning rider's ability to apply precise, prompt, smooth aids.

EQS 140 Rodeo Skills /1-3 cr. hrs./1-3 periods (1-3 lec.)

□Prerequisite: Consent of instructor.

Designed to assist students in learning rodeo rules, applications for competitive events, and developing rodeo skills in barrel racing, team roping, calf roping, goat tying. Riding events and ethics will be stressed. Includes how to become a good competitor.

EQS 141 Advanced Rodeo Skills /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: EQS 140.

Advanced principles of barrel racing, team roping, calf roping, goat tying, and riding events. Enhancing a positive attitude for competition is covered. Includes a review of rodeo rules and personal ethics. Rodeo skills and practicing events are independent of the class.

EXPLORATORY**EXP 020 Techniques of Microwave Cooking /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Fundamental principles and proper operation of microwave ovens. Includes safety, special techniques in microwave cooking and the advantages and disadvantages of microwave cooking.

EXP 051 Social Science Survey /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Units from the social or behavioral sciences selected by the student.

EXP 088 Political Involvement /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of local, state and national government campaigns. Includes the process of running for political office and the principles of effective campaign management. Designed to aid persons who wish to become involved in the political process.

FASHION DESIGN AND CLOTHING**FDC 111 Clothing Construction (Beginning) I /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Fundamental principles of clothing construction. Includes selection of fabric and style, and all techniques required for construction of clothing for men, women and/or children, using commercial patterns. Proficiency test may be taken for level placement.

FDC 112 Alteration and Designing /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Methods of altering commercial patterns and principles of fitting garments. Includes production of personal patterns for basic dress, shirt and pants.

FDC 121 Applied Dress Design /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Flat pattern method of pattern making with emphasis on engineering.

FDC 122 History of Fashion /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

History of clothing and personal decoration as a reflection of society and culture. Includes social, aesthetic, economic and philosophical expressions from 3000 B.C. to the 20th century. Also includes individual and group expression through the following as related to historical events and trends: fabric and decoration, silhouettes, garments, accessories, hairstyles and cosmetics.

FDC 126 Textiles /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Technology of textile fibers, yarns, fabric construction and special finishes. Includes design projects applicable to interior design, fashion design and merchandising. Also includes selection, economics and care of fabrics.

FDC 131 Clothing Selection /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Consumer analysis of clothing design, construction and cost based on social, aesthetic and individual needs. Includes selection of color and line. Designed for personal use or for those in the fields of fashion design, clothing consultation or merchandising.

FDC 132 Psychology of Dress /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Human behavior in relationship to clothing and body image. Includes satisfaction of basic human needs, effect on individuals and groups, reflection of self-perception, evaluation of clothing trends and changing society and culture. Students pursue a research project.

FDC 141 Fashion Design I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Theory and practice of fashion design. Includes profile of the designer at work, basic fashion design sketching and the application of fine art principles to fashion design.

FDC 142 Alteration and Repair /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Techniques for lengthening the life and increasing the usefulness of garments. Includes methods of altering, fitting, repairing, restyling, reconditioning and restoring clothes.

FDC 199 Co-op Related Class in FDC /1 cr. hr./1 period (1 lec.)

See Cooperative Education for description.

FDC 199 Co-op Work in FDC /1-3 cr. hrs./5-15 periods (5-15 lab)

See Cooperative Education for description.

FDC 211 Clothing Construction (Advanced) II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: FDC 111 or satisfactory score on proficiency test.

Advanced clothing construction techniques. Includes selection of fabrics and patterns. Commercial patterns are used.

FDC 212 Clothing Construction (Tailoring) III /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: FDC 211 or consent of instructor.

Custom and semi-commercial tailoring techniques. Includes experiments with recent developments in construction methods. Emphasis on use of natural fibers.

FDC 241 Fashion Design II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: FDC 111 and 141 or consent of instructor.

Application of fashion design principles. Students design and construct original garments by draping fabric on the dress form.

FINANCE

FIN 102 Principles of Bank Operations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Fundamentals of bank functions providing a comprehensive introduction to the diversified services offered by the banking industry. Includes bank accounting, pricing and profitability, and personnel and security functions. Designed to help the beginning banker view his profession in a broad perspective.

FIN 106 Teller Operations /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Development of skills needed by tellers to provide accurate, efficient and effective service. Includes handling of cash and checks, savings accounts, and account insurance.

FIN 107 Financial Services /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Overview of the environment in which financial services professionals assist clients in meeting their financial counseling and planning needs. Includes the comprehensive financial planning process, effective communications, introduction to financial markets, perspectives on professions, regulatory trends and the changing financial services environment.

FIN 108 Principles of Savings Institutions /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Role of savings institutions in the modern business world. Includes the historical development of savings institutions and their present-day dynamics and trends in business.

FIN 109 The Human Side of Savings Institutions /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Interpersonal relations as applied to the financial services professional. Includes customer and peer relations and techniques for applying human relations concepts on the job.

FIN 110 Communicating in a Savings Institution /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Interpersonal communication skills in a financial institution setting. Includes practical techniques for listening more effectively, persuading others, solving problems and managing conflicts with customers and co-workers.

FIN 111 Personal Investment Portfolios /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Examination of various investment vehicles and portfolios. Includes strategies for achieving investment goals in view of risk and return relationships. Also includes common stocks, bonds, investment companies, types of speculative investments and a review of various portfolios with different investment objectives.

FIN 112 Economic Topics For Savings Institutions /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Relationship of economic behavior to savings institutions. Includes current economic issues, government's role in the economy, fiscal and monetary policies, and the current exchange system.

FIN 113 Deposit Accounts and Services /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Deposit accounts and services in a deregulated market. Includes the savings counselor's role in opening regular savings accounts, certificate accounts and access accounts.

FIN 114 Individual Retirement Accounts/Keogh Plans /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Eligibility requirements and contribution limits set by congressional acts for individual retirement accounts and Keogh plans. Includes retirement counseling, opening accounts and handling problem situations. Also includes record keeping and reporting requirements.

FIN 115 Savings Bank Data Processing /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Data processing principles as they apply to savings institutions. Includes computer systems, terminology, concepts and applications, and technological trends.

FIN 116 Financial Statement Analysis /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Financial statement analysis in business and lending. Includes credit risk, financial statement, balance sheet, statement of equity and income, personal statements, creating a statement and working capital.

FIN 121 Introduction to Personal Financial Planning /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: None.

The financial planning process. Includes regulations affecting financial planners, developing personal financial statements, and analyzing the client's financial position. Also includes understanding the economic cycles and concepts of time value of money. Helps the student prepare for the first IBCFP certification examination.

FIN 122 Personal Risk Management /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: FIN 121.

Introduces the process of risk analysis and the concept of insurance as a method of risk management. Includes an analysis of risk exposures, selection of a method of risk management, and the language of insurance and risk management. Helps prepare the student for the second IBCFP certification examination.

FIN 123 Personal Investment Strategies /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: FIN 121.

Covers investment techniques and analysis, which includes markets, taxation, risk analysis and appropriate use. Also includes the interpretation of prospectus and corporate financial statements. Helps the student prepare for the third IBCFP certification examination.

FIN 124 Tax Management and Planning /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: FIN 121.

Covers individual income, business, and tax sheltered investment taxation. Includes current and estate tax planning techniques. Helps the student prepare for the fourth IBCFP certification examination.

FIN 131 Principles of Credit Unions /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Information and training to prepare persons as credit union executives. Includes credit union operations, preparing and conducting annual meetings, and presenting the credit union concept at a public meeting.

FIN 135 Business Insurance /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: An insurance agent's license or a general insurance course.

Business uses of health and life insurance. Includes proprietorship, partnership and corporation continuation problems and their solutions. Also includes key man insurance, non-qualified deferred compensation plans, split-dollar plans and business ethics. Part of a series of courses preparing the licensed agent for a Chartered Life Underwriters' qualification examination.

FIN 136 Investments and Family Financial Management /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: None.

Overview of investment and family financial management concepts and practices. Includes yields, limited income securities, growth factors analysis of financial statements, family budgeting, property insurance, mutual funds, variable annuities and aspects of other investment media.

FIN 138 Pension Planning /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Basic background in life insurance, such as an agent's license or a general insurance course.

In-depth examination of pension planning. Includes tax considerations, cost factors and funding instruments involved in private pensions, profit sharing plans and tax-deferred annuities. Part of a series of courses preparing the licensed agent for a Chartered Life Underwriter's qualification examination.

FIN 139 Credit Union Accounting /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Accounting systems used by credit unions for internal control, record keeping and report generation. Includes terms and procedures unique to credit unions.

FIN 140 Political Action Topics for Savings Banks /2 cr. hrs./ 2 periods (2 lec.)

□Prerequisite: None.

Political and governmental effects on financial institutions. Includes analysis of political events and policies, political participation, the electoral process, lobbying and the media.

FIN 141 Savings Bank Supervisor I /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Skills and techniques for the new financial supervisor. Includes decision making, delegation, employee assessment, effective communications, time management and counseling.

FIN 142 Speaking for Financial Professionals /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Principles of public speaking designed to increase the confidence and effectiveness of a financial professional in both formal and informal situations. Includes practice in preparing and delivering presentations and in evaluating the presentations of others.

FIN 143 Savings Institution Operations /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Major operating areas of savings institutions. Includes deposit services, lending functions and accounting operations. Also includes marketing and other departments.

FIN 144 Funds Transfer Services /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: FIN 143.

Retail electronic services and electronic funds transfer. Includes automatic teller machines, bank credit cards, point of sale services, check truncation, automated clearing houses and home banking.

FIN 145 Principles of Management /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Management of financial services businesses. Includes management issues, decision making, planning, organizing, leadership and employee motivation.

FIN 146 Techniques for Customer Counseling /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Customer needs, financial services and the relationship to both the financial institution and the customer. Includes many aspects of customer contact, drawing on sociology, psychology, economics and other disciplines. Also includes practical, job-related techniques and guidelines for meeting special challenges.

FIN 147 Effective Business Writing /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Writing effectively in the financial services business. Includes the use of writing resources, techniques used to write effective business letters and reports, writing persuasive messages and how modern technology is used for business communications.

FIN 148 Accounting Principles for Savings Institutions /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Basic accounting principles as they apply to savings institutions. Includes accounting principles as applied to savings institution business, cash and accrual accounting and the uses of general and subsidiary ledgers and journals.

FIN 149 Branch Management /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Managerial theory and practical, up-to-date applications of management principles in a branch office environment. Includes responsibilities of a branch manager, marketing and financial management.

FIN 150 Marketing for Financial Institutions /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Fundamentals of marketing as they apply to the problems and opportunities of the financial services business. Includes how to conduct market research, plan marketing strategies, monitor change and use personal selling techniques that work.

FIN 151 Real Estate Law I /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Basic legal principles that govern real estate transactions and ownership of land. Includes the various sources of real estate law, numerous levels and forms of interest that exist in real property and the different types of legal instruments used to convey title to real estate. Also includes an introduction to real estate brokerage and explores the history of today's real estate law practices.

FIN 152 Consumer Lending /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Consumer credit and consumer lending activities. Includes the nature of consumer credit, compares credit providers, examines types of loans and loan features, reviews laws and regulations, and analyzes loan mathematics. Also includes an in-depth analysis of the activities performed in credit evaluation, operations and collections.

FIN 153 Income Property Lending /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Negotiation, closing and administering construction and loans on income producing projects. Includes apartment buildings, office buildings and shopping centers. Also includes market studies, appraisals and financial ratios to evaluate borrowers and projects.

FIN 154 Financial Planning Basics /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Basic financial planning in relation to the Tax Reform Act of 1986. Includes taxation, risk and return, safety, insurance, investments and retirement planning.

FIN 155 Accounting Practices for Savings Institutions /2 cr. hrs./ 2 periods (2 lec.)

□Prerequisite: FIN 148.

Basic accounting practices as applied to savings institutions. Includes differences between four financial statements, depreciation, FASB rules, statement of cash flow, borrowed funds, investments and auditing.

FIN 156 Basic Business English /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Principles of English grammar, mechanics and usage that present difficulties to literate adults. Includes sentence structure, forms and functions of nouns, pronouns, verbs, adjectives, adverbs, rules that govern punctuation, capitalization, and expression of numbers in business writing. Also includes business correspondence in proofreading skills.

FIN 157 Practical Business Math Procedures /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Review of basic arithmetic operations and their applications. Includes checking account procedures, calculating payroll and interest, estimating depreciation, calculating the price on stocks and bonds, and explaining the present value concept.

FIN 158 Commercial Banking /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Commercial bank operations. Includes major banking functions, federal and state laws, organization, structure and management of commercial banks in today's deregulated financial environment.

FIN 159 Commercial Law /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Contracts and negotiable instruments. Includes elements of a contract, capacity to contract, form of agreement, bailments, creation and transfer of commercial paper, holders in due course and agency and employment concepts.

FIN 160 Residential Mortgage Loan Processing /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

A comprehensive coverage of residential mortgage loan processing. Includes mortgage financing, appraisal uses, loan application, loan file, submission and underwriting, qualification guidelines, loan closing and loan shipping.

FIN 161 Commercial Lending Basics /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Introduction to commercial lending. Includes terms, concepts and techniques in the commercial lending area.

FIN 162 Financial Institutions /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Financial services described in the context of the nation's financial system. Includes financial markets, how financial intermediaries channel funds through the economy, impact of interest rates on the economy and the role of the Federal Reserve System in determining monetary policy.

FIN 163 Mortgage Loan Servicing /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Procedures used in the operation of the loan servicing function. Includes organization, exceptions, recurring charges, accounting for escrow accounts, assessing, billing and paying real estate tax, insurance coverage, contract changes, delinquency on the lender and purposes, terms and characteristics of FHA and VA loans.

FIN 164 Money Management for the Individual /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: FIN 157.

Planning and managing customer financial resources. Includes the financial planning process, taxes, savings, borrowing, protection property, investing and meeting retirement goals.

FIN 165 Real Estate Law I /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: FIN 151.

Real estate finance and forms of mortgages on lenders and borrowers. Includes fraud and deceit, fair housing laws, contract law, mortgage law, real estate purchase contracts, land installment contracts, default and foreclosure, and the obligations and remedies of the landlord and the tenant.

FIN 166 Real Estate Principles I /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Real estate administration. Includes physical and legal characteristics of real estate resources, valuation principles, financing institutions and agencies and mortgage lending.

FIN 167 Real Estate Principles II /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: FIN 166.

Continuation of FIN 166. Includes the effective utilization and management of real estate resources. Also includes subdivision and land development, marketing, property management, income approach to valuation, and the analysis of land uses.

FIN 199 Co-op Related Class in FIN /1 cr. hr./1 period (1 lec.)

□Prerequisite: Concurrent enrollment in FIN 199 Co-op Work.

Principles of job success. Preparation of job-related objectives, individual progress and advancement on the job, labor relations, role of management, and evaluation of student work experience. Emphasis on attitude adjustment. May be taken two times for a maximum of two credit hours.

FIN 199 Co-op Work in FIN /1-8 cr. hrs./5-40 periods (5-40 lab)

□Prerequisite: Concurrent enrollment in FIN 199 Co-op Related Class.

A supervised cooperative work program for students in a related occupation area. Teacher-coordinators work with students and their supervisors. Variable credit is available by special arrangement. May be taken two times for a maximum of 16 credit hours.

FIN 205 Real Estate Finance /3 cr. hrs./3 periods (3 lec.)

(Same as RLS 205.)

FIN 208 Installment Credit /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Techniques of installment lending. Includes credit, obtaining and checking information, servicing the loan, collecting amounts due, inventory financing, special loan programs, business development, advertising and the public relations aspect of installment lending.

FIN 216 Insurance /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: BUS 200.

Exploration of the theory of risk and insurable risks faced by business and individuals. Includes contracts, property and liability insurance, homeowner's programs, general liability insurance programs, excess and umbrella liability contracts, special multi-peril contracts, and planning and buying insurance.

FIN 217 Analyzing Financial Statements /2-3 cr. hrs./2-3 periods (2-3 lec.)

□Prerequisite: None.

Characteristics of financial statements and their analysis. Includes review of basic accounting principles for those who have studied accounting. For those who have not, minimum accounting background needed for financial statement analysis is provided.

FIN 225 Bank Credit Cards /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Overview of the bank card industry. Designed for those currently employed or anticipating employment in commercial banks or related financial institutions. Includes the economic role of the bank card as well as the basic operational problems involved in the successful management of a bank card plan.

FIN 226 Savings Bank Supervisor II /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: FIN 141.

Continuation of FIN 141. Responsibilities and techniques of supervision. Includes organizational options and the hiring, orienting and appraising of employees.

FIN 227 Residential Appraising for Lenders /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: RLS 101.

Appraisal of residential property, emphasizing single-family units from a lender's perspective. Includes basic principles of appraising, specialized vocabulary, neighborhood and site analysis, and the three approaches to value.

FIN 228 Residential Mortgage Lending /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: FIN 108.

Procedures involved in originating, processing and servicing residential mortgage loans. Includes different types of residential mortgage loans that federally chartered institutions can make.

FIN 229 Statement Analysis for the Lender /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: ACC 050 or 101.

Analysis of financial statements submitted by business and self-employed borrowers. Includes financial statement construction and analytical techniques used in commercial lending.

FIN 230 Managing Deposit Accounts and Services /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: FIN 108.

Detailed coverage of deposit services. Includes the impact of federal regulation on managing deposit accounts and services.

FIN 231 Credit Union Operations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: FIN 131.

Functions of teller transactions, loan granting, financial counseling and collections. Includes credit union advertising, budgeting, EFTs, ATMs and membership expansion.

FIN 234 Loan Officer Development /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Training in the critical functions of a commercial loan officer. Includes the initial interview, loan development decisions and techniques, documentation for the credit file, problem loans, conveying unpleasant information, and in-basket and loan portfolio games.

FIN 238 Estate Planning and Taxation /3 cr. hrs./3 periods (3 lec.)

□ Prerequisite: ACC 204.

Examination of the nature, valuation, disposition, administration, and taxation of property. Includes the use of revocable and irrevocable trusts, testamentary trusts, life insurance, powers of appointment, wills, lifetime gifts and marital deductions. Prepares candidates for the American College National examination for estate planning and taxation.

FIN 239 Credit Union Financial Management /3 cr. hrs./3 periods (3 lec.)

□ Prerequisite: FIN 139 or ACC 101.

Principles of credit union financial management. Includes financial statement analysis, budgeting, liquidity management, financial planning, risk management, insurance, and investment procedures.

FIN 240 Wealth Accumulation Planning /3 cr. hrs./3 periods (3 lec.)

□ Prerequisite: None.

Fundamentals of tax sheltered and tax incentive investments. Includes limited partnerships in real estate, oil and gas, agriculture and equipment leasing.

FIN 241 Financial and Estate Planning Applications /3 cr. hrs./3 periods (3 lec.)

□ Prerequisites: FIN 136 and 240.

Case studies in financial and estate planning. Includes simple fact patterns, basic documents, complex personal financial problems, and financial problems associated with business ownership.

FIN 245 Retirement Planning and Employee Benefits /3 cr. hrs./3 periods (3 lec.)

□ Prerequisite: FIN 121.

Covers qualified, nonqualified and government sponsored retirement programs, techniques for estimating retirement income needs. Helps the student prepare for the fifth IBCFP certification examination.

FIN 246 Estate Planning /3 cr. hrs./3 periods (3 lec.)

□ Prerequisites: FIN 121 and 124.

Fundamentals of the Unified Transfer Tax system and techniques that reduce the size of the gross estate. Includes probate procedures, trusts, property ownership, and will substitutes. Also covers life insurance, lifetime gifting, overuse of the marital deductions, charitable deductions, and intrafamily and business transfers. Helps the student prepare for the sixth IBCFP certification examination.

FIN 247 Financial Planning and Case Studies /3 cr. hrs./3 periods (3 lec.)

□ Prerequisites: FIN 121, 245, and 246.

Integration of the six stages of financial planning. Includes prioritizing clients' needs according to their resources and writing a comprehensive financial plan.

FIRE SCIENCE**FSC 049 Fire Operations I /3 cr. hrs./4 periods (2 lec., 2 lab)**

□ Prerequisite: None.

Specialized classroom and practical experience in the techniques of fire fighting. Includes the chemistry of fire, use of water and other agents, fire fighting equipment and its uses, fire fighting practices and safety.

FSC 050 Fire Operations II /3 cr. hrs./4 periods (2 lec., 2 lab)

□ Prerequisite: FSC 049.

Specialized classroom and practical experience in the practices and techniques of fire fighting. Includes principles of community fire defense, methods of entry, rescue, tools, apparatus, equipment, salvage, hydraulics, and fire extinguishment.

FSC 051 Introduction to Fire Science /3 cr. hrs./3 periods (3 lec.)

□ Prerequisite: None.

Historical and scientific background on the fire protection field. Includes the development and future of the field in America; governmental, industrial and private fire protection organizations and agencies; and employment and promotional opportunities.

FSC 052 Fundamentals of Fire Prevention /3 cr. hrs./3 periods (3 lec.)

□ Prerequisite: None.

Introduction to the principles of fire prevention. Includes fire prevention surveys, "selling" the service to businessmen, helping the businessman to stay in business, public relations and the application of fire prevention codes.

FSC 053 Hazardous Materials I /3 cr. hrs./3 periods (3 lec.)

□ Prerequisites: FSC 052 and MTH 070 or consent of instructor.

Basic chemical concepts and their applications to the field of fire science.

FSC 054 Advanced Fire Prevention /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Fire prevention in high risk and industrial occupancies. Includes application of codes in the installation, operation, storage and transportation of dangerous materials; investigation and determination of fire causes; legal aspects of fire prevention; and prosecution of violators.

FSC 055 Fire Investigation: Origin and Recognition of Arson / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic principles of arson investigation.

FSC 061 Hazardous Materials II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: FSC 053.

Principles and techniques of dealing with flammable, explosive, reactive and toxic materials. Includes identification, classification, researching of such materials and handling them under both hazardous and safe conditions. Also includes information on the special problems they cause and where they are likely to be found, shipped and used.

FSC 062 Hydraulics and Fire Suppression /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 070. (PHY 101 recommended.)

Principles of hydraulics as applied to fire suppression. Includes physical laws affecting the movement of water through pipes, hydrants, pumpers, hoses, etc.; functions and limitations of mechanical equipment to overcome these restrictions; effect of friction loss; head and pressure; water system; fire flow requirements; and organization for fire suppression.

FSC 064 Fire Protection Systems /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles of fire protection systems. Includes portable and fixed fire extinguishing equipment, automatic sprinkler and deluge systems, rate of temperature rise and smoke detecting devices, and alarm systems.

FSC 065 Building Construction for Fire Protection /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: None.

Principles of building design as related to fire protection. Includes fire travel, relation of fire load to propagation of flame, non-conforming structures and application of building codes.

FSC 066 Fire Suppression, Strategy and Tactics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles of planning fire suppression attacks. Includes planning an attack to fit the problem and revising the plan of attack to meet changing situations.

FSC 067 Rescue Practices and First Aid /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Application of rescue practices and first aid techniques to emergency situations.

FSC 068 Special Hazard Tactical Problems /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Tactical problems and specific hazards not normally encountered. Designed for experienced fire fighters. Includes hazard characteristics and hazardous materials under fire conditions.

FSC 155 Fire Investigation: Arson III /3 cr. hrs./3 periods (3 lec.)

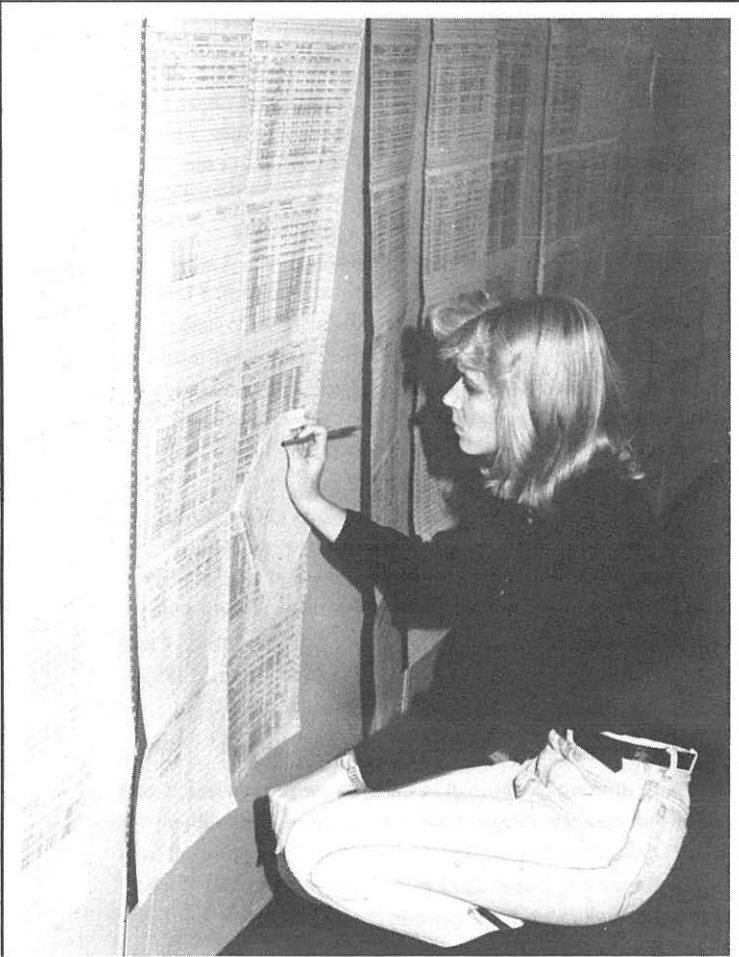
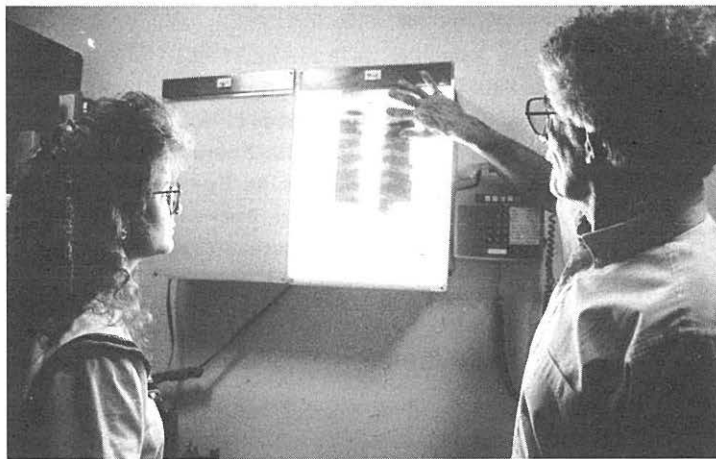
□Prerequisite: None.

Advanced principles and techniques of fire investigation. Includes forensic lab services, incendiary devices and fuses, laws of arrest, search and seizure, scene photography and insurance fraud.

FSC 156 Fire Investigation: Arson IV /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Advanced techniques of arson investigation. Includes special topics on state of the art investigative techniques, including those involved in research, legal cases and arson scenes.



FITNESS AND SPORT SCIENCES

GENERAL ACTIVITIES PROGRAM FOR ALL STUDENTS:

Individual & Dual Sports Courses

- FSS 100 Beginning Archery /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 101 Intermediate Archery /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 103 Advanced Archery /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 104 Beginning Badminton /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 107 Beginning Bowling /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 108 Bicycling /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 110 Beginning Golf /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 111 Intermediate Golf /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 112 Advanced Golf /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 113 Beginning Racquetball /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 114 Intermediate Racquetball /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 115 Advanced Racquetball /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 116 Beginning Tennis /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 117 Intermediate Tennis /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 118 Advanced Tennis /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 119 Track and Field /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 120 Biathlon Training /1 cr. hr./3 periods (1 lec., 2 lab)**
- FSS 122 Beginning Fencing /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 123 Intermediate Fencing /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 124 Advanced Fencing /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 144 Wrestling /1 cr. hr./2 periods (1 lec., 1 lab)**

Team Sports Courses

- FSS 125 Beginning Basketball /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 126 Intermediate Basketball /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 127 Advanced Basketball /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 128 Beginning Baseball /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 129 Softball /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 130 Soccer /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 131 Beginning Volleyball /1 cr. hr./2 periods (1 lec., 1 lab)**

FSS 132 Intermediate Volleyball /1 cr. hr./2 periods (1 lec., 1 lab)

FSS 133 Advanced Volleyball /1 cr. hr./2 periods (1 lec., 1 lab)

Combative Activities Courses

- FSS 136 Beginning Judo /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 137 Intermediate Judo /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 138 Advanced Judo /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 139 Beginning Tae Kwan Do /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 140 Intermediate Tae Kwan Do /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 141 Advanced Tae Kwan Do /1 cr. hr./2 periods (1 lec., 1 lab)**
- FSS 142 Defensive Tactics /2 cr. hrs./3 periods (2 lec., 1 lab)**
☐ Prerequisite: Consent of instructor.
 The theory of rough and tumble fighting; fundamentals and precaution, close-in defense and attack; control over and advising; the armed and unarmed opponent; chin maneuvers; prisoner handling and control; and physical fitness.
- FSS 143 Self-Defense for Women /2 cr. hrs./3 periods (2 lec., 1 lab)**

Fitness Related Courses

FSS 150 Fitness Activities /1 cr. hr./2 periods (1 lec., 1 lab)

☐ Prerequisite: None.

This course is designed to give the neophyte exerciser an overview of several fitness activity components including a personal fitness evaluation as well as a basis of understanding the physiology of exercise. They will also participate in four activity areas: (1) walking/jogging, (2) biking, (3) aerobic dancing, and (4) weight lifting.

FSS 151 Sports Conditioning /1 cr. hr./2 periods (1 lec., 1 lab)

☐ Prerequisite: Consent of instructor.

Conditioning class for athletes. Athletes work with their respective coaches with exercises and drills designed for their particular sport.

FSS 152 Independent Activity /1 cr. hr./2 periods (1 lec., 1 lab)

☐ Prerequisite: At least one physical education activity class or permission from instructor.

Independent fitness activities designed for students who are actively engaged in a fitness activity, but are unable to meet regularly scheduled physical education classes.

FSS 153 Fitness Assessment and Circuit Training /1-2 cr. hrs./ 2-3 periods (0-1 lec., 2 lab)

□Prerequisite: None.

Evaluation of present fitness level, includes cardiorespiratory, flexibility, strength and body-fat evaluations. Activity/exercise program based on evaluations. Follow-up evaluation at middle and end of semester.

FSS 185 Beginning Weight Training /1 cr. hr./2 periods (1 lec., 1 lab)

FSS 186 Intermediate Weight Training /1 cr. hr./2 periods (1 lec., 1 lab)

FSS 187 Advanced Weight Training /1 cr. hr./2 periods (1 lec., 1 lab)

Dance Courses

FSS 161 Country Swing /1 cr. hr./2 periods (1 lec., 1 lab)

FSS 162 Beginning Tap Dance /1 cr. hr./2 periods (1 lec., 1 lab)

FSS 164 Advanced Tap Dance /1 cr. hr./2 periods (1 lec., 1 lab)

FSS 165 Square Dance /1 cr. hr./2 periods (1 lec., 1 lab)

FSS 166 Beginning Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)

FSS 167 Intermediate Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)

FSS 168 Advanced Modern Dance /1 cr. hr./2 periods (1 lec., 1 lab)

FSS 169 Dance Repertoire /2 cr. hrs./3 periods (1 lec., 2 lab)

FSS 170 Introduction to Bailes Folklóricos Mexicanos /2 cr. hrs./ 3 periods (1 lec., 2 lab)

FSS 171 Folkloric Mexican Dance I: Oaxaca /2 cr. hrs./3 periods (1 lec., 2 lab)

FSS 172 Bailes Folklóricos Mexicanos: Vera Cruz /2 cr.hrs./3 periods (1 lec., 2 lab)

FSS 173 Folkloric Mexican Dance II: Michoacan /2 cr. hrs./3 periods (1 lec., 2 lab)

Aerobic Dance Exercise Courses

FSS 176 Low Impact Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)

FSS 177 Medium Intensity Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)

FSS 178 High Intensity Aerobics /1 cr. hr./2 periods (1 lec., 1 lab)

Special Interest Courses

FSS 191 Survival /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Wilderness survival techniques. Includes how to build fires and shelters, how to find water and edible foods and the principles of orienteering with emphasis on basic use of maps and the magnetic compass. Also includes philosophical aspects of survival in any environment.

FSS 192 Prenatal/Postnatal Fitness /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: Pregnant or less than three months postnatal.

Will educate the expectant mother in conditioning muscle groups in childbirth and exercise adaptations for pregnancy. Class will include moderate exercise for flexibility, muscle toning, aerobic conditioning and relaxation skills.

FSS 193 Plus-Sized Exercise /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: Twenty-five pounds or more overweight.

A comprehensive approach to weight control involving exercise, nutrition and diet counseling, behavior modification and a support group of people with similar goals. Each class will consist of exercise followed by lecture discussion.

FSS 194 Therapeutic Fitness /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: FSS 208 or consent of instructor.

Instruction for fitness leaders. Includes appropriate teaching methodology, modifications, contraindications, and medication effects for people with arthritis, diabetes, chronic lung disease, heart disease, obesity, senior adults, and pre- and post-natal women.

FITNESS AND SPORT SCIENCES FITNESS TECHNICIAN MAJOR COURSES

FSS 199 Co-op Related Class in FSS /1 cr hr./1 period (1 lec.)

See Cooperative Education section for description.

FSS 199 Co-op Related Work in FSS /1-3 cr. hrs./5-15 periods (5-15 lab)

See Cooperative Education section for description.

FSS 236 Motivation and Human Relations In Motor Performance / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Elements of human behavior which enable the professional and technician to motivate and relate to the physically active participant. Designed to examine professional behavior in the fitness work place.

FSS 237 Fitness Facilities: Care and Maintenance /2 cr. hrs./ 2 periods (2 lec.)

□Prerequisite: None.

Examination of equipment needs in a variety of fitness facilities. Includes basic care of facilities, e.g., minor repairs, care and inventory of equipment, and towel and locker room maintenance.

FSS 238 Introduction to Sports Injury Management /2 cr. hrs./ 2 periods (2 lec.)

□Prerequisite: None.

Introduction to principles and techniques of preventing, treating and rehabilitating sports related injuries. Includes recognition of sports injuries, therapeutic methods, mechanisms of sports injuries, nutrition, and taping and wrapping techniques.

FSS 239 Introduction to Leisure Education /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of opportunities in, qualifications for and general orientation to the fields of health, physical education and recreation. For prospective professionals in these fields.

FSS 240 Adaptive and Corrective Programs /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of various programs of physical rehabilitation in recreation and physical education. Includes techniques of instruction.

FSS 242 Elementary School Physical Education /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic skills in and knowledge of materials and methods for teaching physical activities, games and sports. Includes relays and theoretical basis of the movement education approach to physical education.

FSS 276 Designed Exercise /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Evaluation and interpretation of basic physiological responses to exercise, nutrition and weight control, and the application of each to create a total fitness profile.

FSS 279 Motor Development /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Examination of developmental changes in motor patterns for children and adults. Includes methods used in evaluating motor skill performance and the selection of appropriate movement experiences.

FSS 286 Sports Officiating /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Familiarization with and application of the rules of various sports from the standpoint of an official. Includes current methods and materials to develop competency in executing official rules. Also includes actual experience through service in the college's intramural program and other agencies.

FSS 288 History of Physical Education /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Examination of the historical development of physical education. Includes social, political, religious and cultural influences as they shaped the physical activities of man from prehistoric times to the present. Emphasis on the leaders of physical education in each major time period.

FSS 289 Philosophy of Sport and Physical Education /2 cr. hrs./ 2 periods (2 lec.)

□Prerequisite: None.

The philosophic process used in understanding various phases of the teaching/coaching profession. Includes major philosophical topics as related to physical education and sport.

FSS 290 Independent Studies in Fitness and Sport Sciences / 3 cr. hrs./9 periods (9 lab)

□Prerequisite: Consent of instructor.

Students independently continue their development in health, physical education and recreation with the help of a faculty member. May be taken two times for a maximum of six credit hours.

FSS 299 Co-op Related Class in FSS /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

FSS 299 Co-op Related Work in FSS /1-3 cr. hrs./5-15 periods (15 lab)

See Cooperative Education section for description.

**PROFESSIONAL ACTIVITIES COURSES FOR STUDENTS
PLANNING A TEACHING MAJOR OR MINOR IN FITNESS AND
SPORT SCIENCES**

FSS 208 Aerobics /1 cr. hr./3 periods (3 lab)

FSS 211 Badminton /1 cr. hr./3 periods (3 lab)

FSS 213 Basketball /2 cr. hrs./3 periods (1 lec., 2 lab)

FSS 217 Folk and Square Dance /2 cr. hrs./2 periods (2 lec.)

FSS 218 Weight Training /1 cr. hr./3 periods (3 lab)

FSS 223 Racquetball /1 cr. hr./3 periods (3 lab)

- FSS 224 Self Defense** /1 cr. hr./3 periods (3 lab)
FSS 225 Soccer /2 cr. hrs./3 periods (1 lec., 2 lab)
FSS 227 Softball /1 cr. hr./3 periods (3 lab)
FSS 230 Tennis /2 cr. hrs./3 periods (1 lec., 2 lab)
FSS 231 Track and Field /2 cr. hrs./3 periods (1 lec., 2 lab)
FSS 232 Volleyball /2 cr. hrs./3 periods (1 lec., 2 lab)
FSS 233 Archery /1 cr. hr./3 periods (3 lab)

FOOD SCIENCE AND NUTRITION

FSN 055 International Cuisine /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: None.

Study of international foods with lectures and food preparation by students. Includes history of foods studied. May be taken two times for a maximum of four credit hours.

FSN 056 Authentic Mexican Cookery /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Methods of utilizing home and commercial cooking facilities and resources to prepare authentic Mexican dishes. Includes selection and substitution of ingredients, cooking procedures and eye appeal. Also includes an appreciation of cultural aspects of Mexican people through the art of cooking.

FSN 057 Vegetarian Dietary Cookery /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: None.

The study of food combinations from vegetable sources which supply adequate nutrition. Includes demonstrations in the planning and preparation of foods from plants which supply essential nutrients.

FSN 113 Food Study /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

The composition of various types of food. Includes methods of preparing foods to be flavorful, attractive and nutritious. Emphasis on selection and utilization of proper nutrients for maintenance of health in persons of all ages.

FSN 114 Nutrition /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of nutrients and their use by the body for growth and development. Includes maintenance of health through proper diet.

FSN 124 Nutrition for the Young Child /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

In-depth study of the nutritional needs of children. Emphasis on the total basic nutrient requirements for optimal health and development.

FRENCH

FRE 050 Conversational French I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Designed for persons with no previous knowledge of French. Primary focus on listening to and speaking elementary French. A non-transfer credit course, plus a TV option.

FRE 051 Conversational French II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: FRE 050.

Designed for persons able to ask and respond to simple questions relevant to self and to the environment. A non-transfer credit course.

FRE 110 Elementary French I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Designed to provide proficiency in basic communication (listening, speaking, reading and writing), emphasizing an examination of French cultural traditions. A transfer credit course.

FRE 111 Elementary French II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: FRE 110 or equivalent.

Designed to provide increased proficiency in listening, speaking, reading and writing. Continued study of French cultural traditions. A transfer credit course.

FRE 210 Intermediate French I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: FRE 111 or two years of high school French.

Intensive review of grammar in addition to reading selected authors and writing short compositions. Continued practice in speaking French. A transfer credit course.

FRE 211 Intermediate French II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: FRE 210.

Continuation of FRE 210. Emphasis on efficient and contemporary language usage. A transfer credit course.

GENERAL BUSINESS

GEB 040 Supervisory Techniques I /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Managerial functions, the supervisory role and leadership styles as they relate to Civil Service regulations.

GEB 041 Supervisory Techniques II /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Self perceptions, career goals, interpersonal relationships, problem solving and time management as they relate to civil servants.

GEB 042 Supervisory Techniques III /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Verbal and nonverbal communication, attitudes, motivation, group dynamics and human relationships as they relate to civil servants. Designed for in-service training program.

GEB 043 Supervisory Techniques IV /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Employee behavior, causes of misbehavior, grievances, ARS Right to Work Code and unionism as they relate to civil servants. Designed for in-service training program.

GEB 060 Planning Your Retirement /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of retirement planning. Includes psychological aspects, health care, legal affairs, money management, benefits, community services, leisure-time planning and continuing education for senior citizens.

GEB 065 Practical Law /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Overview of basic legal concepts and laws. Includes rights, responsibilities and liabilities of every citizen.

GEB 084 Public Relations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

All categories of public relations problems and practices. Includes corporate, business, association, government, education and other agencies; good media relations; writing news releases, news letters, speeches and memos; step-by-step operation of a public relations campaign; and the place of public relations in an efficient organization.

GEB 086 Tax Problems of the Independent Businessman /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Tax problems common to small businesses and industries. Includes retail, service and manufacturing businesses and accounting systems beneficial to the small business owner.

GEB 091 Fund Raising From Private Sources /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic concepts, principles and process of successful fund raising. Includes a capital fund-raising program, sources of funds, deferred giving program and preparation of the fund raising proposal.

GEB 096 Applied Accounting /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic principles for setting up and operating an accounting system. Includes accounts receivable and payable, 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.)

□Prerequisite: None.

Introduction to the principles of television advertising. Includes visual and oral techniques for preparing advertisements. Prepares students for entry level jobs in the television advertising field.

GEB 099 The Stock Market /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic principles of investing in the stock market. Includes stocks, bonds, speculative investments, mutual funds and commodities.

GEB 100 Tucson Tax Forum: Current IRS Regulations /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Seminar on current Internal Revenue Service regulations and IRS interpretations of the tax law. Designed for persons in the tax preparation profession including public accountants, tax attorneys and tax preparers. Provides continuing education units and satisfies proposed statutory educational requirements for CPA's.

GEB 101 Starting a Business /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles of entrepreneurship and self-employment. Designed to provide the skills and knowledge necessary to go into business.

GEB 120 Elements of Agency Management I /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Skill development in the problem-solving process to assist trainees in organizing their casework. For beginning social workers with limited casework experience.

GEB 135 Consumer Experience /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles of being an effective consumer. Includes consumer behavior, wise consumer strategies, financial responsibilities, consumer protection, fraudulent schemes, budgeting framework and contemporary personal finance problems.

GEB 142 Improving Human Relations /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Techniques for improving interpersonal relationships in the work environment. Includes enhancing one's self-image and the self-image of co-workers, communications, Maslow's hierarchy of human needs, appreciation of others' differences, cultural and religious awareness and appreciation for individual differences.

GEB 150 Management Update Techniques I /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Techniques of reviewing and improving management and supervisory skills. For first line managers. Includes management coordination, effective decision making, the planning process, organization control, staffing, terminations and sources of authority.

GEB 151 Management Update Techniques II /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Techniques of reviewing and improving management and supervisory skills. For first line managers. Includes interviewing, communication, effective presentations, time management and career advancement.

GEB 152 Management Update Techniques III /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Techniques of reviewing and improving management and supervisory skills. For first line managers. Includes self-image, working with others, group processes, motivation, personality and leadership.

GEB 153 Management Update Techniques IV /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Techniques of reviewing and improving management and supervisory skills. For first line managers. Includes leadership techniques, management training, coping with change, executive ethics, dealing with complaints and criticism, motivation, selling yourself, the habit of success and the laws of success.

GEB 154 Management Update Techniques V /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Techniques of revising and improving management and supervisory skills. For first line managers. Includes brownout, burnout, mental habits, body language, life choices, executive mid-life crisis, love and work and maintaining balance.

GEB 195 Job Entry Procedures /1 cr. hr./1 period (1 lec.)

Same as CSC 195.

GEB 196 Work Standards and Job Attitudes /1 cr. hr./1 period (1 lec.)

Same as CSC 196.

GENERAL MACHINE SHOP**GMC 050 General Machine Shop /3 cr. hrs./4 periods (1 lec., 3 lab)**

□Prerequisite: None.

Basic principles of machine tooling. Includes the safe use of 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)**

□Prerequisite: None.

Emergency first aid procedures. Includes the care and transportation of those with accident injuries.

GTC 010 Basic Electricity /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Introduction to electrical principles. Includes electrical safety, DC currents, AC wiring systems, and electrical trouble-shooting.

GTC 020 Small Engine Repair /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Classroom instruction and shop experience in maintaining and repairing a variety of small engines used on portable power equipment, e.g., lawn mowers, outboard motors, chain saws and rotary tillers. 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)

□Prerequisite: None.

Fundamentals of office machine repairs. Emphasis on the repair and routine maintenance of manual and electric typewriters.

GTC 052 Business Machine Repair II /3 cr. hrs /4 periods (2 lec., 2 lab)

□Prerequisite: GTC 051.

Advanced techniques of office machine repairs. Emphasis on the care and routine maintenance of the electric typewriter.

GTC 058 Solar Energy and Retrofit /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of 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 determine economic impact of those systems.

GTC 068 General Welding /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: None.

Techniques and practices of joining metals by electric arc welding as applied in the ironworking trade.

GTC 070 Heavy Equipment Operation /5 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisite: None.

Principles of and practice in operating heavy equipment. Includes safety, preventive maintenance, interpretation of grade stakes, and fundamentals of operating front end loaders, backhoes, motor graders and bulldozers.

GTC 071 Heavy Equipment Maintenance /5 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisite: None.

Heavy equipment maintenance procedures. Includes hydraulic, electric and fuel systems for front end loaders, backhoes, motor graders and bulldozers. Emphasis on hands-on practice.

GTC 083 Equine Animal Science /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to the health, breeding and care of horses. Includes anatomy, physiology, reproduction, health maintenance, disease prevention and general care. Prepares students for entry level jobs with large animal veterinarians.

GTC 085 Aviation Ground School-Private /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to theory and procedures associated with flight, weather and navigation. Provides general background required to become a private pilot.

GTC 087 Aviation Ground School-Instruments /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Familiarization with various aircraft instruments. Emphasis on instrument flight rules.

GTC 088 Aviation Ground School-Commercial /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to theory and procedures associated with flight, weather and navigation. Provides general background required to become a commercial pilot.

GTC 090 Landscaping for the Southwestern Home /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles and practices of home gardening. Includes design, elementary botany, environmental considerations and commonly used materials. Emphasis on landscaping in the Southwest.

GTC 092 Woodshop I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Techniques of wood preparation and finishing. Includes safety practices and use of shop equipment. Emphasis on functional design, drawing and reading project plans. Prepares students for custom wood working.

GTC 093 Elementary Television Repair /3 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: None.

Basic television repair. Includes simple tests to locate common receiver malfunctions, fundamentals of reading electronic circuit blueprints, and safety practices in routine repair. Designed to assist students in diagnosing common television receiver difficulties. Can be used for exploring the electronics field. More serious electronics students should select other courses.

GTC 094 Introduction to Motorcycle Safety and Maintenance / 3 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Introduction to motorcycle safety and maintenance. Includes safe operating procedures, evasive and defensive techniques, routine maintenance and emergency repairs. Emphasis on diagnosing two- and four-cycle engine malfunctions.

GTC 095 Furniture Upholstery Techniques /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Techniques and procedures for upholstering furniture. Includes methods of constructing frames, the use of power sewing machines, pattern marking and selecting fabrics.

GTC 096 Advanced Upholstery /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: GTC 095.

Continuation of GTC 095. Advanced techniques of frame rebuilding, pattern design, fabric selection and upholstery fabrication.

GTC 097 Woodshop II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Fundamentals of cabinet making and furniture construction. Includes wood preparation, finishing, cabinet and furniture design, and cost estimating.

GTC 098 Animal Genetics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

A general interest course which examines the basic principles and applications of animal genetics. Primarily for persons interested in breeding small animals.

GTC 099 Blueprint Reading /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Interpretation of construction and engineering drawings through a familiarization with the symbols and language of blueprints.

GTC 111 Fundamentals of Oxy-Acetylene Welding /3 cr. hrs./4 periods (1 lec., 3 lab.)

□Prerequisite: None.

Techniques of oxy-acetylene welding, including safety, flame cutting, horizontal and vertical steel welding and braze welding. This course will not satisfy requirements for the welding degree or certificate.

GTC 112 Fundamentals of Arc Welding /3 cr. hrs./4 periods (1 lec., 3 lab.)

□Prerequisite: None.

Techniques of arc welding, includes safety procedures and overhaul and vertical welding. This course will not satisfy requirements for a welding degree or certificate.

GTC 219 Industrial Data Acquisition and Control Systems /6 cr. hrs./8 periods (4 lec., 4 lab)

□Prerequisites: ETR 105, ETR 110 and concurrent enrollment in ETR 276.

Familiarization with modern, computer-based data acquisition and industrial control systems. Includes integration into systems of various electronic components (i.e., analog to digital convertors, signal conditioning circuits and microcomputers). Integration of these components, discussed in lectures, will be explored in laboratory exercises.

GEOGRAPHY

(See also EARTH SCIENCES)

GEO 101 Physical Geography: Weather and Climate /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

The physical elements—weather, climate, vegetation and soils—and their importance to man. Includes their interrelationships, resulting patterns and effects. A physical laboratory science.

GEO 102 Physical Geography: Land Forms and Oceans /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Introduction to the surface of the earth and the forces of nature that shape it. Includes the study of volcanoes, earthquakes, glaciers, rivers and oceans, and the interrelation of these forces with man. A physical laboratory science.

GEO 103 Cultural Geography /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Examination of the human world from a geographic perspective. Includes an exploration of global issues such as population, food supply, geopolitics and urbanization. Also includes industrialization as seen in the special combination of cultural, physical, historical, economic and organizational qualities imprinted on the landscapes of the world. A social science.

GEOLOGY**GLG 101 Introductory Geology I /4 cr. hrs./6 periods (3 lec., 3 lab)**

□Prerequisite: None.

An introduction to the physical aspects of the earth's crust; rocks and minerals, their relationship to one another; and the surface and subsurface processes that operate on and in the earth.

GLG 102 Introductory Geology II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

This course traces the history of the earth and life on earth as indicated by the sequence of rock layers, the distribution of surface sediments, former geographic relationships, the fossil record and the nature of ancient environments. (GLG 101 is strongly recommended.)

GLG 107 Mineralogy & Introduction to Petrology /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: GLG 101.

This course deals with the relationships between crystal chemistry, atomic structure and the properties of minerals, and teaches students how to use these relationships to make identifications. The students will also learn fundamental principles for the more detailed study of igneous, sedimentary and metamorphic rocks.

GLG 110 Environmental Geology and Natural Hazards /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: GLG 101 or equivalent.

A survey of geologic processes that interact with human activities with emphasis on rivers and floods, landslides, earthquakes and volcanic action. Problems of water quality, resource availability, and toxic and radioactive waste disposal will also be considered.

GLG 221 Structural Geology /4 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisites: Trigonometry and GLG 101 or equivalent required. (GLG 102 is recommended.)

Study of structures from formation and deformation of rocks, of the forces which cause such deformations, and the geographic features which result. Field mapping techniques will be introduced in the lab portion of the course.

GLG 240 Geology of Selected Regions /2-3 cr. hrs./2-3 periods (2-3 lec.)

□Prerequisites: GLG 101 (GLG 102 also recommended).

Geologic survey of specific region, reviewing the stratigraphy, structure, historical geology, and most important geologic processes operating today, in a selected region of interest. This course may be taken four times for credit.

GLG 244 Geological Field Excursions /1-3 cr. hrs./5 periods (0-1 lec., 1-5 lab)

□Prerequisite: GLG 101 or GLG 102 is strongly recommended.

Field excursions to provide encounters with geologic features and processes. Overnight camping is usually involved, moderately strenuous overnight or day hikes may be undertaken.

GLG 280 Geology of Arizona /3 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisites: GLG 101 and GLG 102.

The stratigraphy, structure, and geologic history of Arizona and adjacent areas. Lab will consist of multi-day field excursions. Emphasis will be on discovery of the stories behind today's often spectacular Arizona scenery.

GERMAN**GER 110 Elementary German I /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: None.

Introduction to the German language. Designed to provide proficiency in basic communication (listening, speaking, reading and writing). Emphasis on German cultural traditions. A transfer credit course.

GER 111 Elementary German II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: GER 110 or one year of high school German.

Continuation of GER 110. Designed to provide increased proficiency in listening, speaking, reading and writing. Continued emphasis on German cultural traditions. A transfer credit course.

GER 210 Intermediate German I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: Ger 111 or two years of high school German.

Intensive review of grammar, in addition to reading selected authors and writing short compositions. Emphasis on practice in speaking German. A transfer credit course.

GER 211 Intermediate German II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: GER 210.

Continuation of GER 210. Emphasis on efficient and contemporary language usage. A transfer credit course.

GER 240 Independent Study in German /1-4 cr. hrs./1-4 periods (1-4 lab)

□Prerequisite: Consent of instructor.

Independent study in German literature, grammar or special projects under the supervision of an instructor. A transfer credit course.

GOVERNMENT/INDUSTRY/BUSINESS**GIB 197 Training for GIB: .25 to 4 cr. hrs./ .25 to 4 periods (VAR lec., VAR lab)**

□Prerequisite: None.

Customized credit course to meet the immediate training needs of business, industry and government within Pima County.

GRAPHIC TECHNOLOGY**GRA 101 Graphic Technology I /3 cr. hrs./4 periods (3 lec., 1 lab)**

□Prerequisite: None.

Overview of the graphics communication industry and basic principles of graphic reproduction and their application. Includes setting type, paste-up, process camera work, stripping negatives, plate making and offset press operations.

GRA 102 Graphic Technology II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: GRA 101.

Continuation of GRA 101. Survey of technology in the graphic arts industry. Includes fundamentals of offset lithography, copy preparation, bindery operations, phototypographic techniques and composite paste-up for camera-ready copy.

GRA 103 Binding and Finishing Process /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Training in the use of modern binding and related equipment. Includes organization, administration and operation of plant finishing processes and hands-on experience with a power paper cutter, folder, paper drill, stitcher, perforator, collators and binding techniques.

GRA 104 Offset Photography-Stripping and Platemaking /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Use of the process camera for offset photography and theory and practice of producing quality line negatives. Includes the use of various light sensitive materials, darkroom chemistry, use of filters, stripping and platemaking techniques for offset duplicators.

GRA 105 Phototypesetting /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: GRA 101 and some typing ability (speed not essential.)

Application of phototypesetting in the graphic arts industry. Includes phototypographic techniques, paste-up, copy preparation, file management, typesetting functions, editing and tabular composition.

GRA 199 Co-op Related Class in GRA /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

GRA 199 Co-op Work in GRA /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

GRA 201 Color Theory and Practice /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: GRA 104.

Theory and practice of color process photography. Includes matching and mixing ink, selection of photographic filters and their darkroom application, working with difficult camera copy and production of uncorrected copy.

GRA 202 Offset Presswork /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: GRA 102.

Theory, operation and minor maintenance of small offset duplicators. Includes printing of line and halftone copy.

GRA 203 Estimating of Printing and Materials /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: GRA 101.

Estimating costs involved in graphics reproduction. Includes techniques for using and properly storing paper and ink and solving related problems.

GRA 206 Phototypesetting II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: GRA 105.

Continuation of GRA 105. Advanced techniques in phototypesetting in the graphic arts industry. Includes multi-column layout and parameters, tabs, data input, unit measures, automatic kerning, layout at keyboard, non-counting mode, direct-entry keyboarding and foreground/background typesetting techniques.

GRA 221 Advanced Stripping and Platemaking for Color /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: GRA 104 and 201.

Techniques used in stripping and platemaking for color production. Includes the use of various types of impositions.

GRA 222 Advanced Offset Presswork /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: GRA 202.

Continuation of GRA 202. Includes printing of close register work, work and turn, work and tumble, multi-color jobs on 2-color press, color ink mixing, solving minor technical problems as they arise during the printing process, and blanket and molleton cover replacement and care.

GRA 225 Offset Production /3 cr. hrs./9 periods (9 lab)

□Prerequisites: GRA 103, 221 and 222.

Offset printing production as related to the needs of job shops. Includes 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 202 or concurrent enrollment.

Principles and techniques of operating and maintaining large offset presses. Includes printing of close register work, halftones, multi-color; on 2-color press, color ink mixing and solving minor technical problems.

GRA 299 Co-op Related Class in GRA /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

GRA 299 Co-op Work in GRA /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

HEALTH CARE

HCA 050 Contemporary Health Issues /3 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Examination of critical health questions in today's society. Includes factually documented issues, research findings, emerging theories and points of controversy.

HCA 099 Independent Studies in Health Sciences /1-6 cr. hrs./3-18 periods (3-18 lab)

□Prerequisite: None.

Special health-related projects permitting students to do research and experimental work. Proposals for projects must be submitted to preceptor, and results of projects are presented as agreed in individual written contract.

HCA 100 Homemaker/Home Health Aide /4 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisite: None.

Practical skills in home management, personal care and rehabilitation. Prepares the beginning level health care worker to assist families and individuals in their homes.

HCA 154 Introduction to Health Care /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of the health sciences field. Includes the health care delivery systems, health careers, health science fundamentals and how to relate to the patient as a person.

HCA 155 Introduction to Pharmacology /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to the action, dosage, side effects and adverse effects of drugs. Includes effects on the anatomy, physiology, pathogenic organisms and individual responses of the patient.

HCA 199 Co-op Related Class in HCA /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

HCA 199 Co-op Work in HCA /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

HCA 299 Co-op Related Class in HCA /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

HCA 299 Co-op Work in HCA /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

HEALTH CONTINUING EDUCATION

HCE 059 Emergency Cardiac Care /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: EMT 051.

Introduction to the definitive management of the cardiac patient in the pre-hospital setting. Designed as a continuing education course for basic emergency medical technicians. Includes anatomy and physiology of the heart and conductive system, EKG recording and basic interpretation, and physical assessment of the cardiac and respiratory systems. Cardiovascular disease processes are also discussed.

HCE 110 Approaches to Long-Term Care: An Overview /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of approaches to caring for disabled adults and/or aged persons outside of institutions. Designed for those employed in health care and social service fields. Includes the process of aging, cultural attitudes and perspectives, 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: None.

Practical knowledge of drug classifications, a review of physiology, and pathophysiology as bases for therapeutic use of drugs, and implications of such use of drugs for nursing.

HCE 114 Beginning Physical Assessment Skills /1 cr. hr./1 period (1 lec.)

□Prerequisite: Current employment as an RN.

Basic interviewing and assessment skills as related to the head, chest, abdomen, and integumentary, musculoskeletal and nervous systems. Does not cover critical care nursing.

HCE 118 Renal Nursing Update /1 cr. hr./1 period (1 lec.)

□Prerequisite: The student must be one of the following: RN, LPN, currently enrolled nursing student, or dialysis technician.

Review and update of renal anatomy, physiology and pathophysiology. Focus on chronic renal disease processes and treatments, including pharmacologic agents and approaches to nursing care.

HCE 120 Alternative Medicine in Today's Society /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

A look at alternatives to traditional medicine with an in-depth evaluation of the scientific validity of these methods and their impact on society.

HCE 121 Registered Nurse Refresher /8 cr. hrs./16 periods (4 lec., 12 lab)

□Prerequisite: Registration as a nurse in the state of Arizona.

The student must not have practiced as a nurse for the past three years. Review and update of nursing knowledge and skills in both the classroom and clinical setting. Includes a review of various nursing concepts and trends in nursing and health care.

HCE 140 Medical Law and Ethics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic principles of medical law and ethics. Includes requirements for licensure; medical ethics and etiquette; medical professional liability; legal relationships; and legal forms, letters, and contracts.

HCE 214 Physical Assessment /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Skills development in interviewing, obtaining a health history, developing a problem-oriented medical record, and conducting a systematic physical examination for health assessment. Emphasis on physical examination of the adult.

HEALTH EDUCATION**HED 136 Introduction to Health Science /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Students may select topics such as traumatic injuries, communicable diseases, nutrition, mental health, environmental health problems, or socio-medical problems including venereal diseases, drug use and abuse, alcoholism and abortion. The focus is on preventive health measures and public health services.

HED 137 Elementary School Health Education /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: HED 136 or consent of instructor.

Course assists the prospective teacher and health worker in developing learning activities, which focus on health information as it pertains to the elementary age student.

HED 140 First Aid, Cardiopulmonary Resuscitation and Treatment of Exercise Related Injuries /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Theory and practice in the following areas: Standard first aid, treatment of cardiopulmonary respiratory emergencies, prevention and treatment of exercise related injuries. (Same as HED 140 A, B and C.)

HED 140A First Aid /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Standard first aid for the immediate care for victims of injuries or sudden illness. Includes further care if medical help is delayed or is not available, and urgent care needed in life threatening situations, such as arrested breathing, heart attack, stroke, heavy bleeding, poisoning, and shock.

HED 140B Cardiopulmonary Resuscitation (CPR) /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

A cardiopulmonary resuscitation (CPR) modular system which provides emergency first aid for respiratory failure and cardiac arrest in victims of all ages. Includes mouth-to-mouth breathing, CPR and clearing an obstructed airway. (Same as COA 140)

HED 140C Prevention and Treatment of Exercise Related Injuries /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Methods of injury prevention and management in the fitness center setting. Includes injury recognition and prevention, emergency planning, and legal liability.

HISTORY**HIS 050 The American Story-Beginning to 1877 /3 cr. hrs./2 periods (2 lec.)**

□Prerequisite: None.

The story of America from its prehistoric beginnings to the Centennial Celebration in 1876. Portrays the political leaders, reformers, artisans, farmers, explorers, soldiers, immigrants, industrialists, artists and others who contributed to the panorama of American life.

HIS 051 America: The Second Century /3 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Examination of the economic, political, diplomatic/military, and social developments of the United States. Takes a topical, rather than a chronological, approach to the history of the United States covering the period from 1876 to the present.

HIS 076 Ghost Towns of the Southwest /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of the social and cultural heritage of the Southwest through its past communities-mining, milling, smelting, lumbering, ranching, farming, railroading and military-between the years of 1854 and 1917.

HIS 084 Living History of the Western Frontier I /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

A living history approach to the cultural and social experience of the western frontier during its golden age (1820-1920), especially as found in the Southwest. Focuses on the daily life and times of Anglo, Mexican, Chinese, and Black ethnic groups, including such topics as prospecting, soldiering, stage coaching, food, ghost towns, Indian battlefields, cowboys, frontier women and saloons. Emphasis on firsthand participation, utilizing the senses of sight, sound, touch, taste and smell.

HIS 085 Living History of the Western Frontier II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Continuation of HIS 084. Includes such topics as mining, cavalry, campaigns, Apache wars, clothing, railroading, gunfighters, western trails, frontier tragedy sites, antique bottles and home remedies.

HIS 101-102 Introduction to Western Civilization I, II /3-3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Surveys the historic development of Western man, going through the prehistoric age, ancient Greece, Rome, early Middle Ages and Renaissance to the Twentieth Century.

HIS 105 Introduction to Chicano Studies I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The totality of Chicano life since 1848 and the struggle for self-determination.

HIS 113 Asian Civilizations I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introductory survey of the Traditional Period of Asian civilizations. Origins and development of social, political, and cultural systems in China, Japan and India.

HIS 114 Asian Civilizations II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introductory survey of the Modern Period of Asian civilizations. Origins and development of social, political and cultural systems in China, Japan and India.

HIS 122 Papago History and Culture /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

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.)

□Prerequisite: None.

Survey of the cultural heritage of the Yaqui people and the history of their struggles to protect Yaqui land and culture.

HIS 127 History and Culture of the Mexican-American in the Southwest /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

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

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

Same as ART 135.

HIS 136 Masks /3 cr. hrs./3 periods (3 lec.)

Same as ART 136.

HIS 141-142 History of the United States I, II /3-3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of U.S. history from Jamestown to the present. Includes the founding and developing of American democracy, minority participation in making of the country, and the role of the United States in world affairs.

HIS 143 American Civilization I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

A broad look, from an historical perspective, at the American experience with emphasis on the social and cultural aspects before the Civil War.

HIS 144 American Civilization II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Continuation of HIS 143. Carries the story from the Civil War to the present.

HIS 147 History of Arizona /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of Arizona history as a part of the Arizona-Sonora Desert area, moving from the pre-Columbian period through the Spanish conquest, Mexican Republic, U.S. Territory and statehood.

HIS 148 History of Indians of North America /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

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

HIS 150 Afro-American History and Peoples /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

A history of Black people in American society. Their past, present and future are explored. Emphasis on their status and special problems as a minority group. (Same as ANT 150.)

HIS 151 Roots - History of American Blacks /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

History of American Blacks based on Alex Haley's book, *Roots*, 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.)

□Prerequisite: None.

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

HIS 161 History and Peoples of Latin America II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The emergence of nationalism and the struggles to achieve economic, social, cultural and political freedoms.

HIS 165-166 History of Mexico I, II /3-3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The student moves from the pre-Columbian era, through the Spanish conquest and a century of political and social upheaval, to the nation of social and economic stability.

HIS 170 History and Peoples of Africa /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

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

HIS 180 Women in Western History /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of the various roles women have had in the western world during the classic period, the medieval period and the modern age.

HIS 190 History of the American West /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of the military history, the fact and folklore, and the lifestyle of the American West. Frontier army life, military exploration of the West, lost mines, myths and realities of Western heroes, transportation, ranching, establishment of cattle empires, and the life of the cowboy. Also offered as HIS 190A, B and C.

HIS 190A Military History of the American West /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Survey of the military history of the American West. Army life, military exploration, development of military strategy and tactics, and major military leaders.

HIS 190B Fact and Folklore of the American West /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Survey of the fact and folklore of the American West. Lost mines, myths and realities of Western heroes, and transportation.

HIS 190C Lifestyle of the American West /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Survey of the lifestyle of the American West. Ranching, range life of the cowboy, town life (including that of mining), social life, town merchants and tradesmen.

HIS 195 History of Technology /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Made up of the following three modules.

HIS 195A Early Development of Technology /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

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.)

□Prerequisite: None.

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.)

□Prerequisite: None.

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 205 The Adamses in U.S. History /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None. (Recommended: a first-year course in U.S. history.)

Social history of the United States from 1750 to 1900 centered around the lives of four generations of the Adams family, showing their role in the major events of the period.

HIS 227 Mexican-American Culture and Thought /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

A history of ideas of the Mexican-American from Nahua and Europe to the present. Brings out the evolution of the two into present day concepts such as "Raza de Bronce" and "Aztlán."

HOME ECONOMICS

HEC 099 Independent Studies in Home Economics /4 cr. hrs./18 periods (18 lab)

□Prerequisite: Consent of instructor.

Students pursue independent study in home economics under the guidance of an instructor.

HEC 127 Marriage and the Family /3 cr. hr./3 periods (3 lec.)

□Prerequisite: None.

Functions of the family. Emphasis on relationships within the family and how they affect the development of individuals in the home and community. Part I-Background: Kinship, family styles and tradition, sexuality, parenthood, working partners and the family today and tomorrow. Part II-The Dialogue: Relationships. (Same as SOC 127.)

HEC 137 Today's World /3 cr. hr./3 periods (3 lec.)

□Prerequisite: None.

Survey of current issues on the international, national and local levels, and their relationship to the individual. Includes the following research topics: the individual versus the group, the family, the economy, entertainment as an influence and a reflection, housing, clothing, politics, health, food, medicine, employment and the media. Also includes guest speakers on topics to be chosen by class members.

HEC 160 Personal and Family Finance /3 cr. hrs./3 periods (3 lec.)

Same as ECO 160.

HONORS

HON 200 Honors Independent Study Project /3 cr. hrs.

□Prerequisite: Acceptance in the Honors Program.

Exploration of special interest areas for Honors students. Content to be determined jointly by student and faculty mentor. May be taken four times for a maximum of 12 credit hours.

HON 201 Introductory Honors Course /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Acceptance in the Honors Program.

An introduction to the Honors Program with emphasis on the evolution of higher education from Plato's Academy to the modern trade school. Course methodology will include the extensive application of seminar skills, with special emphasis on problem-solving strategies.

HON 202 Critical Thinking Across the Curriculum /4 cr. hrs./ 4 periods (4 lec.)

□Prerequisite: Acceptance in the Honors Program.

An interdisciplinary, team-taught course for Honors students, exploring critical thinking skills appropriate to the major areas of academic study: science/mathematics, social sciences, humanities, and technology.

HON 203 Honors Seminar /1 cr. hr./1 period (1 lec.)

□Prerequisite: Acceptance in the Honors Program.

Exploration of a specialized area of interest. Involves participation in discussions with students and faculty members from various fields of study in order to develop skills in critical and integrative thinking. May be taken four times for a maximum of four credit hours.

HON 210 Advisory Student Planning Board /1 cr. hr./1 period (1 lec.)

□Prerequisite: Acceptance in the Honors Program.

The Advisory Student Planning Board (ASPB) is a selected group of six to eight students who function as an advisory group to the Honors Program coordinator and to the Honors Program Committee. The functions of the board include conducting student surveys on Honors courses to offer, recruiting qualified honors students at campuses and/or high schools, developing publicity, and working with guest speakers. Campus representatives to the board will serve as Honors aides to the Campus Honors Chairs. Aides will answer general questions, help plan and organize campus meetings and social events, and bring campus student views to the ASPB meetings.

HON 250 Honors Special Topics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Acceptance in the Honors Program.

Advanced class on a special topic in a particular discipline. Cross listed with courses in specific subject areas. May be taken four times for a maximum of 12 credit hours.

HOSPITALITY**HOS 101 Meetings and Convention Management I /3 cr. hrs./ 3 periods (3 lec.)**

□Prerequisite: None.

Basic principles of the meetings, convention, and trade show industry. Includes types of meetings, meetings as a social phenomenon, economic impact, suppliers and servicers to the industry, and the role of the meeting planner.

HOS 102 Meetings and Convention Management II /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: HOS 101.

Continuation of HOS 101. Includes site selection, alternative meeting environments, housing, housing negotiation, budgeting and financial management, confirmations, meeting insurance, program planning, food and beverage arrangements and other contracted services. Also includes promotion, pre- and post-convention services, wrap-up and on-site communications.

HOS 111 Hospitality - Alcohol Intervention Procedures /1 cr. hr./ 1 period (1 lec.)

□Prerequisite: None.

Procedures by which servers of alcoholic beverages can deal with alcohol abuse in their businesses. Includes effects of alcohol on the body, behavioral cues, effective responses, marketing, profitability and Arizona liquor laws.

HOS 211 Hospitality Sales and Marketing Application I /3 cr. hrs./ 4 periods (2 lec., 2 lab)

□Prerequisite: Minimum of one year's experience working in the hospitality industry.

Principles and techniques of sales and marketing using current applications in the hospitality industry.

HOS 212 Hospitality Sales and Marketing Application II /3 cr. hrs./ 4 periods (2 lec., 2 lab)

□Prerequisite: HOS 211 or a minimum of one year's experience working in the hospitality industry.

Development of a one-year marketing plan for a full-service property. Includes situation analysis, evaluation, research, revenue and budget projections.

HOTEL-MOTEL MANAGEMENT**HMM 100 Introduction to Hotel-Motel Management /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Overview of hotel-motel management. For persons having a career interest in the hotel-motel industry and for those wishing to develop or improve their job skills. Includes the history, structure and 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.)

□Prerequisite: None.

Operating principles and procedures of innkeeping. For persons who need to develop and improve their job skills. Includes guest services, creating a pleasant atmosphere, salesmanship, accounting, control and some legal aspects.

HMM 102 Hospitality Accounting /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Knowledge of basic math.

Accounting procedures for hospitality businesses. For persons who need to expand their job skills. Includes basic accounting, posting transactions, payroll computations, journalizing, financial statements and computer applications of the Uniform System of Accounts of the American Hotel and Motel Association.

HMM 103 Supervisory Housekeeping /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to housekeeping management. Includes employee training, record keeping, organization of the department, work methods, laundry equipment, cleaning materials and procedures, room design, linens and safety.

HMM 104 Hotel Food and Beverage Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Hotel food and beverage operations and management. Includes purchasing, receiving, issuing supplies, food production, budgeting and cost control, sanitation, and equipment selection and maintenance.

HMM 110 Hotel-Motel Operations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: HMM 100.

Hotel-motel management responsibilities, administration techniques and problem areas. Includes sales promotion, guest relations, use of space, accounting and record keeping, operational controls, legal aspects, insurance, labor-management relations and ethics.

HMM 111 Hospitality Management Law /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: HMM 100.

Examination of the legal aspects of hospitality management. Includes contracts, torts, liability and employee law. Also includes hospitality industry-related legislation and landmark cases.

HMM 199 Co-op Related Class in HMM /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

HMM 199 Co-op Work in HMM /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

HMM 202 Advanced Hotel-Motel Accounting /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: HMM 102.

Continuation of HMM 102, providing training in advanced accounting principles and procedures for hotel-motel bookkeepers, accountants and managers. Includes 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.)

□Prerequisite: HMM 100.

Description and application of modern marketing techniques and concepts involving food and lodging industries. Includes competitive forces, image and consumer demand, marketing research, strategy planning, advertising and cost-benefit comparison.

HMM 204 Hotel-Motel Financial Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: HMM 202.

Continuation of HMM 202. Examines various financial principles of food service and lodging activities to analyze operations for profit as well as efficient use of funds. Includes an accounting review, financial statement analysis, ratio analysis, internal controls, cost controls, pricing, budgeting and cash management.

HMM 299 Co-op Related Class in HMM /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

HMM 299 Co-op Work in HMM /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

HOUSEKEEPING-EXECUTIVE**HSK 150 Executive Housekeeping I /3 cr. hrs./3 periods (3 lec.)**

□ Prerequisite: None.

Practical approaches to institutional housekeeping. Includes 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.)

□ Prerequisite: None.

Methods for assuring the most efficient and economical use of an institutional housekeeping staff and the maximum production with personnel and resources currently available.

HSK 199 Co-op Related Class in HSK /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

HSK 199 Co-op Work in HSK /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

HSK 299 Co-op Related Class in HSK /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

HSK 299 Co-op Work in HSK /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

HUMAN DEVELOPMENT EDUCATION**HDE 050 Approaching Mathematics Positively /1 cr. hr./1 period (1 lec.)**

□ Prerequisite: None.

Designed for students who avoid taking mathematics courses or who have anxiety in mathematics courses. Mathematics anxiety defined, underlying causes discussed, and anxiety reduction techniques practiced. Includes mathematics study and test-taking. Same as MTH 050.

HDE 100 College Success Skills /1 cr. hr./1 period (1 lec.)

□ Prerequisite: None.

Development of educational goal setting skills to increase opportunities for success. Includes college and community resources and skill development in problem solving. Separate sections may be taught for special groups.

HDE 110 Developing Self-Esteem /1 cr. hr./1 period (1 lec.)

□ Prerequisite: None.

Exploration and assessment of student's current self-esteem level. Includes strategies and tools for developing thoughts, feelings and behaviors that can enhance self-esteem at school, work and in personal life.

HDE 120 Personal Development /1 cr. hr./1 period (1 lec.)

□ Prerequisite: None.

Development of self-awareness for students desiring a better understanding of themselves and others. Includes assessment of personal strengths, values, feelings and attitudes, and development of skills needed for improving self-confidence, relationships with others, problem solving, decision making and goal setting. Separate sections may be taught for special groups.

HDE 130 Stress Management /2 cr. hrs./2 periods (2 lec.)

□ Prerequisite: None.

Principles and techniques for understanding and dealing with stress in daily life. Includes information and experiential activities applicable to students and the learning process. Emphasis on the interrelation of physical, mental and emotional health.

HDE 140 Assertiveness Training /2 cr. hrs./2 periods (2 lec.)

□ Prerequisite: None.

Development and strengthening of assertive skills, including improving self confidence and ability to relate to others. Emphasis on the integration of these skills into daily life. Separate sections may be taught for special groups.

HDE 170 Dynamics of Leadership /2 cr. hrs./2 periods (2 lec.)

□ Prerequisite: None.

Supervised practical training for advanced students involved in leadership positions. Provides opportunities to strengthen leadership skills developed in previous courses. May be taken twice for a maximum of four credit hours.

HDE 190 Career Exploration /2 cr. hrs./2 periods (2 lec.)

□ Prerequisite: None.

Development of skills necessary to make a career choice. Includes identification of personal strengths, values and motives for making career decisions. Also includes exploration of current and future job opportunities.

HDE 195 Securing a Job /1 cr. hr./1 period (1 lec.)

□ Prerequisite: None.

Development of the skills and confidence necessary to get a job. Includes locating job openings, resume writing, interview techniques, effectiveness on the job and improving employment opportunities.

HDE 298 Special Topics /.25-3 cr. hrs./25-3 periods

□ Prerequisite: None.

Customized course designed for special student interests, needs, and faculty expertise in human development area. Consult current class schedule for specific content.

HUMANITIES

HUM 060 Early Chinese Views of Social Change /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

A study of the I Ching and Taoism in early China.

HUM 080 Humanities Through the Arts (TV) /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of seven art forms: film, drama, music, literature, painting, sculpture and architecture. Includes their criticism and evaluation and examination of their historical awareness, elements, form and meaning.

HUM 110 Humanities I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Introduction to man's expressions in art, architecture, drama, music, literature, religion and philosophy. Man's ideas and art from the rise of civilization through the Renaissance and Reformation.

HUM 111 Humanities II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Introduction to man's expressions in art, architecture, drama, music, literature, religion and philosophy. Man's ideas and art from the rise of modern science through the present.

HUM 130 Independent Studies in Humanities /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Reading and research projects to be arranged with instructor.

HUM 131 Great Ideas /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Topics in humanities. Past studies have included Zen meditation, mythology and mysticism.

HUM 251 Western Humanities I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Major ancient cultures, from the Sumerian through the Roman, with emphasis on the classical Greek. May include such readings as *The Epic of Gilgamesh*, *Hammurabi's Code*, Hebrew scriptures, *The Odyssey*, *Oedipus Rex*, selections from Aristotle, *On the Nature of the Universe*, and *The Aeneid*.

HUM 252 Western Humanities II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Western culture from the early Christian period through the seventeenth century. May include such readings as selections from the New Testament, *Inferno*, *The Prince*, *Don Quixote*, *Paradise Lost*, *Discourse on Method*, and *Tartuffe*.

HUM 253 Western Humanities III /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Western Culture in the modern world: eighteenth, nineteenth, and twentieth centuries. May include such readings as *Candide*, *An Enquiry Concerning Human Understanding*, *Metaphysics of Morals*, *Faust*, *Mrs. Dalloway*, *Walden*, *The Communist Manifesto*, *The Origin of Species*, and *No Exit*.

HUM 260 Intercultural Perspectives /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Literary and artistic works of American Indians and Asian, Black, and Hispanic Americans, both men and women. Includes traditional and modern works and contributions to American civilization.

INFORMATION INDUSTRIES

IIT 100 Fundamentals of Telephony I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of the telecommunications industry. Traces significant events and decisions in that industry from 1875 to the present. Includes formation of the first telephone company, licensee companies, the Blake transmitter, advent of the switchboard, independent companies, Vail's objectives, common carriers and the proposed consent decree.

IIT 110 Information Industries I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Exploration of the history and impact of the information revolution. Includes the magnitude and development of data handling with emphasis on future trends. Also includes the office of the future, human factors in office automation, future directions of society, computer literacy and future opportunities.

IIT 210 Information Industries II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

In-depth analysis of the practical problems of management in the information industry. Includes the impact on management, human interface, phases of development, trends in data processing, career management and survival of the business. Emphasis on application of managerial activities to offices of the future.

INSTITUTE-AUTOMOTIVE TECHNOLOGY**IAU 110 Automotive Special Topics (Selected Special Topics, Modules A-Z) /1 cr. hr./1 period (1 lec.)**

□Prerequisite: Journeyman mechanic status.

Automotive "new product" diagnosis and repair procedures and information as required by journeyman-level mechanics in the performance of their job. Specific topics, modules A-Z, will be developed based on changes in automotive technology.

IAU 120 Automotive Special Topics (Selected Special Topics, Modules A-Z) /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: Journeyman mechanic status.

Automotive "new product" diagnosis and repair procedures and information as required by journeyman-level mechanics in the performance of their job. Specific topics, modules A-Z, will be developed based on changes in automotive technology.

IAU 130 Automotive Special Topics (Selected Special Topics, Modules A-Z) /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Journeyman mechanic status.

Automotive "new product" diagnosis and repair procedures and information as required by journeyman-level mechanics in the performance of their job. Specific topics, modules A-Z, will be developed based on changes in automotive technology.

IAU 140 Automotive Special Topics (Selected Special Topics, Modules A-Z) /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: Journeyman mechanic status.

Automotive "new product" diagnosis and repair procedures and information as required by journeyman-level mechanics in the performance of their job. Specific topics, modules A-Z, will be developed based on changes in automotive technology.

INSTITUTIONAL FOOD SERVICE**IFS 101 Institutional Food Sanitation /1 cr. hr./1 period (1 lec.)**

□Prerequisite: None.

Principles and practices of food safety and sanitation. Includes sanitary food handling, contamination and food-borne illnesses, purchasing and storing food, sanitation of facilities and equipment, and safety.

IFS 102 Institutional Food Safety /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Principles and practices of food safety and sanitation. Includes employee safety, accident prevention techniques, fire safety, pest control, housekeeping management, and the functions of the local health department and the Center for Disease Control.

IFS 105 Record Keeping for Institutional Food Service /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Introduction to methods of institutional record keeping, including federal and state requirements for school food service. Stresses the importance of accurate record keeping to provide an audit trail.

IFS 110 Basic Nutrition for Food Service Personnel /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic principles of nutrition and their application to human needs, including the role of normal nutrition throughout the life cycle.

IFS 116 Quantity Food Production /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Methods of quantity food production in an institutional environment. Includes principles of food preparation, cooking methods, equipment sanitation and safety. Emphasis on techniques for retention of maximum nutrients, flavor and appearance.

IFS 125 Special Nutritional Needs /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: IFS 110.

Nutritional requirements for various disease states such as diabetes, obesity, hyperactivity and malnutrition. Also includes feeding problems of the handicapped.

IFS 130 Educating the Consumer in Food and Nutrition /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: IFS 110.

Topics and techniques needed to educate consumers in food and nutrition. Includes budgeting, shopping and government regulations.

IFS 180 Menu Planning and Food Purchasing for Institutions /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: IFS 110.

Principles and procedures for menu planning and food purchasing for institutions. Includes basic nutrition review, determining necessary specifications and yields of foodstuffs to be purchased, writing a menu plan and modifying a menu plan for special needs. Also includes budgeting and guidelines for purchasing foodstuffs for therapeutic menus.

IFS 221 Food Service System Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: IFS 223.

Organization and management of food service systems. Includes planning, preparation, distribution and service of high quality food; scheduling; personnel management; and employee training.

IFS 299 Co-op Related Class in IFS /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

IFS 299 Co-op Work in IFS /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

INTERNATIONAL BUSINESS COMMUNICATION STUDIES

IBC 100 Foreign Language I: (To Be Specified) /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Basic vocabulary and sentence structure which will allow the student to function in a foreign country. Emphasis on developing elementary skills in pronunciation, ease of expression and comprehension.

IBC 100A Foreign Language I: Basic Language Skills /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Basic vocabulary and sentence structure with emphasis on developing skills in pronunciation, ease of expression and comprehension.

IBC 100B Foreign Language I: Basic Language Skills /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: IBC 100A.

Continuation of IBC 100A with emphasis on practice drills designed to develop the student's ability to function effectively in the foreign country.

IBC 110 Foreign Language II: (To Be Specified) /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: IBC 100.

Continuation of IBC 100. More advanced speaking, listening, reading and writing skills used within the social and business environment. (The requirements of IBC 110 may be satisfied by taking IBC 110A and 110B, or IBC 110A and 110C.)

IBC 110A Foreign Language II: Advanced Language Skills /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: IBC 100.

Continuation of IBC 100. Speaking, listening, reading and writing skills on a more advanced level.

IBC 110B Foreign Language II: Language Skills for Social Environment /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: IBC 110A.

Continuation of IBC 110A. Language skills training for use in the social environment.

IBC 110C Foreign Language II: Language Skills for Work Environment /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: IBC 110A.

Continuation of IBC 110A. Language skills training for the work environment.

IBC 120 Cultural Similarities and Differences Between the United States and the Foreign Country /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of the cultural values of the foreign country in comparison to those of the United States. Social and religious customs; roles of men and women; attitudes toward time, humor, drugs and alcohol; patterns of communication; political, educational and legal structures; health care values; attitudes toward shopping and conducting business; business structure; and ethics and values.

IBC 120A Cultural (Social) Similarities and Differences between U.S. and Foreign Country. /1 cr. hr./1 period (1 lec.)

IBC 120B Cultural (Political/Educational) Similarities and Differences between U.S. and Foreign Country. /1 cr. hr./1 period (1 lec.)

IBC 120C Cultural (Business) Similarities and Differences between U.S. and Foreign Country. /1 cr. hr./1 period (1 lec.)

IBC 130 Living in the Foreign Country /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Entry requirements and basic information for living in a foreign country. Includes passport and immunization; taxes; driving and importation regulations; the monetary, transportation and telephone systems; local housing; medical facilities; support services; and entertainment possibilities. Also covers types of foods available, special food preparation and appropriate dress.

IBC 140 Basic Techniques of International Trade /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles of international trade, including political and legal factors, export documentation, customs regulations, financial considerations, trade zones, trading companies, communications, exporting techniques and case studies.

IBC 140A Basic Techniques of International Trade: Introduction and Overview /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Principles of international trade, including political and legal factors, documentation, customs, duty and freight forwarding procedures.

IBC 140B Basic Techniques of International Trade: Banking, Trade Zones and Trading Companies /1 cr. hr./1 period (1 lec.)

□Prerequisite: IBC 140A.

Continuation of IBC 140A. Principles of international trade, including accounting, banking, insurance, foreign trade zones and export trading companies.

IBC 140C Basic Techniques of International Trade: Communications and Case Studies /1 cr. hr./1 period (1 lec.)

□Prerequisite: IBC 140B.

Continuation of IBC 140B. Principles of international trade, including communication with foreign firms and techniques of exporting to specific geographic areas. Topics examined through case studies.

IBC 150 Cultural Shock Management /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Examination of the stages and symptoms of cultural shock. Methods of acculturation and re-acculturation. Designed to help students manage cultural shock as they enter a new culture and return to their own culture.

IBC 150A Cultural Shock Management: Entry /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Examination of the stages and symptoms of cultural shock and methods of acculturation. Designed to help students manage cultural shock as they enter a new culture.

IBC 150B Cultural Shock Management: Re-entry /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Examination of the stages and symptoms of cultural shock experienced as one re-enters his own culture. Includes methods of coping with this problem. Designed to help students manage cultural shock as they re-enter their own culture upon return from a foreign assignment or visit.

IBC 160 Hosting Foreign Business Personnel /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Training in hosting foreign business personnel. Emphasis on integrating routine hosting considerations with sensitivity to the culture of the visitor.

ITALIAN**ITA 110 Elementary Italian I /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: None.

Introduction to the Italian language. Designed to provide proficiency in basic communication (listening, speaking, reading and writing). Emphasis on Italian cultural traditions. A transfer credit course.

ITA 111 Elementary Italian II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: ITA 110.

Continuation of ITA 110. Designed to provide increased proficiency in listening, speaking, reading and writing. Continued emphasis on Italian cultural traditions. A transfer credit course.

JAPANESE**JPN 110 Elementary Japanese /5 cr. hrs./5 periods (5 lec.)**

□Prerequisite: None.

Introduction to the Japanese language. Designed to provide proficiency in basic communication (listening, speaking, reading and writing). Emphasis on Japanese cultural traditions. A transfer credit course.

JPN 111 Elementary Japanese II /5 cr. hrs./5 periods (5 lec.)

□Prerequisite: JPN 110.

Continuation of JPN 110. Basic listening, speaking, reading and writing skills, using elementary Japanese vocabulary and grammatical structures. A transfer credit course.

LABOR STUDIES**LSP 101 Labor Leadership /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Local union structure, democracy and management. Includes the role of the local union in collective bargaining, the basic clauses of collective bargaining agreements, grievance procedures, arbitration and legal requirements. (Also offered as LSP 101A, B and C).

LSP 101A Labor Leadership: The Local Union /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Local union structure, democracy and management from the perspective of the local union leader. Includes craft and industrial unions, problems of union democracy, discrimination issues, characteristics of a shop steward and local executive board responsibilities.

LSP 101B Labor Leadership: Collective Bargaining /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Role of the local union in collective bargaining negotiations. Includes the basic clauses of collective bargaining agreements, management rights, union rights, wage differential clauses and contract adjustments.

LSP 101C Labor Leadership: Contract Management /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Analysis of contract management. Includes grievance procedures, arbitration of contract problems and review of government reports and other legal requirements of local unions.

LANDSCAPE TECHNICIAN PROGRAM

LTP 100 Landscape Today and Tomorrow /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Overview of the landscape contracting industry: its history, current status and projection for the future. Special attention to career opportunities within various specialties.

LTP 120 Plant Pathology, Pests and Controls /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: BIO 184.

In-depth study of the pests, insects and diseases which damage shrubs, flowers, ornamental trees, turf grass and interior foliage. Emphasis on identification, control and treatment of the above problems as well as on the theory of utilizing chemicals, pesticides, herbicides and biological control.

LTP 130 Soils: Plant Fertility /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Analysis of soil types and fertility requirements of plants. Includes derivation, classification and evaluation of soils and the chemical, biological and physical requirements for plant growth.

LTP 150 Landscape Equipment Repair and Maintenance /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Introduction to power equipment used in the field of landscaping. Includes small engine repair and maintenance, general repair procedures for equipment using small engines, fleet maintenance, small loader maintenance, troubleshooting techniques and economics of preventive maintenance.

LTP 160 Plant Usage and Identification /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: BIO 184.

Principles and techniques of plant usage and identification. Designed to familiarize the student with where and how to use plants, plant identification, the history of plant taxonomy and the development of a dichotomous plant key. Emphasis 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.)

See Cooperative Education section for description.

LTP 199 Co-op Work in LTP /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

LTP 200 Landscape Management Systems /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles of planning and implementing landscape projects. Includes management information systems, foreman duties, customer relations and contract laws. Also includes at least one site visit. Prepares the student to manage all phases of a landscape project.

LTP 205 Irrigation Design I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Design of turf, ornamental and drip (emitter) irrigation systems. Includes establishment of design criteria, selection and application of system components, preparation of irrigation plans and specifications and basic estimating procedures. Intended for students and professionals interested in irrigation systems.

LTP 206 Irrigation Design II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: LTP 205.

Covers the design of large-scale irrigation systems, such as apartment complexes, parks and roadway projects, using both conventional sprinkler and drip systems. Establishing design criteria, selection and application of system components, preparation of irrigation plans and specifications will be included in the course.

LTP 210 Irrigation Installation /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: LTP 205.

Introduction to turf, ornamental and drip (emitter) irrigation systems. Designed for technicians in the landscape and irrigation industries. Includes materials, equipment, installation techniques, blueprint reading, and basic maintenance and repair procedures.

LTP 215 Interior Plantscape Design/Maintenance /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: None.

Design and maintenance of the total interior horticultural environment. Prepares the student to work with interior landscapers, interior designers, architects and clients. Emphasis on the creative aspects of the process.

LTP 230 Landscape Maintenance /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of management and technical skills required to operate a commercial landscape business.

LTP 240 Nursery Operations and Maintenance /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Technical and management factors involved in producing and marketing nursery stock and supplies.

LTP 260 Basic Landscape Design /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Designing residential and light commercial landscape sites. Includes drafting tools and techniques, site planning, preparation of working drawings and specifications, and construction cost estimating.

LTP 299 Co-op Related Class in LTP /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

LTP 299 Co-op Work in LTP /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

LEGAL ASSISTANT PROGRAM

LAS 101 Introduction to Legal Assistant Careers /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Responsibilities and ethical standards governing legal assistants. Includes procedures in a law or corporate office and in the court and administrative systems. Emphasis on terminology, research and trial preparation.

LAS 102 Legal Systems and Procedures /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles and procedures used in various court systems. Includes jurisdiction, venue, pleading, interviewing and investigation, and initiation of lawsuits in federal, state and appellate courts.

LANDSCAPE TECHNICIAN PROGRAM—LEGAL ASSISTANT PROGRAM

LAS 103 Legal Research /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: WRT 101 and LAS 101 or employment in the legal or a related field.

Principles and techniques of legal research. Includes law library familiarization, research skills, methods, terminology and basic techniques of writing research memoranda and reports.

LAS 104 Judgment, Analysis and Ethics /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: LAS 101 and 103.

Basic rules and principles of judgment, analysis and ethics. Includes judgment and decision making, analysis of factual situations and ethical problems in specific areas of law practice.

LAS 105 Corporate Law Procedures /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: BUS 200 (or concurrent enrollment) or LAS 101 or employment in the legal or related field.

The role and responsibilities of a legal assistant regarding the procedures and document drafting necessary for incorporation and the requirements for maintaining corporate legal status. Includes incorporation and maintenance, corporate power theories and defenses, stocks, voluntary dissolution and takeovers.

LAS 106 Civil and Criminal Evidence /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: LAS 103 or concurrent enrollment.

Federal and Arizona rules of evidence, their use in preparing for trial, and their application during civil and criminal litigation. Includes the application of the rules and procedures involving witnesses, exhibits and demonstrative evidence.

LAS 107 Real Estate Legal Procedures /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: LAS 101 (or concurrent enrollment) or employment in the legal field or a Real Estate License.

Application of legal procedures and requirements in real estate transactions and litigation. Includes drafting of documents and pleadings with emphasis on contracts, closings, deeds, leases, liens and foreclosures. (Same as RLS 107.)

LAS 199 Co-op Related Class in LAS /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

LAS 199 Co-op Work in LAS /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

LAS 201 Consumer Litigation /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: BUS 200.

Examination of procedures involved in litigation between consumers and business entities or governmental agencies. Includes governmental regulation of business, consumer credit transactions and debtor/creditor rights, obligations and remedies.

LAS 202 Discovery and Trial Preparation /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: LAS 102.

Procedures and methods of discovery, gathering and organizing evidence and preparation for trial. Includes discovery procedures, documentary evidence and authentication, witness preparation, pre-trial motions and memoranda, trial proceedings, post-trial motions and entry of judgment, executions and appeal.

LAS 203 Personal Injury, Malpractice, Products Liability and Complex Litigation /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: LAS 101 and 102.

Procedures used in the preparation of cases involving civil liability and complex litigation techniques. Includes personal injury, medical malpractice, products liability, comparative/contributory negligence and an overview of workman's compensation law as it relates to civil personal injury actions.

LAS 204 Probate Procedures /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: LAS 101 or employment in a legal related field.

Analysis of Arizona probate law regarding wills, trusts and the administration of estates. Includes the estates of decedents, minors and persons under disability, and tax-related matters.

LAS 205 Asset Analysis, Collection, Management and Distribution /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: LAS 204.

Analysis of the various forms of assets and their classification, valuation, administration and disposition. Includes inventory, accounting and tax return preparations.

LAS 206 Criminal Trial Procedures I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: LAS 101 or employment in a legal related field.

Criminal trial process from first court appearance through pre-trial procedures. Includes plea bargaining, ethical considerations, initial appearance, probable cause, discovery and pre-trial motions.

LAS 207 Criminal Trial Procedures II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: LAS 206.

Criminal trial process from jury selection through appellate procedures. Includes motions in limine, jury selection, opening statements, direct and cross examinations, objections, closing arguments and post-trial and appellate procedures.

LAS 208 Domestic Relations and Family Law /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Employment in the legal or a related field or enrollment in the Legal Assistant Program.

Legal procedures related to domestic matters and family relationships. Includes dissolution of marriage, community property, adoption and other family law procedures.

LAS 209 Bankruptcy Procedures /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: LAS 101 or employment in the legal or a related field.

Procedures for individual and business bankruptcy proceedings. Includes preparation of basic bankruptcy documents and review of creditor and debtor remedies under the bankruptcy laws.

LAS 210 Administrative Law and Procedures /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: LAS 101 or employment in a legal related field.

Laws and procedures relating to the powers and controls of agencies which administer governmental services. Includes agency purposes, procedures, rights of private parties, legal issues, quasi-judicial decisions and appeals.

LAS 250 Legal Assistant Internship /3 cr. hrs./15 periods (15 lab)

□Prerequisites: WRT 101, BUS 200 and a minimum of 45 credit hours in the Legal Assistant Program including two courses in one specialty area and LAS 104 and 202.

Volunteer legal assistant work experience at an approved work site. Designed for students in their final semester of course work in the Legal Assistant Program.

LAS 299 Co-op Related Class in LAS /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

LAS 299 Co-op Work in LAS /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

LITERATURE

LIT 085 Reading For Pleasure /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Exploration of a wide variety of popular writing in order to develop the attitudes, habits, and skills which make reading enjoyable.

LIT 090 Shakespeare in Performance (TV) /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to Shakespeare as a dramatist through six of his plays in performance.

LIT 231 Introduction to Shakespeare /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: College-level reading & writing skills strongly recommended.

Familiarization with a number of Shakespeare's major dramas. Includes relevant history, social conditions and literary background. Some attention is given to plays as stage vehicles.

LIT 260 Major British Writers /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: College-level reading and writing skills strongly recommended.

Representative selection of works by major authors. Includes a range of periods and types of literature.

LIT 261 Modern Literature /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: College level reading and writing skills strongly recommended.

Readings in modern fiction, drama, and poetry.

LIT 262 Major Literary Themes /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: College-level reading and writing skills strongly recommended.

Exploration of a variety of literary treatments of a single theme or literary type. Possible areas of study include women in literature, folklore in literature, death and dying, science fiction and mystery fiction. Emphasis on works of high literary merit.

LIT 265 Major American Authors /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: College-level reading and writing skills strongly recommended.

Survey of selected works by major American authors from the colonial period to the present. May be taken as a humanities elective.

LIT 266 World Literature: Dramatic /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: College-level reading and writing skills strongly recommended.

Introduction to classic European literature with major authors studied in depth. Covers ancient and medieval works.

LIT 267 World Literature: Narrative /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: College-level reading and writing skills strongly recommended.

Great narrative works of literary tradition with emphasis on form, theme, and cultural context.

LIT 268 Introduction to the Literature of the Americas /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: College-reading and writing skills recommended.

Major literary works and movements from Pre-Columbian America as well as the English, Spanish, French, and Portuguese Americas.

LIT 275 Ethnic Literature /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: College-level reading and writing skills strongly recommended.

Exploration of the experience of various ethnic groups as reflected in literature by and about them.

LIT 286 Themes in American Literature /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: College-level reading and writing skills strongly recommended.

Exploration of a single theme in American literature such as individualism, nature or the outsider. Includes works of major authors plus a variety of genres appropriate to the theme, including novels, drama and poetry.

LIT 291 Children's Literature /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: College-level reading and writing skills strongly recommended.

Survey of the major genres of children's literature: child lore, fables, folk tales, poetry, tall tales, the picture book, the adolescent novel, and fictional, historical and non-fictional prose.

MACHINE TOOL TECHNOLOGY**MAC 101 Machine Tool Laboratory Training I /3 cr. hrs./9 periods (9 lab)**

□Prerequisite: None.

Laboratory training for Machine Tool Technology Block Program.

MAC 102 Deburring and Parts Finishing /1.5 cr. hrs./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Controlled edge and surface finishing with hand tools and vibratory equipment. Includes types of parts finishing, tools and equipment, procedures, techniques, vibratory finishing, documentation and quality assurance criteria.

MAC 103 Machine Shop Mathematics I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 060 or equivalent.

Practical mathematics as applied to machine tool technology problems.

MAC 104 Machine Shop Mathematics II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MAC 103.

Continuation of MAC 103. Practical mathematics as applied to advanced problems in machine tool technology.

MAC 110 Machine Shop for Technicians I /4 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisite: None.

Introduction to basic machine shop practices. Includes safety, tooling, equipment and applications of general machine shop practices.

MAC 120 Machine Shop for Technicians II /4 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisites: MAC 103 and 110.

An in-depth, hands-on course in the application of modern machine practices and procedures as found in today's machine shops.

MAC 125 Tool and Cutter Grinding /4 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisites: MAC 104 and 120, and DFT 101 or 150.

Operations and procedures for tool and cutter grinding. Includes safety, fabrication and resharpening of cutting tools.

MAC 130 Basic Metallurgy /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic principles of metallurgy. Includes steel classifications, heat treatment procedures, properties of ferrous and nonferrous metals and nondestructive testing.

MAC 199 Co-op Related Class in MAC /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

MAC 199 Co-op Work in MAC /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

MAC 201 Machine Tool Laboratory Training II /3 cr. hrs./9 periods (9 lab)

□Prerequisite: MAC 101.

Advanced laboratory training for Machine Tool Technology Block Program. Designed to give students job oriented, hands-on training and skill development in the application and operation of machine tools.

MAC 210 Jig and Fixture Designing I /4 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisites: MAC 120 and DFT 150.

Design and application of tools, jigs and fixtures for basic metal-working. Includes application of fixture components and electrical discharge processes.

MAC 220 Jig and Fixture Designing II /4 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisite: MAC 210.

Design layout of machine parts, application of fixture components and inspection of equipment. Includes introduction to mold preparations and plastic injection equipment.

MAC 225 Manufacturing Concepts /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MAC 130.

Processes and concepts involved in modern manufacturing and automated production.

MAC 250 Introduction to Numerical Control /4 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisites: MAC 104 or MTH 120, and MAC 120.

Introduction to numerical control and its application to machines and manufacturing processes. Includes manual programming of computer numerical control machinery for contouring and point-to-point operations.

MAC 251 Numerical Control Troubleshooting /4 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: MAC 250 or a basic knowledge of computer numerical control operations.

Numerical control/computer numerical control troubleshooting for manufacturing systems. Includes programming, preparation and setup, debugging and troubleshooting.

MAC 255 Numerical Controlled Machines /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: MAC 250.

Continuation of MAC 250, examining more advanced concepts and techniques of computer numerical control programming. Includes do loops, subroutines, mirror imaging and polar rotations.

MAC 270 Robotics and Automated Systems: Mechanical /4 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: PHY 101, 102 or PHY 115.

Classification and overview of hardware found in robotic workcells and material handling systems. Includes hydraulic systems, pneumatic systems, electrical motors, digital logic, switches and relays, converters, memories and microprocessors, servo systems and industrial robots. (Same as ROB 270.)

MAC 271 Programmable Logic Controllers /4 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: MAC 270 or ROB 270.

Concepts and applications of programmable controllers. Includes number systems, logic concepts, central processors, input/output system, peripheral services and programming languages. (Same as ROB 271.)

MAC 280 Machine Shop for Technicians III /4 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisite: MAC 120.

Advanced shop practice in machine tool setup and operations which completes the student's preparation for employment in the machine tool industry.

MAC 281 Machine Shop for Technicians IV /4 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisite: MAC 280.

Continuation of MAC 280. Includes turning springs, turning pipe threads, power tapping, boring offset holes, radius turning and friction sawing.

MAC 282 Gage and Fixture Construction /4 cr. hrs./8 periods (2 lec., 6 lab)

□Prerequisites: MAC 210, 280, 285, DFT 150; and DFT 180 or 151.

Construction of gages and fixtures. Includes construction principles, tolerances, design, material, heat treatment, and inspection.

MAC 285 Physical Metallurgy /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: MAC 130.

The behavior of metals as used in industry during heating, cooling, shaping, forming and stress. Includes mechanical properties and tests to determine values, heat treatment of steel, pure metals and manner of crystallization, theory of alloys, nonferrous metals and quality control procedures involving magnaflux, magnaglow, dye penetrants and x-ray techniques.

MAC 299 Co-op Related Class in MAC /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

MAC 299 Co-op Work in MAC /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

MANAGEMENT**MAN 110 Human Relations in Business and Industry /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Organizational structure and how its functioning is affected by many human factors. Includes motivation, problem solving techniques, group process and organization environment.

MAN 122 Supervision /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles of personnel supervision. Historical development; recruitment, training and evaluation of employees; decision making; and the role of labor unions.

MAN 124 Small Business Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Analysis of the practical problems of organizing and managing a successful small business. Includes practical problems in quantitative analysis, causes of business failure, record keeping, sales promotion, marketing, budgeting, employee relations, and small business case studies. Emphasis on the managerial activities of the entrepreneur and their application to good business practice.

MAN 180 The Business of Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

A study of the role of management in business and other human endeavors; management as a total system of functions utilizing resources within constraints imposed by society; the body politic, technology and ideology.

MAN 199 Co-op Related Class in MAN /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

MAN 199 Co-op Work in MAN /3-6 cr. hrs./15-30 periods (15-30 lab)

See Cooperative Education section for description.

MAN 270 Computer Applications for Managers /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Development of management skills in computer applications for business. Includes maximizing computer services, history of data processing as viewed by management, advancement in reporting tools, efficient computer utilization via corporate management direction, and related concerns.

MAN 276 Personnel Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: BUS 100.

Practical aspects of managing personnel. For the practitioner in personnel management as well as the general manager. Includes recruiting, selection, testing, rating systems, promotion, discipline, training, labor relations, job evaluation and manpower planning.

MAN 278 Labor/Management Relations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: BUS 100.

Examination of basic principles and current status of labor/ management relations in the United States. History, development of American unionism, government of trade unions, collective bargaining, public policy and bargaining power. Reviews legal framework regulating labor/management relations. Emphasis on contemporary issues and problems involved in building a sound relationship between management and labor.

MAN 280 Business Organization and Management /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisites: BUS 100 and any other MAN course.

Nature and functions of business organization and management. The role of management in business and other human endeavors; management as a total system within constraints imposed by society, government, technology and ideology; management as a practical integration of diverse philosophies.

MAN 298 Budgeting for Managers: Special Topics /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: None.

Principles, procedures and skills for budget formulation and financial management for the operating manager. Specific attention to environmental and market conditions in the specific industry. The particular industry being studied may vary from semester to semester.

MAN 299 Co-op Related Class in MAN /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

MAN 299 Co-op Work in MAN /3-6 cr. hrs./15-30 periods (15-30 lab)

See Cooperative Education section for description.

MARKETING

MKT 111 Marketing /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic principles of moving goods and services from producer to consumer. Functions of marketing in relation to manufacturing, wholesaling and retailing.

MKT 113 Salesmanship /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic principles and techniques of selling and their practical application. Types of customers, products, presentation of information, determination of customer's wants and needs, meeting customer objections, and opportunities in selling.

MKT 125 Advertising /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic principles of the various aspects of advertising including its planning and creation.

MKT 139 Retailing /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The organization and operation of a retail store. Includes trends in the field and problems involved in the retailing of goods and services.

MKT 150 Physical Distribution Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

In-depth study of methods of distributing goods. Physical warehousing, inventory control, materials handling, industrial packaging, order processing and location analysis. Includes managerial responsibilities and recent transportation regulation actions. (Same as TTM 204.)

MKT 160 Marketing for Nonprofit Organizations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Applies marketing principles to agencies other than for profit business and industry. Use of case studies and discussions. Each student will prepare an integrated marketing plan for a nonprofit organization.

MKT 199 Co-op Related Class in MKT /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

MKT 199 Co-op Work in MKT /3-6 cr. hrs./15-30 periods (15-30 lab)

See Cooperative Education section for description.

MKT 299 Co-op Related Class in MKT /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

MKT 299 Co-op Work in MKT /3-6 cr. hrs./15-30 periods (15-30 lab)

See Cooperative Education section for description.

MATHEMATICS

All students enrolling in their first mathematics course with the college are requested to take the mathematics assessment tests. All new, full-time students are required to take the tests as are students enrolling in MTH 060, 070 or 090. Students with an earned degree or advanced certificate from an accredited college are not required to take the tests. (A satisfactory assessment test score may be requested in lieu of, or in addition to, the listed prerequisites for any

course. Students who have 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 050 Approaching Mathematics Positively /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Designed for students who avoid taking mathematics courses or who have anxiety in mathematics courses. Math anxiety defined, underlying causes discussed, and anxiety reduction techniques practiced. Includes mathematics study and test-taking. Same as HDE 050.

MTH 060 Introductory Mathematics /3 cr. hrs./3 periods (3 lec.)

Mathematics 060A through 060C together constitute MTH 060.

MTH 060A Introductory Mathematics-Whole Numbers /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Introduction to whole numbers. Includes practice with the four basic arithmetic operations and exploration of the principles of place value, order of operations, divisibility, prime factorization and least common multiple.

MTH 060B Introductory Mathematics-Fractions and Decimals /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 060A or concurrent enrollment.

Introduction to decimals and fractions. Includes practice with the four basic arithmetic operations using decimals and fractions.

MTH 060C Introductory Mathematics-Percent, Ratio and Measurement /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 060B or concurrent enrollment.

Introduction to percent, ratio, measurement and signed numbers. Includes exploration of the principles of proportion, measures (including the metric system) and their applications, and signed numbers.

MTH 065 Health Careers Mathematics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Mathematical skills for nursing and chemistry. Includes fractions, decimals, scientific notation, dosages, concentrations, logarithms and conversions in apothecary, metric and household measures.

MTH 070 Algebra I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 060 or satisfactory score on the mathematics assessment test.

Mathematics 070A through 070C together constitute MTH 070.

MTH 070A Algebra I-Linear Equations and Polynomials /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 060 or concurrent enrollment in MTH 060C or satisfactory score on mathematics assessment test.

Introduction to inverse operations, linear equations and polynomials. Includes practice with basic operations on signed numbers, order of operations and applying inverse operations to solving linear equations.

MTH 070B Algebra I-Factoring, Rational Expressions and Graphs /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 070A or concurrent enrollment.

Introduction to factoring, rational expressions, graphing linear equations and inequalities.

MTH 070C Algebra I-Systems of Equations, Radicals and Quadratic Functions /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 070B or concurrent enrollment.

Introduction to systems of equations, radicals and quadratic equations.

MTH 090 Elementary Geometry /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 070.

Introduction to geometry. Primarily for students who lack credit in high school geometry. Includes angles, parallel and perpendicular lines, triangles, quadrilaterals, circles, congruence, similar figures, geometric constructions and deductive proofs.

MTH 110 Technical Mathematics I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 060 or satisfactory score on mathematics assessment test.

Mathematics 110A through 110C together constitute MTH 110.

MTH 110A Technical Mathematics I: Arithmetic and Geometry /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 060 or concurrent enrollment in MTH 060C or satisfactory score on mathematics assessment test.

Technical arithmetic and geometry. Includes a review of arithmetic operations, percent, measurements, and basic geometry involving perimeters, areas and volumes.

MTH 110B Technical Mathematics I: Algebra, Part I /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 110A or concurrent enrollment.

Introduction to technical algebra. Includes basic algebraic operations, linear equations and factoring.

MTH 110C Technical Mathematics I: Algebra, Part II /1 cr. hr./ 1 period (1 lec.)

□Prerequisite: MTH 110B or concurrent enrollment.

Continuation of MTH 110B. Includes algebraic fractions, graphs of equations and systems of linear equations.

MTH 115 Electronics Mathematics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 070.

Basic algebra review, electrical units and powers of ten, solving equations, Ohm's law, series and parallel circuits, Kirchhoff's laws and simultaneous equations, trigonometry, some AC circuit analysis, common logarithms and the decibel, natural logarithms, and RLC circuits.

MTH 120 Technical Mathematics II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 110.

Mathematics 120A through 120C together constitute MTH 120.

MTH 120A Technical Mathematics II: Exponents and Radicals / 1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 110 or concurrent enrollment in MTH 110C.

Exponents and radicals for technical applications. Includes area review of graphing and scientific notation.

MTH 120B Technical Mathematics II: Roots, Radicals and Quadratic Equations /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 120A or concurrent enrollment.

Roots, radicals and quadratic equations for technical applications.

MTH 120C Technical Mathematics II: Basic Trigonometric Functions /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 120B or concurrent enrollment.

Trigonometric functions for technical applications. Includes graphs, vectors, and solutions of right and oblique triangle problems.

MTH 125 Electronics Mathematics Applications /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 115.

Advanced AC circuit analysis, special products, factoring, algebraic fractions, fractional equations, trigonometric identities and equations, elementary plane vectors, phasor algebra, rate of change, limits, integration, differentiation, fourier series, and wave forms.

MTH 130 Algebra II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 070 or satisfactory score on mathematics assessment test.

Mathematics 130A through 130C together constitute MTH 130.

MTH 130A Algebra II-Linear Equations /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 070 or concurrent enrollment in MTH 070C or satisfactory score on the mathematics assessment test.

Includes real number properties, linear equations and systems of linear equations.

MTH 130B Algebra II-Factoring, Fractions and Radicals /1 cr. hr./ 1 period (1 lec.)

□Prerequisite: MTH 130A or concurrent enrollment.

Includes products, factoring, rational expressions, fractional equations, exponents and radicals, and complex numbers.

MTH 130C Algebra II-Quadratic Equations and Logarithms /1 cr. hr./ 1 period (1 lec.)

□Prerequisite: MTH 130B or concurrent enrollment.

Includes quadratic equations, functions and graphs, variation, exponential and logarithmic functions, inequalities and sets.

MTH 135 Survey of Mathematics Thought /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 130.

Examination of the role of mathematics in society through the nature of mathematics, utilizing historical and cultural approaches with computational examples.

MTH 140 Mathematics for Elementary Education Majors I /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: MTH 130.

Examination of mathematical concepts taught in elementary grades. For students majoring in elementary education. Includes sets, arithmetic operations and their properties, measurements, metric system, percents, decimals and fractions.

MTH 145 Mathematics for Elementary Education Majors II / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 140.

Continuation of MTH 140. For students majoring in elementary education. Includes angular measures, geometry, graphing, probability, statistics and computer literacy.

MTH 150 College Algebra /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 130 or satisfactory score on mathematics assessment test.

Mathematics 150A through 150C together constitute MTH 150.

MTH 150A College Algebra: Equations and Functions /1 cr. hr./ 1 period (1 lec.)

□Prerequisite: MTH 130 or concurrent enrollment in MTH 130C or satisfactory score on mathematics assessment test.

College-level algebraic equations and functions. Includes linear, quadratic and radical equations; relations, functions and transformations; equations of a line; and graphing the parabola.

MTH 150B College Algebra: Linear Systems, Matrix Operations and Certain Functions /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 150A or concurrent enrollment.

College-level linear systems, matrix operations and certain functions. Includes exponential and logarithmic functions, linear systems of equations and inequalities, determinants, matrix operations and inverses.

MTH 150C College Algebra: Polynomials, Inequalities, Sequences and Series /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 150B or concurrent enrollment.

College-level polynomials, inequalities, sequences and series. Includes complex numbers, theory of polynomials, sequences, series, binomial expansion, induction and inequalities in two variables.

MTH 155 Trigonometry /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 150 or concurrent enrollment.

Mathematics 155A through 155C together constitute MTH 155.

MTH 155A Trigonometry: Algebraic and Circular Functions /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 150 or concurrent enrollment.

Introduction to trigonometry. Includes functions, tests for symmetry, graphical methods involving the use of transformations, and definitions of the six circular functions and their graphs.

MTH 155B Trigonometry: Angles, Identities, Inverse Functions and Equations /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 155A or concurrent enrollment.

Continuation of MTH 155A. Includes trig functions of angles, proving identities, inverse trig functions and trig equations.

MTH 155C Trigonometry: Applications, Vectors, Polar Coordinates and Complex Numbers /1 cr. hr./1 period (1 lec.)

□Prerequisite: MTH 155B or concurrent enrollment.

Continuation of MTH 155B. Includes solving triangles, vectors, polar coordinates and complex numbers.

MTH 160 Precalculus /5 cr. hrs./5 periods (5 lec.)

□Prerequisite: MTH 130 or satisfactory score on mathematics assessment test.

College-level algebra and trigonometry. Includes all topics in MTH 150 and 155. Recommended for students planning to take analytic geometry and calculus.

MTH 170 Finite Mathematics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 150.

Mathematics for students majoring in business. Includes set theory, partitions, permutations, combinations, probability, Bernoulli trials, Markov chains and the simplex method of linear programming.

MTH 175 Topics in Calculus /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 150.

For students majoring in business. Calculus for business applications. Includes limits, continuity, differentiation and integration of algebraic functions and separable differential equations.

MTH 180 Analytic Geometry and Calculus I /4 cr. hrs./4 periods (4 lec.)

□Prerequisites: MTH 160, or MTH 150 and 155.

Introduction to analytical geometry and calculus. Includes limits, continuity, differentiation and integration of algebraic and basic trigonometric functions, and applications of differentiation and integration.

MTH 185 Analytic Geometry and Calculus II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 180.

Continuation of MTH 180. Includes differentiation and integration of logarithmic and exponential functions, techniques and applications of integration and infinite series.

MTH 210 Introductory Statistics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 130 or satisfactory score on mathematics assessment test.

Introduction to statistics. Includes averages, standard deviation, frequency distributions, central limit theorem, confidence intervals, correlations, probability, normal curve and tests of hypothesis.

MTH 215 Analytic Geometry and Calculus III /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: MTH 185.

Continuation of MTH 185. Includes conic sections, polar coordinates, solid geometry, two and three dimensional vectors, moments, partial derivatives and multiple integration.

MTH 219 Differential Equations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 215.

Introduction to differential equations. Includes differential equations of the first order with exact solutions, numerical approximations and systems, explicit methods for solving equations of higher order including series and Laplace transforms, and physical applications of first and second order differential equations.

MTH 220 Linear Algebra and Differential Equations /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: MTH 215.

Introduction to differential equations. Includes differential equations of the first order with exact solutions, numerical approximations and systems, explicit methods for solving equations of higher order including series and Laplace transforms, and physical applications of first and second order differential equations. Also includes vector spaces and subspaces, dimension, bases, linear independence and transformations and matrices.

MTH 225 Introduction to Linear Algebra /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 215.

Vector spaces, linear transformations and matrices, systems of linear equations, eigenvalues and diagonalizable matrices.

MTH 230 Discrete Mathematics in Computer Science /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 150.

Covers mathematical concepts applicable to upper division course work on computer programming. Includes mathematical reasoning, set theory, binary relations, functions, counting and algorithm analysis.

MEDIA COMMUNICATION

MEC 101 Introduction to Reporting and Media Writing /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to news reporting. Includes evaluation of news, news gathering methods, writing leads, organization of stories, interviewing and writing various types of news stories. Requires considerable amount of writing.

MEC 102 Survey of Media Communications /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of today's mass communications, their nature, function and impact on society. Includes a review and evaluation of important journalists' work and of performances by newspapers, radio, television, advertising and magazines. One major writing project is required.

MEC 125 Television Production I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles and techniques of television production. Includes operation and application of all the basic tools, equipment and techniques used in television production. Designed to give students practical experience as part of a production team.

MEC 145 Equipment Repair and Maintenance /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Electrical and mechanical repair and maintenance of instructional media technology equipment, including tape recorders, projectors and mechanical graphic arts devices.

MEC 155 Instructional Media Technology I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Functions and responsibilities of the media specialist in an industrial or educational audio-visual department. Includes ordering, inventory, maintenance, budgeting, equipment evaluation, facilities design, copyright law and career opportunities.

MEC 170 Journalism Workshop /3 cr. hrs./9 periods (9 lab)

□Prerequisite: MEC 101.

Laboratory course in which students produce the college's weekly student newspaper. Includes news gathering, writing, editing, photography, advertising and other publication activities.

MEC 175 Cinematography /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic techniques of motion picture production. Includes camera operation, animation application, film editing and motion picture lab processes. The class is involved in the conception and production of two films.

MEC 180 Newspaper Business Procedures /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Principles and practice of newspaper advertising, sales, circulation, record keeping and accounting.

MEC 185 Television Production Workshop I /3 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: MEC 125.

Studio course in which students configure the studio, lighting and set for the college's television news program. Students also shoot and edit news content.

MEC 190 Newspaper Graphics /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Principles and techniques of basic newspaper art work, typography and photography.

MEC 196 Independent Studies in Media /1-4 cr. hrs./3-12 periods

□Prerequisites: 6 credit hours of MEC classes and consent of instructor.

Students independently continue their development in media communications with the help of a faculty member. May be taken three times for a maximum of 12 credit hours.

MEC 199 Co-op Related Class in MEC /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

MEC 199 Co-op Work in MEC /2-3 cr. hrs./10-15 periods (10-15 lab)

See Cooperative Education section for description.

MEC 225 Television Workshop /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: MEC 125.

Laboratory course in which students produce various types of television programs. Includes the utilization of television equipment in remote and on-location sites as well as in studio operation. Emphasis on the production of special programs for educational community and industrial use.

MEC 230 Advanced Reporting /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MEC 101.

Advanced news writing and related activities. Includes investigative reporting, feature and editorial writing, copy-editing, headline writing, make-up and advertising. A required course for journalism majors.

MEC 235 Broadcast Journalism /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MEC 101.

Survey of radio and television journalism. Includes broadcast news media, electronic journalism and the broadcast news process.

MEC 240 Copy Editing and Design /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: MEC 101.

Principles and techniques of newspaper copy editing and design. Includes newsroom settings, copy editing, proofreading, page layout, typography and design.

MEC 255 Instructional Media Technology II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MEC 155.

Advanced principles and techniques of instructional media technology. Includes still projection, motion picture projection, graphic arts, record players, tape recorders, broadcast sound systems, educational TV, programmed instruction, supporting equipment for instructional media and non-projected instructional media materials.

MEC 260 Magazine and Feature Writing /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MEC 101.

Writing magazine and newspaper feature articles for publication. Each student is required to research, write and attempt to market an article or series of features.

MEC 265 Implications of Media Technology /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The effects of media technology on the individual and his society. Includes multimedia systems, computer managed instruction, computer assisted instruction, audio-tutorial systems, television, radio, film, programmed instruction, dial-access systems and man-machine relationships in learning systems.

MEC 270 Media Advertising and Public Relations /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: MEC 101.

Principles and techniques of media advertising and public relations. Includes planning, sales and production. Students work in groups to produce a national and local advertising campaign and a public relations campaign.

MEC 275 Basic Audio Production /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MEC 101.

Fundamentals of audio production for radio and television programs. Using multi-track recording and mixing, students produce audio for advertisements, a song for a record and narration for a slide show. Students may work in college radio or television productions.

MEC 280 Photojournalism /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: MEC 101.

Reporting and interpreting news through pictures. Includes application of basic photography techniques to mass media, analysis of photographs, some layout, and writing cutlines and captions.

MEC 285 Television Production Workshop II /3 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisite: MEC 125.

Studio course in which students collect, write and produce materials for the college's television news program.

MEC 290 Applied Photojournalism /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Practical application of photojournalistic techniques. Includes news value, pictorial quality, handling assignments and the picture story.

MEC 296 Advanced Independent Studies in Media /1-4 cr. hrs./3-12 periods

□Prerequisites: 12 credit hours of MEC courses, completion of MEC 196 and consent of instructor.

Students independently continue their development in media communications with the help of a faculty member. May be taken three times for a maximum of 12 credit hours.

MEC 299 Co-op Related Class in MEC /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

MEC 299 Co-op Work in MEC /2-3 cr. hrs./10-15 periods (10-15 lab)

See Cooperative Education section for description.

MICROCOMPUTER APPLICATIONS

MAP 106 Introduction to Microcomputers /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Microcomputer uses with emphasis on hardware, specific micro-computer uses and evaluation of application software.

MAP 207 Developing Microcomputer Applications /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: MAP 106 or equivalent experience.

Principles and techniques of developing microcomputer applications. Includes software review and evaluation, authoring systems, introduction to popular programming languages (e.g., PILOT and LOGO) and production of software.

MAP 267 Microcomputer Center Operations /3 cr. hrs./15 periods (15 lab)

□Prerequisite: MAP 207 or equivalent experience.

In-depth microcomputer applications experience. Intended for those whose major responsibility will be maintenance of a microcomputer laboratory.

MICROELECTRONICS

MRE 104 Introduction to Microelectronics /3 cr. hrs./3 periods (3 lec.)

Same as ETR 104.

MRE 112 Electronics for Technical Careers /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: MTH 070.

Concepts of solid-state electronics as they apply to technical careers.

MRE 116 Microelectronic Assembly: Wire Bond /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Development of skills required in the wire bond task of the micro-electronics component assembly process. Includes wire bond machine setup, operation and troubleshooting, bonding processes, schematic reading and translation to job tasks.

MRE 117 Microelectronics Assembly: Die Attach /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Development of skills required in the die attach task of the micro-electronic component process. Includes die attach machine set up, operation and troubleshooting, bonding processes, die orientation and placement from substrate schematics.

MRE 118 Microelectronic Assembly: Wire Bond and Die Attach /4 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: None.

Development of skills required in the wire bond and die attach tasks of the microelectronic components process. Includes die attach and wire bond machine setup, operation and troubleshooting, bonding processes, die orientation and placement, wire placement, schematic reading and translation to job tasks.

MRE 121 Electronic Solder Assembly /2 cr. hrs./3 periods (1 lec., 2 lab)

Same as ETR 121.

MRE 123 Electronic Fabrication and Processing /2 cr. hrs./3 periods (1 lec., 2 lab)

Same as ETR 123.

MRE 125 Printed Circuit Board Solder Assembly /3 cr. hrs./5 periods (1 lec., 4 lab)

Same as ETR 125.

MRE 150 Introduction to Microelectronics Materials /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: MRE 104, and MTH 115 or 130.

Introduction to materials used to fabricate microelectronic circuits and the relationship of materials selection and processing to their electrical and mechanical performance in the circuit. Includes thick and thin film conductor, resistor and dielectric systems; monolithic IC deposition systems; solders, brazes, glasses and organic adhesive used in attaching components and leads and those used in final packaging. Emphasis on economic environment and technical considerations involved in selecting materials.

MRE 160 Introduction to Microelectronic Equipment /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisites: MRE 104, and MTH 115 or 130.

Introduction to microelectronic processing and assembly equipment. Includes equipment operation, setup, troubleshooting and maintenance of equipment utilized in hybrid assembly, thick film processing and monolithic (thin film and water) fabrication. Equipment reviewed includes screen printers, wire bonders, laser trimmers, furnaces, vacuum deposition units and automatic test equipment.

MRE 200 Microelectronic Photolithographic Processes /3 cr. hrs./ 4 periods (2 lec., 2 lab)

□Prerequisites: MRE 104 and DFT 170. (DFT 170 may be taken concurrently.)

The image-forming processes required to produce integrated circuits. Includes imaging systems, photo resist 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 and DFT 170.

Examination of quality control and reliability techniques through 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 causes of failure.

MRE 220 Microelectronics Packaging /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisites: MRE 150 and 160.

Principles and practical application of microelectronics packaging. Includes packaging of materials, processing methods, economics, device specification, documentation, reliability, and failure analysis.

MRE 230 Microelectronics Circuit Fabrication /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: MRE 220.

Fabrication of a thick or thin film microelectronic circuit. Includes circuit design, component selection, layout generation, photo fabrication, screens, masks, screen printing, deposition, testing, etching and attaching components, packaging and critique.

MILITARY SCIENCE-AIR FORCE**MLA 101 History of Air Power I /2 cr. hrs./2 periods (1 lec., 1 lab)**

□Prerequisite: None.

Review of chronological development of air power from the advent of the air age through World War II. (Course offered in cooperation with the University of Arizona.)

MLA 102 History of Air Power II /2 cr. hrs./2 periods (1 lec., 1 lab)

□Prerequisite: None.

The development of the Air Force from 1946 to the present. (Course offered in cooperation with University of Arizona.)

MLA 201 Air Force Today I /2 cr. hrs./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Review of the history, functions and organization of the Air Force, Air Force doctrine, national strategy, and strategic offensive forces. (Course offered in cooperation with the University of Arizona.)

MLA 202 Air Force Today II /2 cr. hrs./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Strategic defensive forces, U.S. general purpose forces, and the support commands and operating agencies of the Air Force. (Course offered in cooperation with the University of Arizona.)

MILITARY SCIENCE-ARMY**MLS 101 Introduction to Military Science I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Organization of the Army. Includes principles and techniques of applied leadership, customs, traditions and military courtesy. (Course offered in cooperation with the University of Arizona.)

MLS 102 Introduction to Military Science II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Continuation of Introduction to Military Science I. Includes basic marksmanship, first aid, land navigation, small-unit tactics and practicum. (Course offered in cooperation with the University of Arizona.)

MLS 203 The National Defense Establishment /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Military staff organization and operations. Also includes procedures and conduct of military briefings and benefits. (Course offered in cooperation with the University of Arizona.)

MLS 204 Management through Military Leadership /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: None.

Responsibilities and obligations of a commissioned officer. Also includes small unit leadership, motivation and practicum. (Course offered in cooperation with the University of Arizona.)

MILITARY SCIENCE-NAVY

NSP 100 Naval Laboratory I /1 cr. hr./2 periods (2 lab)

□Prerequisite: None.

Applied exercises in naval ship systems, navigation, naval operation, naval administration and military justice. For freshman NROTC students at the University of Arizona. Includes such topics as drill and ceremonies, physical fitness, cruise preparation, sail training, safety awareness, personal finance and applied exercises. May be taken two times for a maximum of two credit hours.

NSP 101 Introduction to Naval Science /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

An introduction to the Naval profession and to concepts of sea power. Includes an emphasis on missions, organizations and warfare components of the Navy and Marine Corps. Naval courtesy and customs, military justice, leadership and nomenclature. (Course offered in cooperation with the University of Arizona.)

NSP 102 Naval Ship Systems I: Engineering /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Ship characteristics and types. Includes ship design, hydrodynamic forces, stability compartmentation, propulsion, electrical and hydraulic systems, interior communications, ship control and damage controls. Also includes theory and design of steam, gas turbine and nuclear propulsion. (Course offered in cooperation with the University of Arizona.)

NSP 200 Naval Laboratory II /1 cr. hr./2 periods (2 lab)

□Prerequisite: None.

Continuation of NSP 100. For sophomore NROTC students at the University of Arizona. May be taken two times for a maximum of two credit hours.

NSP 201 Naval Ship Systems II: Weapons /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Theory and employment of weapons systems. Includes the processes of detection, evaluation, threat analysis, selection, delivery and guidance. Physical aspects of radar and underwater sound are also covered. Field trip. (Course offered in cooperation with the University of Arizona.)

NSP 202 Sea Power and Maritime Affairs /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

U.S. Naval history from the American Revolution to the present. Includes a discussion of the theories of Mahan, political issues of merchant marine commerce, and a comparison of U.S. and Soviet naval strategies. Field trip. (Course offered in cooperation with the University of Arizona.)

MUSIC

MUS 027 Introduction to Ear Training /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Ear training for individuals with little or no musical background. Learning to perform what is written and identify what is heard through simple melodies and rhythms.

MUS 036 Singing/Movement for the Stage /2 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: None.

Singing and movement experience for the singer and/or actor. Music will be selected for each student's skill level. Course work will culminate in student performance. Course may be taken four times for a maximum of eight credit hours.

MUS 041 Piano Class I-Non-Music Major /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Basic principles and techniques of piano playing in a group situation. Designed for non-music majors.

MUS 042 Piano Class II-Non-Music Major /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Continuation of MUS 041. Expansion and refinement of piano playing techniques. Designed for non-music majors.

MUS 043 Piano Class III-Non-Music Major /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 042.

Continuation of MUS 042. Group piano for non-music majors.

MUS 045 Applied Music-Private Instruction /2 cr. hrs./5 periods (5 lec.)

□Prerequisite: None.

Private weekly lessons in the sections listed below. Course of study jointly determined by the instructor and student. Development of performance skills is stressed. May be taken four times for a maximum of eight credit hours. Section 1-Brass Section 2-Guitar Section 3-Organ Section 4-Percussion Section 5-Piano Section 6-Strings Section 7-Voice Section 8-Woodwinds.

MUS 050 Rhythmic Performance /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Analysis and performance of rhythmic notation. Emphasis on rhythmic reading skills, terminology, group performance and notation.

MUS 054 Jazz Improvisation /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 102.

Techniques of jazz improvisation on various instruments. Includes rhythmic, melodic and harmonic aspects of jazz styles. Emphasis on progressive development of musical skills through interpretation of musical literature. Enrollment determined by audition with instructor. Course may be taken two times for a maximum of two credit hours.

MUS 091 Guitar Class I /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Beginning instruction and development of basic guitar playing skills for both hands. Emphasis 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.

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.)

□Prerequisite: None.

Introduction to fundamentals of music designed to develop basic literacy in music. For those who have little or no background in music. Includes study of notation, melody, harmony, rhythm and musical terminology. Nontransferable as music major credit.

MUS 104 Giant Steps I /1 cr. hr./3 periods (1 lec., 2 lab)

□Prerequisite: Students chosen by audition.

Membership selected primarily from southern Arizona high schools. Rehearsal and performance of many styles of music in the jazz idiom. Emphasis on progressive development of musical skills through interpretation of advanced literature. Course may be taken four times for a maximum of four credit hours.

MUS 105 Jazz Band II /1 cr. hr./3 periods (1 lec., 2 lab)

□Prerequisite: Students chosen by audition.

Membership selected primarily from southern Arizona high schools. Rehearsal and performance of many styles of music in the jazz idiom. Continued emphasis on progressive development of musical skills through interpretation of advanced literature. Course may be taken four times for a maximum of four credit hours.

MUS 108 Pima Jazz Band I /1 cr. hr./3 periods (1 lec., 2 lab)

□Prerequisite: Students chosen by audition.

Rehearsal and performance of many styles of music in the jazz idiom. Emphasis on progressive development of musical skills through interpretation of literature. Course may be taken four times for a maximum of four credit hours.

MUS 109 Pima Jazz Band II /1 cr. hr./3 periods (1 lec., 2 lab)

□Prerequisite: Students chosen by audition.

Rehearsal and performance of many styles of music in the jazz idiom. Continued emphasis on progressive development of musical skills through interpretation of literature. Course may be taken four times for a maximum of four credit hours.

MUS 112 Community Jazz Band I /1 cr. hr./3 periods (1 lec., 2 lab)

□Prerequisite: Students chosen by audition.

Membership selected primarily from Tucson's adult community. Rehearsal and performance of many styles of music in the jazz idiom. Emphasis on progressive development of musical skills through interpretation of professional literature. Course may be taken four times for a maximum of four credit hours.

MUS 113 Community Jazz Band II /1 cr. hr./3 periods (1 lec., 2 lab)

□Prerequisite: Students chosen by audition.

Membership selected primarily from Tucson's adult community. Rehearsal and performance of many styles of music in the jazz idiom. Continued emphasis on progressive development of musical skills through interpretation of professional literature. Course may be taken four times for a maximum of four credit hours.

MUS 116 Philharmonia Orchestra I /1 cr. hr./3 periods (1 lec., 2 lab)

□Prerequisite: Students chosen by audition.

Participation in regular rehearsals and performances. Emphasis on progressive development of musical skills through interpretation of orchestral literature. Course may be taken four times for a maximum of twelve credit hours.

MUS 117 Philharmonia Orchestra II /1 cr. hr./3 periods (1 lec., 2 lab)

□Prerequisite: Students chosen by audition.

Participation in regular rehearsals and performances. Continued emphasis on progressive development of musical skills through interpretation of orchestral literature. Course may be taken four times for a maximum of twelve credit hours.

MUS 120 Concert Band I /3 cr. hrs. /5 periods (2 lec., 3 lab)

□Prerequisite: Students chosen by audition.

Participation in regular rehearsals and performances. Emphasis on progressive development of musical skills through interpretation of literature. Course may be taken four times for a maximum of twelve credit hours.

MUS 121 Concert Band II /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: Students chosen by audition.

Participation in regular rehearsals and performances. Continued emphasis on progressive development of musical skills through interpretation of literature. Course may be taken four times for a maximum of twelve credit hours.

MUS 125 The Structure of Music I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic structures of music and fundamental musical terminology. Includes scales, intervals, keys, chords, notation, tonality, form and part writing.

MUS 126 The Structure of Music II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MUS 125.

Structure and terminology of modal and contrapuntal music. Includes modal harmony, non-western music, analysis and 18th century counterpoint.

MUS 127 Aural Perception I /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Development of aural techniques through dictation and performance of intervals and melodic and simple rhythmic structures. Also includes general techniques of listening to music. Required of all music majors.

MUS 128 Aural Perception II /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 127.

Continuation of MUS 127. Development of aural techniques through dictation and performance of intervals, chord progressions and melodic and rhythmic structures. Includes general techniques of listening to music. Required of all music majors.

MUS 130 Chorale (SATB) /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: Students chosen by audition.

Selected group of mixed voices for interpretation of a wide variety of styles of music in concerts throughout the academic year. Emphasis on progressive development of musical skills through interpretation of literature. Course may be taken four times for a maximum of twelve credit hours.

MUS 131 College Singers (SATB) /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: Students chosen by audition.

Small choral ensemble. Repertory and performance throughout the academic year includes best literature from all styles and periods. Emphasis on progressive development of musical skills through interpretation of literature. Course may be taken four times for a maximum of twelve credits.

MUS 132 Women's Chorus /1 cr. hr./3 periods (1 lec., 2 lab)

□Prerequisite: None.

Rehearsal and performances of choral literature written for women's voices. Minimum of one performance per semester. Emphasis on progressive development of musical skills through interpretation of literature. A short audition is necessary for selection and voice placement. Course may be taken four times for a maximum of four credit hours.

MUS 134 Vocal Ensemble /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: Students chosen by audition.

Rehearsal and performance of literature for various combinations of voices. Emphasis on progressive development of musical skills through interpretation of literature. 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)

□Prerequisite: None.

Practical training in basic skills and singing without specialization. Includes breathing, diction, tone, rhythm and sight singing.

MUS 137 Voice Class II /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 136.

Continuation of MUS 136. Practical training in basic skills and singing without specialization. Includes breathing, diction and interpretation of song literature.

MUS 141 Piano Class I-Music Majors /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: None.

Beginning piano instruction and techniques employing group and individual practice in an electronic lab. For music majors. Includes development of keyboard technique, musical notation, key signatures and other basic theoretical concepts.

MUS 142 Piano Class II-Music Majors /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 141.

Continuation of MUS 141. Intermediate piano instruction utilizing group and individual practice in an electronic lab. For music majors. Focus on more advanced theoretical and technical applications to the piano.

MUS 143 Piano Class III-Music Majors /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 142.

Continuation of MUS 142. Advanced intermediate piano instruction utilizing group and individual practice in an electronic lab. For music majors. Focus on further study of theoretical and applied techniques at the piano.

MUS 144 Piano Class IV-Music Majors /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 143.

Continuation of MUS 143. Advanced piano instruction utilizing group and individual practice in an electronic lab. For music majors. Advanced application of theory and technique, including scales, arpeggios, harmonizations, transpositions and an in-depth study of repertoire and style.

MUS 145 Applied Music-Private Instruction /2 cr. hrs./5 period (.5 lec.)

□Prerequisite: None.

Private weekly lessons in the sections listed below. Includes participation in student recitals and jury exams. Students chosen by audition. Section 1-Brass Section 2-Guitar Section 3-Percussion Section 4-Piano Section 5-Strings Section 6-Voice Section 7-Woodwinds.

MUS 146 Applied Music-Private Instruction /2 cr. hrs. /5 period (.5 lec.)

□Prerequisite: MUS 145.

Continuation of MUS 145. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams. (See MUS 145 for sections offered.)

MUS 151 Exploring Music /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to various musical styles with emphasis on listening and application of the basic elements of music (melody, rhythm, harmony, form and timbre) to each style.

MUS 201 History and Literature of Music I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MUS 102.

Music literature from the ancient Greek period through the Baroque with emphasis on specific works as representative of musical evolution.

MUS 202 History and Literature of Music II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MUS 102.

Music literature from the end of the Baroque period through the present day with emphasis on specific works as representative of musical evolution.

MUS 207 Music Composition /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MUS 125.

Composition of music. Includes techniques, notational systems and exposure to and analysis of new music.

MUS 225 The Structure of Music III /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MUS 125.

Chromatic harmony, melody and associated contrapuntal and rhythmic structure. Includes Schenkerian analysis, advanced tertian harmonies, chromatic modulation and in-depth analysis of selected works.

MUS 226 The Structure of Music IV /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MUS 125.

Twentieth century musical structure. Includes analysis of and composition with atonality, serialism, polymodality, polymeter, microtones, improvisation, chance, instrument exploration, new harmonic structures, new scales and new aesthetics.

MUS 227 Aural Perception III /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 127.

Continuation of MUS 128. Development of aural techniques through dictation and performance of tonal and atonal melodies, chord progressions and rhythmic structures. Includes general techniques of listening to music. Required of all music majors.

MUS 228 Aural Perception IV /1 cr. hr./2 periods (1 lec., 1 lab)

□Prerequisite: MUS 127.

Continuation of MUS 227. Development of aural techniques through dictation and performance of tonal and atonal melodies, chord progressions and rhythmic structures. Emphasis on 20th century musical contexts. Required of all music majors.

MUS 247 Applied Music-Private Instruction /2 cr. hrs./5 period (.5 lec.)

□Prerequisite: MUS 146.

Continuation of MUS 146. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams. (See MUS 145 for sections offered.)

MUS 248 Applied Music-Private Instruction /2 cr. hrs./5 period (.5 lec.)

□Prerequisite: MUS 247.

Continuation of MUS 247. Private weekly instrumental lessons. Includes further development of performance skills and participation in student recitals and jury exams. (See MUS 145 for sections offered.)

MUS 290A-C Independent Studies in Music /1 cr. hrs./3 periods (1 lec., 2 lab)

□Prerequisite: MUS 102.

Composition and/or in-depth study in an area of the student's choice with approval by the supervising instructor. Each course may be taken four times for a maximum of four credit hours.

NURSING

NRS 050 Nursing Assistant /5 cr. hrs./11 periods (2 lec., 9 lab)

□Prerequisite: None.

A one-semester course providing training in skills for various health services. Upon completion, the student is qualified for employment at a beginning level in health care facilities as a nurse's assistant.

NRS 072 Practical Nursing II /9 cr. hrs./19 periods (4 lec., 15 lab)

□Prerequisite: NRS 070.

Using the nursing process to assess problems and needs that frequently occur in pregnancy, infancy, childhood, adolescence and adulthood. Includes planning individualized patient care, growth and development, nutrition, drug therapy, and cultural influence, all integrated into the three components of the course: theory, skills and supervised clinical practice.

NRS 101 Nursing Process I /8 cr. hrs./16 periods (4 lec., 12 lab)

□Prerequisite: Admission granted by the Allied Health Services Selection Committee.

Introduces the nursing process as a systematic approach to decision making in nursing. Includes content related to maintenance of homeostasis, and role of adaptation through meeting basic needs. Introduces concepts of communication, pharmacology, growth and development with emphasis on aging. Presents laboratory and clinical application of selected nursing skills to adults. Emphasis is on the role of the practical nurse in relationship to the nursing process.

NRS 102 Nursing Process II /9 cr. hrs./19 periods (4 lec., 15 lab)

□Prerequisite: NRS 101.

Continues the application of the nursing process to basic care of medical/surgical clients and families in the maternity cycle and health of children. Includes emphasis on growth and development through the life cycle. Presents laboratory and clinical application of selected nursing skills to the care of adults and children. Emphasis is on the role of the practical nurse in relationship to the nursing process.

NRS 103 Trends and Issues I /1 cr. hr./1 period (1 lec.)

□Prerequisites: NRS 101; concurrent enrollment in NRS 102.

A nonclinical course that introduces the nursing role with emphasis on beginning legal and ethical concerns. Explores the rights of individuals in all aspects of life.

NRS 104 Nursing Process I /8 cr. hrs./16 periods (4 lec., 12 lab)

□Prerequisite: Acceptance into the associate degree nursing program.

Introduces the nursing process as a systematic approach to decision making in nursing. Includes content related to maintenance of homeostasis, and role of adaptation through meeting basic needs. Introduces concepts of communication, pharmacology, growth and development with emphasis on aging. Presents laboratory and clinical application of selected nursing skills to adults. Emphasis is on the role of the registered nurse in relationship to the nursing process.

NRS 105 Nursing Process II /9 cr. hrs./19 periods (4 lec., 15 lab)

□Prerequisite: NRS 104.

Continues the application of the nursing process to basic care of medical/surgical clients and families in the maternity cycle and health of children. Includes emphasis on growth and development through the life cycle. Presents laboratory and clinical application of selected nursing skills to the care of adults and children.

NRS 172 Medical-Surgical Nursing (Eight-Week Course) /5 cr. hrs./ 20 periods (5 lec., 15 lab)

□Prerequisites: NRS 104.

Expands the student's exposure to basic principles of medical-surgical nursing. 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 Course) /5 cr. hrs./20 periods (5 lec., 15 lab)

□Prerequisites: NRS 104 and 172.

Introduction to more complex nursing techniques. Nursing care of hospitalized adult medical-surgical clients experiencing commonly occurring interferences in respiration, renal function and circulation. Includes concepts of cancer nursing.

NRS 189 Practical Nurse to Associate Degree Nursing Program Transition /1 cr. hr./1 period (1 lec.)

□Prerequisites: Graduate of Pima Community College Practical Nurse (PN) program, does not hold valid Licensed Practical Nurse (LPN) license. Meet admissions criteria for Associate Degree Nursing (ADN) program. Students graduating from an open entry/open exit PN program will be individually evaluated.

This course is designed to facilitate the transition of the PN graduate from Pima Community College (PCC) into the ADN program at PCC. Emphasis is on refocusing from PN role to ADN role.

NRS 190 Licensed Practical Nurse to Associate Degree Nursing Program Transition /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: Hold a current valid Licensed Practical Nurse (LPN) license. Must meet all admission criteria for the Associate Degree Nursing (ADN) program.

This course is designed to facilitate the transition of LPNs into the Pima Community College ADN program. The course includes a review of basic nursing care, stressing role transition through nursing process and orientation to the philosophy and organizing framework of the ADN program. This course addresses a review of basic nursing skills focusing on 1) communication, i.e., nursing care plans, process recordings and other documentation skills and 2) validated competencies and skills as identified by the Arizona Department of Education.

NRS 201 Nursing Process III /11 cr. hrs./23 periods (5 lec., 18 lab)

□Prerequisite: NRS 105.

Expands application of the nursing process to more complex care of medical/surgical clients, families in maternal cycle and children who are experiencing interferences in homeostasis. Presents laboratory and clinical application of more complex nursing skills to the care of adults and children.

NRS 202 Nursing Process IV /11 cr. hrs./23 periods (5 lec., 18 lab)

□Prerequisite: NRS 201.

Emphasizes the application of nursing process to clients experiencing acute and/or chronic interferences in psychological homeostasis. Introduces the concepts of management of clients with multiple needs. Presents laboratory and clinical application of more complex nursing skills to the care of clients in psychiatric and medical surgical settings.

NRS 203 Trends and Issues II /1 cr. hr./1 period (1 lec.)

□Prerequisites: NRS 103, 201. May be taken concurrently with NRS 202.

Continues exploration of the nursing role with emphasis on current issues and trends in nursing and health care delivery.

NRS 280 Pediatric Nursing (Eight-Week Course) /5 cr. hrs./20 periods (5 lec., 15 lab)

□Prerequisites: NRS 172 and 173.

Introduction to the nursing process as it relates to child growth and development. Knowledge and skills utilized in the care of children with commonly occurring health problems.

NRS 281 Obstetrical Nursing (Eight-Week Course) /5 cr. hrs./ 20 periods (5 lec., 15 lab)

□Prerequisite: NRS 173.

Principles of maternity nursing. The nursing process as it relates to the family and infant 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 Course) / 5 cr. hrs./20 periods (5 lec., 15 lab)

□Prerequisites: NRS 280 and 281.

Using the nursing process to give complex client care. Includes concepts from oncology, cardiovascular, neurological, and critical care nursing.

NRS 283 Psychiatric Nursing (Eight-Week Course) /5 cr. hrs./ 20 periods (5 lec., 15 lab)

□Prerequisites: NRS 280 and 281.

Psychiatric nursing care in a variety of hospital and community settings. Includes the mental health-illness continuum and its interventions.

NRS 286 Trends and Issues in Nursing /1 cr. hr./1 period (1 lec.)

□Prerequisite: To be taken concurrently with NRS 282.

This course is designed to provide the student with the opportunity to develop an awareness and knowledge of the sociological, political, economical, cultural and spiritual influences which impact on the status of nursing in this country. The course presents ways to examine the trends and issues which currently concern nurses.

NURSING CONTINUING EDUCATION

NCE 217 Fundamental Hemodialysis /6 cr. hrs./10 periods (2 lec., 8 lab)

□Prerequisite: LPN or RN license.

Principles and purpose of hemodialysis related to vascular access, initiation and termination of hemodialysis. Includes the administration of intravenous solutions.

OFFICE EDUCATION

OED 011 Computer Keyboarding /1 cr. hr./1.5 periods (.5 lec., 1 lab)

□Prerequisite: None.

Training on the computer keyboard. Includes function keys, alphabetic keys, numeric 10-key pad and basic formatting.

OED 021 Beginning Forkner Shorthand /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: OED 111. (Recommended: OED 151 or concurrent enrollment.)

Introduction to Forkner Shorthand theory using the symbol and alphabetic system. Includes development of dictation speed and typewritten transcription of business correspondence with emphasis on improved spelling, grammar and punctuation.

OED 022 Advanced Forkner Shorthand /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisites: OED 021, OED 151 or concurrent enrollment, and entry speed of 40 to 50 wpm.

Dictation, business vocabulary and technical terms. Includes development of dictation speed and further development of transcription skills, including punctuation, grammar and typing techniques.

OED 050 Fundamentals of Business English and Vocabulary / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

English basics in business. Includes business terminology, definitions, spelling, pronunciation, word usage, simple sentence structure, grammar, and dual language similarities and comparisons. Designed primarily for the unique needs of the Spanish-speaking student, but open to all students.

OED 051 Notehand /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Intensive course in a shorthand system to be used for personal notetaking. Practice in taking useful, well-organized lecture and conference notes.

OED 061 Stenoscrypt I /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: Keyboarding knowledge.

The basic system of alphabetic shorthand. Theory, brief forms, phrasing, vocabulary, grammar, punctuation, letter styles and transcription techniques.

OED 062 Stenoscrypt II /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisites: OED 061, and OED 111 or keyboarding knowledge.

Advanced 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)

□Prerequisite: OED 111 or equivalent.

Review of typing techniques for students knowing how to type. Includes speed/accuracy drills and mailable production of letters, forms, tables and manuscripts.

OED 071A Typing Refresher: Skill Building /1 cr. hr./1 period (.7 lec., .3 lab)

□Prerequisite: OED 111 or equivalent.

Review course for students knowing how to type. Emphasis on the practice of using the keyboard, speed drills and accuracy drills.

OED 071B Typing Refresher: Formatting /1 cr. hr./1 period (.7 lec., .3 lab)

□Prerequisite: OED 111 or equivalent.

Review course for students knowing how to type. Emphasis on producing letters, manuscripts, tabulations and forms.

OED 071C Typing Refresher: Special Applications /1 cr. hr./1 period (.7 lec., .3 lab)

□Prerequisite: OED 111 or equivalent.

Review course for students knowing how to type. Emphasis on preparation of forms, multiple copies and memorandums in special areas of interest, including legal, medical and general.

OED 081 Shorthand Refresher /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: OED 101 or equivalent.

Review of the principles of shorthand with emphasis on new words, transcription and speed building.

OED 091 Upgrading Office Skills /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: OED 111 or keyboarding knowledge.

New techniques and personal improvement in office skills and human relations. Includes assessment, evaluation, new technology and review.

OED 095 Taquigrafía I /3 cr. hrs./5 periods (3 lec., 2 lab)

□Requisito: Mecanografía I o inscripción concurrentes.

Un curso de primer semestre de taquigrafía en español. El curso está diseñado para desarrollar las destrezas en tomar dictado sencillo y transcribirlo en la maquina con énfasis en el español escrito.

OED 101 Shorthand I /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisites: OED 111, and OED 151 or concurrent enrollment.

First-semester shorthand. Designed to develop skills in taking dictation and transcribing at the keyboard. Emphasis on the mechanics of written English.

OED 102 Shorthand II /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisites: OED 151 or concurrent enrollment, and OED 101 or one year high school shorthand or dictation speed of 40 to 50 wpm with keyboard transcription at minimum of 95 percent accuracy.

Review of shorthand through dictation practice, speed development and accuracy in typed transcription. Emphasis on progressive speed development, grammar, spelling, punctuation and production of mailable correspondence.

OED 111 Typing I /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: None.

Introduction to touch typing. Basic formatting of business correspondence. Emphasis on mastery of the keyboard and speed/accuracy drills.

OED 111A Typing I: Keyboarding /1 cr. hr./1.7 periods (1 lec., .7 lab)

□Prerequisite: None.

Introduction to the basic techniques of touch keyboard mastery. Emphasis on technique, speed and accuracy. Includes keyboarding on microcomputers and numeric keypad as an option. Designed for students who use computers.

OED 111B Typing I: Basic Correspondence and Centering (Five-Week Module) /1 cr. hr./1.7 periods (1 lec., .7 lab)

□Prerequisite: OED 111A.

Basic centering and correspondence. Emphasis on technique, speed and accuracy.

OED 111C Typing I: Correspondence and Manuscripts (Five-Week Module) /1 cr. hr./1.6 periods (1 lec., .6 lab)

□Prerequisite: OED 111B.

Tabulation, correspondence and manuscripts. Emphasis on technique, speed and accuracy.

OED 112 Typing II /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: OED 111.

Further development of typing techniques, skill and knowledge. Includes letters, manuscripts, tabulations, memorandums and business forms. Accurate proofreading and mailability are stressed.

OED 121 Calculating Machines /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: BUS 051.

Operation of the electronic calculator for mathematical computation in the modern business world. Includes practical business applications such as discounts, commission, percentage, proration, interest and markup.

OED 141 Legal Terms /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Legal terminology for students interested in working in legal offices as legal secretaries or technicians. Emphasis on pronunciation, spelling and definitions.

OED 142 Legal Secretarial Procedures I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: OED 211.

Basic law office procedures and terminology, from client intake to disposition of a case in courts of limited or special jurisdiction. Includes human relations and code of ethics.

OED 143 Legal Secretarial Procedures II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: OED 142, or consent of instructor.

Terminology and procedures for a law office, including domestic relations, probate, corporations, arbitration, real estate and criminal law, the code of ethics, and human relations.

OED 151 Business English /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Minimum assessment test score for WRT 100.

In-depth study of English fundamentals essential for modern business communication. Includes application of grammar rules, punctuation, spelling, word usage, sentence structure and capitalization.

OED 161 Medical Office Procedures /4 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisites: OED 112 or concurrent enrollment and OED 162.

Duties typical of an assistant in a medical office. Designed for students planning to work in a physician's office, clinic or hospital. Includes keeping patient records, preparation and handling of insurance forms and medical reports, and handling patients.

OED 162 Medical Terms I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Terminology essential to the medical business office. Emphasis on understanding and ease in using medical terms.

OED 199 Co-op Related Class in OED /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

OED 199 Co-op Work in OED /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

OED 201 Shorthand III /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisites: OED 102 or two years of high school shorthand or dictation speed of 60 to 70 wpm with typewriter transcription at minimum of 95 percent accuracy, and OED 151 or concurrent enrollment.

Continuation of OED 102. Further development of shorthand transcription. Includes both timed and office-style dictation. Emphasis on progressive speed development, modern business English and production of mailable correspondence.

OED 202 Shorthand IV /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: OED 201.

Continuation of OED 201. Production course for developing techniques and skills of high quality. Includes transcription, modern English usage, proofreading, editing and specialized application.

OED 211 Typing III /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: Two years of typing or 40 wpm.

High-level skills in touch typing. Includes office typing problems with manuscripts, correspondence, tables, business forms, executive and legal work. Emphasis on a standard of mailability for all production work. Independent performance is encouraged. It is recommended that OED 151 be taken before this course.

OED 220 Word/Information Processing Concepts /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: None.

Introduction to principles, procedures and equipment of the automated office. Includes historical background and current developments in word/information processing.

OED 221 Word Processing /4 cr. hrs./6 periods (4 lec., 2 lab)

□Prerequisites: OED 112, or typing speed of 40 wpm and ability to type letters, manuscripts and tables.

Procedures, methods and equipment used in the automated office in typing, transcribing and producing copy. Variety of equipment used. (See OED 221 A,B,C,D for specific content.) It is recommended that OED 151 be taken before this course.

OED 221A Word Processing-Reprographics /1 cr. hr./1.5 periods (1 lec., .5 lab)

□Prerequisites: OED 112, or typing speed of 40 wpm and ability to type letters, manuscripts and tables.

Survey of copy processing. Techniques of copy preparation and reproduction, including duplicating, printing, copying and imaging devices. It is recommended that OED 151 be taken before this course.

OED 221B Word Processing Software /1 cr. hr./1.5 periods (1 lec., .5 lab)

□Prerequisites: OED 112 or typing speed of 45 wpm and ability to type letters, manuscripts and tables (OED 151 recommended).

Create, edit, spell check and merge documents. Popular software packages available. May be taken four times for a maximum of four credit hours.

OED 221C Word Processing-Beginning Machine Transcription /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisites: OED 112, or typing speed of 40 wpm and ability to type letters, manuscripts and tables.

Techniques and equipment for basic transcription. Includes development of punctuation, grammar and spelling skills using general business correspondence. It is recommended that OED 151 be taken before this course.

OED 221D Word Processing-Advanced Machine Transcription /2 cr. hrs./3 periods (2 lec., 1 lab)

□Prerequisite: OED 221C.

Further development of machine transcription techniques. Includes legal, medical, and general business correspondence. Emphasis on mailability and transcription speed.

OED 242 Legal Secretarial Procedures III /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: OED 143 or consent of instructor.

The National Association of Legal Secretaries official basic course. Designed for legal secretarial students and legal secretaries. Includes fundamental principles for both general and specialized areas of legal practice.

OED 243 Legal Secretarial Procedures IV /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: OED 242 or consent of instructor.

The National Association of Legal Secretaries advanced course. Designed for students and legal secretaries who wish to prepare for complex duties in legal offices. Covers aspects of the basic course in greater depth.

OED 251 Business Communications /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: OED 151.

General principles of effective communication and techniques of business correspondence. Includes social and business writing, claim and adjustment letters, interoffice memorandums, sales letters, credit letters, collection letters, letters of application and data sheets.

OED 252 Bilingual Commercial Correspondence /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: Speaking and writing proficiency in Spanish and English.

The use of Spanish and English in business. Specially designed for bilingual secretaries or office personnel. Acquisition of business terminology in English and Spanish and application of these in a variety of business communications such as letters and memos. Includes practice in taking dictation, transcribing and translating in both languages.

OED 262 Medical Terms II /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: OED 162.

Concentrated study of terminology essential to the medical field. Includes the body systems, radiology, nuclear medicine and pharmacology.

OED 263 Medical Transcription /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: OED 162, or knowledge of medical terminology and typing speed of 40 wpm.

Development of medical transcription skills. 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.

Functions and procedures used in a wide range of office activities. Includes analysis of the secretarial profession, information processing, oral and written communications, transmittal services, planning travel and conferences, preparing reports, financial and legal tasks, and placement and advancement in employment.

OED 298 Office Education: Selected Topics /5-3 cr. hrs./5-3 periods (.5-3 lec.)

□Prerequisite: None.

Exploration of selected topics in office education. Includes current office education issues and professional development. Specific content will vary with topic offered.

OED 299 Co-op Related Class in OED /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

OED 299 Co-op Work in OED /1-8 cr. hr./5-40 periods (5-40 lab)

See Cooperative Education section for description.

OPHTHALMIC DISPENSING**ODT 051 Optical Orientation I /6 cr. hrs./8 periods (5 lec., 3 lab)**

□Prerequisite: Acceptance into Optical Program.

Overview of the ophthalmic field. Includes roles of opticians, optometrists and ophthalmologists, basic information regarding lenses, eyeglass frames, refractive errors and their corrections, prescriptions, laboratory equipment, and organization.

ODT 052 Optical Orientation II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: ODT 051.

Continuation of ODT 051. Introduction to procedures governing frame measurements, methods of reading prescriptions, methods of eliminating specific optical problems, fitting and alignment procedures and uses of single vision and multifocal lenses.

ODT 053 Optical Laboratory /3 cr. hrs./7 periods (1 lec., 6 lab)

□Prerequisite: ODT 051.

Principles and techniques of preparing finished eyewear. Includes specific practice in lens neutralization, layout, thickness computations, edging, hardening, assembly and verification.

ODT 054 Optical Dispensing I /6 cr. hrs./10 periods (4 lec., 6 lab)

□Prerequisites: ODT 051, 052 and 053.

Physically and theoretically adapting eyewear to the patient's face through application of ophthalmic dispensing principles, techniques and procedures. Includes facial measurements and planes, frame selection, vocational requirements, quality lens design and ocular pupillary measurements.

ODT 055 Contact Lenses I /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisites: ODT 051, 052 and 053.

Introduction to principles and practice of contact lens fittings. Includes ocular anatomy and physiology, lens types and structures, specific ophthalmic measuring equipment, and procedures for ensuring the patient's comfort.

ODT 056 Ophthalmic Assistant /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: ODT 051, 052 and 053.

Duties of the ophthalmic assistant. Includes optical instrumentation, field charting, visual skills, tangent screens, case histories, office procedures, ocular surgery, telebinocularly and perimetry.

ODT 057 Contact Lenses II /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisite: ODT 055.

Continuation of ODT 055. Theory and practice of contact lens fitting optics. Includes hard lens, gas permeable, soft extended wear, bifocal and toric types. Also includes adjustments, problem solving and patient education.

ODT 058 Optical Dispensing II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: ODT 054.

Continuation of ODT 054. Principles and techniques of fitting and assembling metal eyewear, cataract prescriptions, problem corrections and ophthalmic dispensing organization.

ODT 059 Ophthalmic Seminar /2 cr. hrs./2 periods (2 lec.)

□Prerequisites: ODT 051 through 056.

Complete review of all material for state board examination. Includes professional ethics, state and national laws, guest speakers and program evaluation.

ODT 299 Co-op Related Class in ODT /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

ODT 299 Co-op Work in ODT /3 cr. hrs./15 periods (15 lab)

See Cooperative Education section for description.

PHARMACY TECHNOLOGY

PHT 170 Introduction to Pharmacy Technology /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Overview of the allied health professions including the role of pharmacy support personnel, pharmacy law, medical terminology and pharmaceutical abbreviations. Emphasis on the roots, prefixes and suffixes needed to build a medical vocabulary.

PHT 171 Pharmaceutical Calculations /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Computations needed in the practice of pharmacy technology.

PHT 172 Drug Therapy I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The relationship between anatomy and physiology, disease states, pharmaceutical therapy. Includes origins, dosage forms, indications, actions, routes of administration and side effects of both prescription and non-prescription drugs used in diseases of the central nervous system, autonomic nervous system and gastrointestinal tract.

PHT 174 Pharmacy Operations /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: PHT 171 or concurrent enrollment.

Technical aspects of drug distribution in both inpatient and outpatient settings, including bulk compounding, packaging, quality control, inventory control, drug storage and drug distribution systems.

PHT 180 Sterile Products /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: PHT 174.

Application of aseptic techniques and use of the laminar flow hood in the preparation of sterile products.

PHT 181 Interprofessional Relations in Pharmacy /2 cr. hrs./2 periods (2 lec.)

□Prerequisites: PHT 170 and PHT 174.

Skills necessary for the pharmacy technician to communicate effectively in the following ways: 1) as a representative of the profession of pharmacy, 2) as an intermediary between the pharmacist and the patient, and 3) as an intermediary between the pharmacist and other health care professionals.

PHT 182 Drug Therapy II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The relationship between anatomy and physiology, disease states, pharmaceutical therapy. Includes origins, dosage forms, indications, actions, routes of administration and side effects of both prescription and non-prescription drugs used in diseases of the cardiovascular, respiratory and endocrine systems.

PHT 190 Pharmacy Technician Internship /4 cr. hrs./16 periods (16 lab)

□Prerequisites: Completion of the core curriculum for the basic certificate program.

On-site training in outpatient and inpatient pharmacy services under direct supervision of a designated pharmacist.

PHT 191 Pharmacy Technician Administration /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Completion of the basic certificate program or consent of instructor.

A comprehensive presentation of practical management techniques for pharmacy technician supervisors and managers. Focus on administration skills in both the hospital and retail pharmacy settings.

PHILOSOPHY

PHI 101 Introduction to Philosophy I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles of abstract reasoning and their application to life. Provides a thorough foundation through some of the main themes and figures in the history of Western philosophy. May be taken as humanities option.

PHI 102 Introduction to Philosophy II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Course seeks to provide the student with a sound grasp of the principles of abstract reasoning, and instances of their application to life. For the prospective philosophy major, it offers a thorough foundation through some of the main themes and figures in the history of Western philosophy. May be taken as humanities option.

PHI 120 An Introduction to Logic /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The basic requirements and processes of valid thinking, decision making and communication. Emphasis on "informal" logic (i.e., the fallacious reasoning encountered in daily life). Includes recognizing and countering logical fallacies. Also includes use of Venn diagrams and truth tables. Real-life arguments are analyzed so the tools of logic can be better understood.

PHI 130 Introductory Studies in Ethics and Social Philosophy / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to the study of principles and standards of conduct and morality. Includes such matters as judgments of approval and disapproval, the rightness and wrongness of our acts, and the desirability or wisdom of our actions. Emphasis on classical and contemporary meanings of ethical statements, their truth and falsity, their objectivity and subjectivity.

PHI 140 Philosophy of Religion /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to the philosophical study of religion. Includes comparative study of Hinduism, Taoism, Confucianism, Buddhism, Christianity, etc. (Same as REL 140.)

PHI 145 Historical Philosophy /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of various figures or movements in the history of philosophy. Designed to respond to student interest in the study of particular topics. Past studies have included Plato, Hume, aesthetics, philosophy of feminism, philosophy of law, etc.

PHYSICAL THERAPY

PTA 170 Introduction to Physical Therapy /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

History and philosophy of rehabilitation, role of physical therapist (PT) and physical therapist assistants in health care. Includes ethical and legal principles of practice, medical terminology, and observations in PT clinics.

PTA 180 Kinesiology /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: PTA program admission and permission of program coordinator.

Skeletal system and muscle groups as they relate to surface anatomy. Includes biomechanics with special emphasis on the function of muscles, bones, joints, and tendons producing body motion. Normal and pathological conditions are discussed.

PTA 181 Physical Therapist Assistant Procedures I /4 cr. hrs./ 6 periods (3 lec., 3 lab)

□Prerequisites: PTA program admission and permission of program coordinator.

Principles of, and techniques for, therapeutic procedures and modalities, including hydrotherapy, massage, traction, range-of-motion exercises, sterile technique, vital signs, bandaging/taping, and patient preparation, positioning, transfers and transportation.

PTA 182 Physical Therapist Assistant Procedures II /5 cr. hrs./ 9 periods (3 lec., 6 lab)

□Prerequisites: PTA program admission and permission of program coordinator.

Theory, principles and techniques for application of heat, cold, light and electrotherapy traction, and advanced massage techniques. Includes supervised practical clinical experiences.

PTA 183 Physical Therapist Assistant Procedures III /5 cr. hrs./ 9 periods (3 lec., 6 lab)

□Prerequisites: PTA 182 and permission of program coordinator.

Gait training, orthotics, prosthetics, activities of daily living, therapeutic exercise and other rehabilitation procedures. Includes supervised clinical observation and practice.

PTA 184 Physical Therapist Assistant Procedures IV /5 cr. hrs./ 9 periods (3 lec., 6 lab)

□Prerequisites: PTA 182 and permission of program coordinator.

Survey of conditions encountered in physical therapy practice: etiology, pathology, signs, symptoms, and management of diseases and injuries; introduction to pharmacology. Includes rheumatology, oncology, thermal injuries and neurological, musculoskeletal, cardiopulmonary and metabolic diseases.

PTA 190 Physical Therapist Assistant Clinical Observations /1 cr. hr./ 1 period (1 lec.)

□Prerequisite: Permission of PTA program coordinator.

Observations and beginning practical experience with a variety of physical therapy equipment, procedures and personnel.

PTA 191 Physical Therapist Assistant Clinical Experience /5 cr. hrs./ 15 periods (15 lab)

□Prerequisites: Completion of PTA 190 and permission of PTA program coordinator.

Physical therapy techniques and procedures, with patients, in a variety of clinical settings.

PTA 192 Physical Therapist Assistant Clinical Seminar /2 cr. hrs./ 2 periods (2 lec.)

□Prerequisites: Completion of PTA 190 and permission of PTA program coordinator.

Current trends and topics of interest in physical therapy, problem-solving and introduction to research methodology.

PTA 193 Physical Therapist Assistant Clinical Internship /4 cr. hrs./ 12 periods (12 lab)

□Prerequisites: PTA 192 and permission of PTA program coordinator.

Supervised five-week clinical practicum for PTA students under the supervision of qualified and licensed physical therapists.

PHYSICS

PHY 060 Problem Solving in Physics /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Strategies and techniques used to solve problems encountered in physics courses, including a review of mathematical skills, error analysis, graphing and analysis and solution of word problems. Recommended for students currently enrolled in physics courses.

PHY 101 Technical Physics I /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: MTH 060 or concurrent enrollment is suggested.

Designed for the technician. Covers the application, to the various technology fields, of forces in liquids, gases, and the equilibrium of bodies; concepts of motion, work and machines; heat energy, and weather and climate. The math used is briefly explained.

PHY 102 Technical Physics II /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisites: MTH 070 or concurrent enrollment is suggested.

Designed for the technician. Covers the application, to the various technology fields, of acoustics, electricity, light, optics, and electronics. The math used is briefly explained.

PHY 105 Introduction to Optics /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: High school algebra.

Introduction to optics and light. Intended for students of ophthalmic dispensing and others interested in light and its physical properties.

PHY 112 General Physics for Education Majors /3 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: High school algebra.

Introduction to general physics. Designed for students majoring in education. Includes mechanics, heat, light, sound, electricity, magnetism and atomic and nuclear physics.

PHY 115 Physical Science /4 cr. hrs./ 6 periods (3 lec., 3 lab)

□Prerequisite: MTH 130 or equivalent.

Basic concepts of mechanics, heat, light, sound, electricity, and energy. Included are properties of matter, the atomic theory of matter, and discussion of the impact of modern physics on society.

PHY 121 Introductory Physics I /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisite: High school algebra.

A non-calculus introduction to general physics for programs requiring a one-year, non-calculus-based physics course. Includes mechanics and heat.

PHY 122 Introductory Physics II /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisite: PHY 121.

Continuation of PHY 121. Includes waves, sound, light, electricity, magnetism, relativity, atomic and nuclear physics.

PHY 131 Introductory Physics with Calculus I /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisites: MTH 180, and high school physics or equivalent.

A calculus-based introduction to general physics for programs requiring a two-semester, calculus-based physics course. Includes mechanics, fluids and thermodynamics.

PHY 132 Introductory Physics with Calculus II /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisites: PHY 131, and MTH 185 or concurrent enrollment.

Continuation of PHY 131. Includes waves, sound, light, electricity, magnetism, atomic and nuclear physics.

PHY 170 Practical Applied Physics /1-3 cr. hrs./1-3 periods (1-3 lec.)

□Prerequisite: Will vary according to topics selected by students.

Application of physical laws to selected topics. 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)

□Prerequisites: MTH 180, and high school physics or equivalent.

A calculus-based introduction to mechanics. Designed for physics, mathematics, electrical engineering and computer science majors. Includes kinematics, dynamics, energy, momentum, and rotational kinematics and dynamics.

PHY 216 Introductory Electricity and Magnetism /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisites: PHY 210 and MTH 185.

A calculus-based introduction to electricity and magnetism. Designed for physics, mathematics, and electrical engineering majors. Includes electric and magnetic field theory, Gauss's Law, circuit theory, potential theory, Ampere's Law, Faraday's Law and Maxwell's equations.

PHY 221 Introduction to Waves and Heat /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: PHY 210 and MTH 185.

Principles of wave motion and heat. Includes fluids, heat and thermodynamics, wave motion, simple harmonic motion, and physical and geometric optics.

PHY 230 Introduction to Modern Physics /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: PHY 210 and 216 or PHY 131 and 132, and MTH 180 and 185.

Introduction to atomic and nuclear physics. Includes relativity, atomic and nuclear physics, radioactivity, quantum physics and elementary particles.

POLITICAL SCIENCE**POS 050 Immigration Law and Practices /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Basic principles and procedures of immigration law. The legal and political status of immigrants from Mexico, the process of immigration and counseling for the immigrant.

POS 100 Introduction to Politics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic concepts of political science. The nature of politics, its significance in daily life, and how political systems change.

POS 110 American National Government and Politics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of the institutions of American government and the evolution of our political system. Includes the Constitution, roles of political parties, interest groups, public opinion and voting behavior. Special attention to the positions of economic, ethnic and religious minorities in American society. For university transfer or PCC degree, credit is allowed for either POS 110 or POS 112, but not for both.

POS 112 National and State Constitutions /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of the nature of national and state constitutions. Historical background, organization and functions of the national, state and local governments based on the constitutions of the United States and Arizona. Satisfies the requirements for teacher certification. For university transfer or PCC degree, credit is allowed for either POS 110 or POS 112, but not for both.

POS 120 Introduction to International Relations /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

General examination of international relations, including the elements of national power; the economic, social and psychological determinants of international political behavior; formation of foreign policy; international law; and international and regional organizations.

POS 130 American State and Local Governments and Politics / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of state and local governments and politics. Includes state constitutions, political parties, interest groups, elections, and major institutions of state governments. Emphasis on Arizona's political culture, the state's politically relevant economic and ethnic groups, and its current political trends.

POS 140 Introduction to Comparative Politics /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of the basic concepts and methods of comparative political analysis and their application to the political systems of Western Europe, the Soviet Union, Eastern Europe, and developing areas.

POS 149 Independent Study in Political Science /2-4 cr. hrs./ 2-4 periods (2-4 lec.)

□Prerequisite: None.

Independent readings or special projects to be arranged with the instructor.

POS 160 Introduction to Political Ideas /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic issues in political thought with focus on modern applications of the historical problems of democracy, liberty, equality, authority, obligation, and ideology.

POS 190 Political Revolution and Violence /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of the causes of political revolution and violence, using historical, psychological and sociological data to explain how violent changes in political power come about.

POS 230 Minority Groups and the Political Process /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: None.

Investigation of the position of various minority groups in the American political system, including their general political attitudes and voting behavior, patterns of political organization, party activity, and their role in the formation of public policy.

POS 250 Political Science Internship /3 cr. hrs./15 periods (15 lab)

□Prerequisites: WRT 101 and 6 credit hours in political science.

Internship with the City of Tucson or other local governmental unit, designed to give students practical experience in government.

POSTAL SERVICE MANAGEMENT

PSM 100 Postal History and Organization /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of postal history and organization. Includes delivery of written communication and merchandise from earlier eras to the present; comparison of private, corporate and governmental agencies responsible for mail service; and postal organization, philosophies, policies, procedures, rules and regulations.

PSM 120 Postal Service Labor-Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Overview of laws and practices related to Postal Service management of labor. Includes development and current status of the postal labor union, problems and issues, national and local agreements, bargaining units and associations, grievance and disciplinary procedures, and the National Labor Relations Board.

PSM 130 Postal Employee Services /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of postal personnel office services, policies and practices. Includes selection, placement, training, promotion, self-development, equal employment, insurance and retirement benefits, salary schedules, awards, and safety and health programs.

PSM 140 Mail Processing I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles and practices of mail processing. Includes mail classification and rates, service standards, postal terminology, mail processing functions, distribution systems, objectives, responsibilities, mail preparation, manual distribution, revenue protection and bulk mail centers.

PSM 199 Co-op Related Class in PSM /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

PSM 199 Co-op Work in PSM /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

PSM 200 Postal Service Finance /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles of Postal Service finance. Includes sources, receipt and control of postal revenue; procedures of the Board of Governors and the Postal Rate Commission; budgeting; financial accounting and reporting; time keeping; travel regulations; the Postmaster General's annual report; and Administrative Services.

PSM 210 Mailroom Procedures and Mailing Techniques /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

In-depth study of business mailroom procedures and techniques. Includes mailroom setup, equipment, personnel administration, time management and U.S. Postal Service requirements for all classes of mail. Prepares student for employment in a business mailroom.

PSM 240 Mail Processing II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: PSM 140.

Continuation of PSM 140. Survey of mail processing. Includes postal mechanization, machine distribution, human resources management, reporting systems, data analysis, operational planning, scheduling, staffing, budgeting and functional coordination with customer services.

PSM 250 Postal Service Delivery and Collection /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Functional study of mail delivery and collection systems within the U.S. Postal Service. Includes duties, responsibilities and skills needed in carrier crafts; management of rural delivery service; and Fair Labor Standards Act requirements. Emphasis on methods of improvement, standard operating procedures, and route inspections and evaluations.

PSM 260 Postal Problems Analysis /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Analysis and solution of actual postal problems using systematic approaches. Includes problem identification, determination and analysis of dimensions, probable causes, adverse consequences, alternative solutions, and specification and defense of best solution.

PSM 270 Postal Customer Services /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

In-depth study of all services for postal customers. Includes customer relations, retailing postal products, non-postal services and duties of customer service representatives. Emphasis on means to achieve and manage a professional window service operation.

PSM 280 Management of Small Post Offices /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

In-depth study of the management of small post offices within the U.S. Postal Service. Includes duties, responsibilities and skills necessary to manage these offices in a productive and responsive manner.

PSM 299 Co-op Related Class in PSM /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

PSM 299 Co-op Work in PSM /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

PRODUCTION INVENTORY MANAGEMENT

PIM 150 Physical Distribution Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

In-depth study of physical warehousing, inventory control, material handling, industrial packaging, order processing, and location analysis. Includes managerial responsibilities and recent transportation regulation actions. Same as TTM 204 and MKT 150.

PIM 200 Production Planning /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: BUS 205 or PAD 204.

Foundation course for the production inventory management program. Emphasis on business planning, product forecasting, master production scheduling, and techniques in materials management. Prepares student for the American Production and Inventory Control Society (APICS) Master Planning certification examination.

PIM 203 Purchasing for Production/Inventory Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Techniques for purchasing and inventory management. Includes the purchasing function, department organizations, order control, and the integration of purchasing with a closed-loop Material Requirements Planning (MRP) system.

PIM 205 Inventory Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 150.

Techniques used for the management of inventory levels within a manufacturing environment. Emphasis on reorder point and reorder/quantity systems, economic order quantity, physical inventory control and aggregate inventory management. Prepares student for the APICS Inventory Management certification examination.

PIM 210 Production Control /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: PIM 200.

Principles of production activity control and capacity management. Includes scheduling and controlling the shop floor, capacity requirements planning, resource requirements planning and closed loop Material Requirements Planning (MRP). Prepares student for APICS Capacity Management certification examination and Production Activity Control certification examination.

PIM 215 Material Requirements Planning (MRP) /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: PIM 205.

Beginning and advanced methods of time-phased material requirements planning (MRP). Includes bills of material, data-requirements, system inputs and outputs, processing logic, lot sizing techniques, time-phased inventory requirements and the planner's interface with the MRP system. Prepares student for APICS Material Requirements Planning certification examination.

PROFESSIONAL DEVELOPMENT

PRD 050 The Arizona Community College /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

An exploration of the philosophy and functions of the Arizona community college. Includes goals, legislation, curriculum, board and administration functions, grantsmanship, student personnel services and continuing education.

PRD 110 Essential Elements of Instruction /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Techniques of classroom material organization, selection of objectives to be taught, reviewing theories of learning, and monitoring and adjusting material taught. Includes teaching techniques developed by Madelyn Hunter and Associates at the University of California at Los Angeles.

PRD 113 Classroom Management /1-3 cr. hrs./1-3 periods (1-3 lec.)

□Prerequisite: None.

Principles of classroom management and behavior modification. The class is primarily for persons who are certified to teach in basic elementary, secondary, or postsecondary schools or colleges.

PROFESSIONAL FIRE SCIENCE

PFS 161 Fire Inspector I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Fire inspection procedures, including those for hazardous materials, storage and handling of flammable, compressed and liquefied gases, explosives and fire protective equipment.

PFS 162 Fire Inspector II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Fire inspection procedures, including those for fire alarm systems, electrical wiring and building construction. Includes residences and commercial buildings, legal aspects, code enforcement, arson investigation and public education presenters are also studied.

PFS 191 Fire Chief Training I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Preparation for professional fire personnel to become chief officers. Includes incident command, communications and disaster management.

PFS 192 Fire Chief Training II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Preparation for professional fire personnel to become chief officers. Includes fire management techniques, disaster management, battalion assistance and deputy fire chief's responsibilities.

PSYCHOLOGY

PSY 095 Fundamentals of Psychology /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The scientific approach to the study of psychology, surveying the physiological, intrapsychic and social-behavioral views of human thought and behavior. Includes sensation and perception, motivation, learning and memory, maturation and development, personality theory and psychotherapy.

PSY 100 Psychology I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of psychology. Growth of the individual, behavior disorders, social psychology, learning and history of the field.

PSY 101 Psychology II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of psychology. Biological bases of behavior, sensation, perception, motivation, emotion and stress.

PSY 106 The Brain /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: PSY 101 or 110.

The study of the anatomy and functioning of the brain and its relationship to thought and behavior. Includes sensing and moving, rhythms and drives, stress and learning and other related topics.

PSY 110 Introduction to Psychology /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Survey of general psychology, including history and systems, physiology, sensation and perception, learning, motivation, cognition, development, personality, social, and psychopathology. Content is a combination of elements of PSY 100 and 101. Twelfth grade reading level or above is strongly recommended.

PSY 115 Human Sexuality /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of human sexual experience throughout the life cycle, viewed from sociological and psychological perspectives. (Same as SOC 115.)

PSY 120 Introduction to Social Psychology /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: PSY 100 or PSY 110 or consent of instructor.

Basic theories and concepts of social psychology and the individual's experience in group situations.

PSY 130 Normal Personality I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: PSY 100 or PSY 110 or consent of instructor.

Psychological functioning and coping behaviors for normal personality development.

PSY 135 The Psychology of Death and Loss /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: PSY 100 or 110.

Adjustment to death and loss. Current social and attitudinal considerations are reviewed.

PSY 140 Introduction to Behavior Modification /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: PSY 100 or PSY 110 or consent of instructor.

Introduction to the principles of behavior modification. Emphasis on application in practical situations.

PSY 150 Psychology of Gender /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: PSY 100 or PSY 110 or consent of instructor.

Biological and social explanations of gender development and behavior. Includes consequences of gender related attitudes and expectations, and implications of human liberation.

PSY 170 Abnormal Psychology /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: PSY 100 or 110, or consent of instructor.

Examination of primary patterns of behavior disorders, including different perspectives on the causes and treatment approaches.

PSY 210 Psychological Measurements and Statistics /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisites: PSY 100, PSY 101, and MTH 130.

Measurement, quantitative description, and statistical inference as applied to psychological variables. Designed for students planning to major or minor in psychology.

PSY 211 Research Methods /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: PSY 210.

Introduction to scientific methodologies used in psychological research. Students will gain experience in using a range of psychological research methods. Designed for students planning to major or minor in psychology.

PSY 230 Normal Personality II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: PSY 130.

Continuation of PSY 130. Further study of normal personality through participation in groups. A variety of approaches for self-understanding and personal growth are available, depending on the instructor and the class. For further information regarding specific semester offerings, contact the behavioral sciences area.

PSY 240 Futures: A Psychological Perspective /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: PSY 100 or PSY 110 or consent of instructor.

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; and career in futurism. Includes lectures, readings, class discussions and simulations of the future.

PSY 250 Introduction to Individual Differences and Testing /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: PSY 100 or PSY 110 or consent of instructor.
Survey of individual differences and related assessment techniques (how to interpret test results and what they reveal and don't reveal).

PSY 294 Special Topics in Psychology /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: PSY 100 and PSY 101, or PSY 110, or consent of instructor.

Variable content designed to respond to advances in psychology, relationships between psychology and other areas, special student interests and needs, and faculty expertise in special topics. (Consult current class schedule for specific content.)

PSY 296 Individual Studies in Psychology /1-6 cr. hrs./ 1-6 periods (1-6 lec.)

□Prerequisite: PSY 100 or PSY 110 or consent of instructor.
Exploration of special interest areas. Content to be determined by student and facilitator/instructor.

PSY 298 Social Psychology Practicum /1-6 cr. hrs./3-18 periods (3-18 lab)

□Prerequisite: PSY 100 or PSY 110 or consent of instructor.
Familiarization with specific areas of social psychology through our view of pertinent research, directed observation, and personal participation in relevant experimental or natural settings.

PUBLIC ADMINISTRATION

PAD 060 Time Management /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.
Techniques and procedures to manage time effectively. Discussion sessions identify time wasting behaviors.

PAD 105 Introduction to Public Administration /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.
Major issues, problems and options facing public sector policy-makers and administrators.

PAD 204 Introduction to the Analysis of Data for Decision Making / 3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.
Informal and exploratory approaches to the analysis of empirical data in a managerial decision making context.

PUBLIC BUILDING MAINTENANCE

PBM 055 Building Maintenance /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.
All phases of the care and cleaning of buildings. Includes fixtures, furnishings and various types of building interiors.

PUBLIC TRANSPORTATION MAINTENANCE

PTM 203 Rear Ends and Differentials /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.
Overhaul procedures for the rear axle and propeller shaft. Includes diagnosis, removal, adjustment and replacement procedures.

QUALITY CONTROL TECHNOLOGY

QCT 101 Quality Control I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 070 or satisfactory score on math assessment test.
Introduction to the concepts of quality control. Includes basic statistics, use of control charts for attributes and variables, linear correlation, and assigned experiments. Also includes specialized concepts of reliability and maintainability.

QCT 102 Quality Control II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: QCT 101.
Introduction to the concepts of quality control management. Includes quality department organization, quality systems and procedures, procurement quality control, standards and calibration, inspection principles and practices, internal quality audits and the economics of quality control.

QCT 123 Electronic Fabrication and Processing /2 cr. hrs./3 periods (1 lec., 2 lab)

Same as ETR 123.

QCT 210 Quality Control and Reliability for Microelectronics / 3 cr. hrs./3 periods (3 lec.)

Same as MRE 210.

QCT 230 Machine Shop Inspector Skills /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Development of skills necessary to become a machine shop inspector. Includes precision measurement methods and techniques, with emphasis on the theory, application and manipulation of inspection equipment used in a standard machine shop.

QCT 235 Quality Control Certification Refresher /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: Background and experience in quality control engineering.

Refresher course in preparation for the Quality Control Engineer certification offered through the American Society for Quality Control.

QCT 250 Introduction to Statistical Quality Control /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 210.

Overview of quality assurance in the modern business and manufacturing environments. Emphasizes statistical methods used in quality assurance, statistical process control, reliability, simple experimental design and sampling methods of acceptance.

RADIOLOGY TECHNOLOGY

RAD 171 Medical Imaging Fundamentals /4 cr. hrs./ 6 periods (3 lec., 3 lab)

□Prerequisite: Admission into program.

Introduction to medical imaging equipment and radiographic positioning. Basic principles of image formation, positioning the upper extremities, patient care and radiation protection.

RAD 172 Medical Imaging Technology I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: RAD 171 and consent of department chairperson.

Factors and techniques utilized in the formation of the radiographic image. Includes film processing, radiographic quality, quality assurance, and fundamental physics.

RAD 173 Radiographic Positioning I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: RAD 171 and consent of department chairperson.

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. Includes radiographic examinations which demonstrate the principles of exposure and anatomical positioning.

RAD 174 Clinical Education I /4 cr.hrs./16 periods (16 lab)

□Prerequisites: RAD 171 and consent of department chairperson.

Clinical education in an affiliating clinical education center under the supervision of a clinical supervisor and/or certified radiographer. Emphasis on general radiographic procedures.

RAD 175 Clinical Education II /6 cr. hrs./24 periods (24 lab)

□Prerequisites: RAD 172, 173 and 174.

A continuation of RAD 174 with the addition of mobile and emergency radiographic procedures. Clinical education in an affiliating clinical education center under the direct supervision of a clinical supervisor and/or certified radiographer. Emphasis on general radiographic procedures.

RAD 181 Medical Imaging Technology II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: RAD 175.

Fundamental principles of radiation physics, x-ray generating equipment and radiation protection.

RAD 182 Radiographic Positioning II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: RAD 175.

Routine radiographic positioning for visualization of the bony structures of the skull and the visceral organs of the abdomen. Includes general radiographic and fluoroscopic procedures, mobile radiography, use of the positive and negative contrast media and patient care.

RAD 183 Clinical Education III /6 cr. hrs./24 periods (24 lab)

□Prerequisite: RAD 175.

A continuation of RAD 175 with the addition of surgical radiographic procedures. Clinical education in an affiliating clinical education center under the direct supervision of a clinical supervisor and/or certified radiographer. Emphasis on general radiographic procedures.

RAD 184 Medical Imaging Technology III /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: RAD 181, 182 and 183.

Specialized and advanced medical imaging systems and fundamental principles of radiation biology.

RAD 185 Radiographic Positioning III /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: RAD 181, 182 and 183.

Specialized radiographic procedures for examination of the skull, chest, and abdomen. Includes general pediatric studies and working in a sterile environment. Emphasis on proper use of contrast media and patient care.

RAD 186 Clinical Education IV /6 cr. hrs./24 periods (24 lab)

□Prerequisites: RAD 181, 182 and 183.

Continuation of RAD 183. Clinical education in an affiliating clinical education center under the direct supervision of a clinical supervisor and/or certified radiographer. Emphasis on general radiographic procedures.

RAD 187 Clinical Seminar I /1 cr. hr./1 period (1 lec.)

□Prerequisites: RAD 181, 182 and 183.

Hospital related procedures and patient care. Includes preparation for securing employment.

RAD 188 Clinical Education V /6 cr. hrs./24 periods (24 lab)

□Prerequisites: RAD 184, 185, 186 and 187.

Continuation of RAD 186 with the addition of specialized radiographic procedures.

RAD 191 Clinical Education VI /6 cr. hrs./24 periods (24 lab)

□Prerequisites: RAD 188 and concurrent enrollment in RAD 192.

Continuation of RAD 188 with the addition of advanced medical imaging procedures.

RAD 192 Clinical Seminar II /1 cr. hr./1 period (1 lec.)

□Prerequisites: RAD 188 and concurrent enrollment in RAD 191.

Continuation of RAD 187 with emphasis on current radiographic positioning, radiographic technique and medical imaging technology.

READING

REA 068 Techniques of Vocabulary /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Vocabulary improvement through a variety of methods such as structural analysis and context clues. Emphasis on understanding word roots and derivatives to enable students to expand their existing vocabularies and use words correctly.

REA 071 Spelling /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Improvement of spelling skills through application of spelling principles.

Understanding What You Read /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Methods and techniques for reading with greater understanding. Various levels of comprehension are explained and applied to diverse reading materials. Emphasis on following directions, recognizing main ideas and supporting details, recognizing sequence, making inferences, drawing conclusions, and differentiating between fact and opinion.

REA 077 Study Skills /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Development of skills in listening, remembering, note taking, outlining, applying study methods, and interpreting pictorial aids.

REA 078 Test-Taking Techniques /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Techniques of preparing for and taking various types of tests as found in a college setting.

REA 100 Reading Series /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: College reading assessment test scores.

Students recommended for Reading should register for REA 100. Specific placement in one of the six courses below is determined by diagnostic testing and teacher evaluation after enrollment.

REA 100 Reading Fundamentals

REA 101 Reading Improvement

REA 110 Reading Techniques

REA 111 Developmental Reading I

REA 112 Developmental Reading II

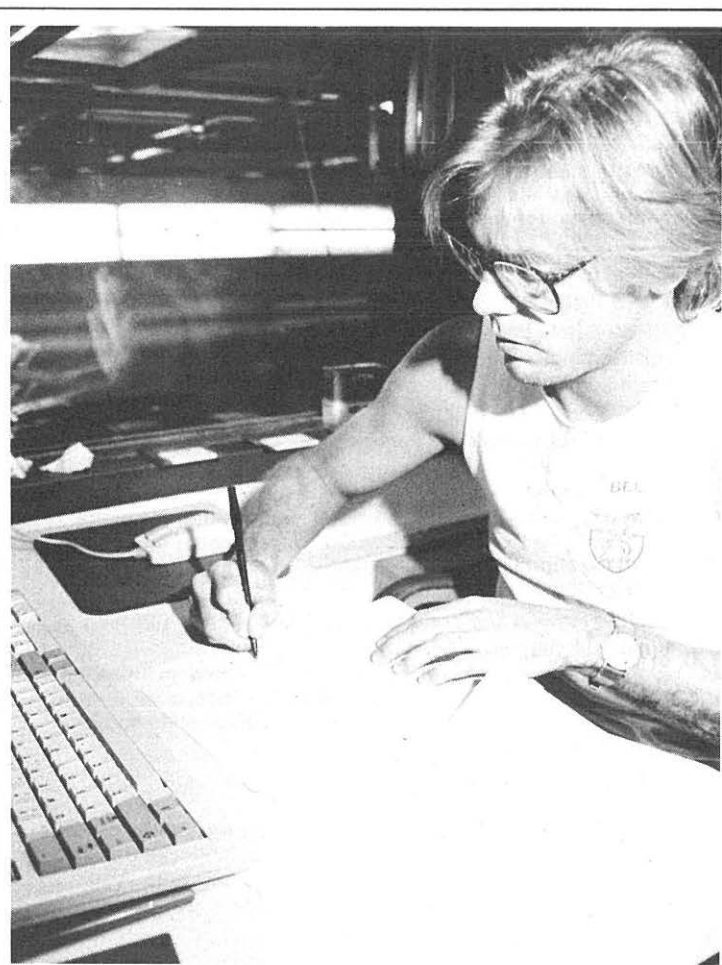
REA 120 Critical Reading

Group and individual instruction in vocabulary, comprehension, study skills and reading speed are included in each of the six courses. Students may register in each of the REA 100 Series courses up to four times for credit. Non-native speakers of English who are not fluent in English should enroll in the English as a Second Language courses.

REA 125 Speed Reading /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: Comprehension score of 12.0 on the college reading assessment test.

Improvement of reading rate. Emphasis on comprehension and analysis of written passages using various visual perception techniques.



REAL ESTATE

RLS 101 Real Estate Principles /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to real estate, including associated rules and regulations. The Arizona Department of Real Estate 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 practices and government involvement as they affect individuals and business firms. Includes urban redevelopment, urban planning, property rights, ownership, financing, brokerage and evaluation.

RLS 107 Real Estate Legal Procedures /3 cr. hrs./3 periods (3 lec.)

Same as LAS 107.

RLS 120 Real Estate Escrow Principles /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The concept and fundamental principles of real estate escrow. Includes opening, processing and closing escrow accounts.

RLS 130 Ethics For Real Estate Professionals /.25 cr. hr./25 period (.25 lec.)

□Prerequisite: None.

An overview of ethics related to real estate. Includes the role of the Grievance and Professional Standards Committees, review of ethics violations and arbitration procedures, anti-trust compliance and civil rights as they apply to real estate.

RLS 131 City Planning and Zoning /.25 cr. hr./25 period (.25 lec.)

□Prerequisite: None.

Planning and zoning procedures for the city of Tucson. Includes the political process inherent in planning, types of zonings, non-conforming uses and variances. Also includes federal, state and local land use control.

RLS 132 Impact 90's /.25 cr. hr./25 period (.25 lec.)

□Prerequisite: None.

An overview of the economic development and future outlook of Pima County. Includes a review of construction activity, land use, transportation and water projects, demographics of the Tucson area. Also includes impact of foreign investments and economic growth.

RLS 133 Property Management /.25 cr. hr./25 period (.25 lec.)

□Prerequisite: None.

Property management for the real estate professional. Topics covered include leases, types of property management, income property investments, overview of the National Institute of Real Estate Management, and types of certifications available to property managers.

RLS 134 Business Sales and The Bulk Sales Act /.25 cr. hr./25 period (.25 lec.)

□Prerequisite: None.

A practical guide into the structure and legal requirements for bulk sales. Includes forms required, laws governing bulk sales, recordation requirements and discussion of the difference between bulk sales and real property transactions.

RLS 135 Basic Real Estate Investment Analysis /.25 cr. hr./25 period (.25 lec.)

□Prerequisite: None.

Introduces the real estate professional to the principles of investing in real estate. Includes the advantages and disadvantages of real estate investment, residential property investment, commercial property investment, and tax deferrals.

RLS 136 Real Estate Listing and Sales Inspections /.25 cr. hr./25 period (.25 lec.)

□Prerequisite: None.

Home inspection for the real estate professional. Includes property inspection prior to listing, previewing for a customer, and a walk-through prior to close of escrow.

RLS 137 Agency Law Applied to Real Estate /.25 cr. hr./25 period (.25 lec.)

□Prerequisite: None.

An overview of agency law as it applies to the real estate profession. Includes the definitions of an agency, subagency, and dual agency, how an agency relationship is created, and case discussions.

RLS 160 Real Estate License Update I /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Recent changes in legislation, real estate laws and appraisal techniques. Designed to update practicing real estate professionals.

RLS 161 Real Estate License Update II /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Continuation of RLS 160. Current information on real estate funding packages, contract negotiation and IRA rulings. Designed to update practicing real estate professionals.

RLS 201 Real Estate Law /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: RLS 101.

Basic principles and application of real estate law. Includes freehold estates, landlord and tenant, concurrent ownership, easements, profits, licensing, deeds and conveyances, and recording.

RLS 202 Real Estate Appraisals /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: RLS 101.

Basic principles and practical application of real estate appraisals. Includes valuation terms, market analysis, classification of data, and income and cost factors.

RLS 205 Real Estate Finance /3 cr. hrs./3 periods (3 lec.)

Overview of real estate finance from the viewpoint of the home mortgage loan officer. Includes the mortgage market, acquisition of a mortgage portfolio, mortgage plans and procedures, mortgage loan processing and servicing, and duties of the mortgage loan officer. (Same as FIN 205.)

RECORD AND INFORMATION MANAGEMENT

RIM 121 Introduction to Medical Record Science /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Overview of organization and analysis of the health record, health record systems, and the relationship of the medical record department to the health institution.

RIM 131 Records Management: Development of a Program /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

General survey of all types of record control within an organization, from creation to final disposition. Includes guidelines for the establishment, implementation and maintenance of records control programs.

RIM 132 Records Management: Filing Systems /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles and procedures of basic filing systems. Includes methods of storing and retrieving information and plans for retention, transfer and disposal of records.

RIM 132A Records Management: Filing Systems A /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

The indexing, coding, cross-referencing and alphabetizing of personal and business, government agency and other names.

RIM 132B Records Management: Filing Systems B /1 cr. hr./1 period (1 lec.)

□Prerequisite: RIM 132A.

Alphabetical rules of filing applied to geographic, subject, and numeric filing. Also deals with methods of storing and retrieving information and plans for retention, transfer and disposal of records.

RIM 132C Records Management: Filing Systems C /1 cr. hr./1 period (1 lec.)

□Prerequisite: RIM 132B.

Filing procedures used in subject, numeric and/or geographic filing.

RIM 221 Medical Records Coding and Statistics /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: OED 262, BIO 204, RIM 121 or equivalent.

Overview of coding classification systems, indices, prospective pricing systems (DRG), hospital statistics, statistics sources and reporting methods.

RIM 231 Records Management: Forms Management, Micrographics Management and Automated Retrieval /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: RIM 131.

Analysis, design and control of forms. Includes design, selection and operation of micrographic systems and equipment information management. Also includes study and use of automated storage and retrieval systems.

RIM 231A Records Management: Forms Management /1 cr. hr./1 period (1 lec.)

□Prerequisite: RIM 131.

Analysis of current forms, design of new forms, and the establishment of a forms management program.

RIM 231B Records Management: Micrographics /1 cr. hr./1 period (1 lec.)

□Prerequisite: RIM 131.

The photographic process, selection and operation of equipment, selection of supplies, use of indexing systems, design of micrographic systems, and standards, legality, trends, and integration of micrographics in records management.

RIM 231C Records Management: Automated Retrieval /1 cr. hr./1 period (1 lec.)

□Prerequisite: RIM 131.

Non-computerized information management systems. Includes practice in using the computer to create, maintain and report information.

RIM 232 Records Management: Supervision /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: RIM 131.

A practical approach to office organization and administrative management. Emphasizes management of administrative services, physical resources, human resources, systems and procedures.

RELIGION

REL 119 Comparative Religions: Western /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

An introduction to the historical development, teachings, (or doctrines), festivals, rituals, and themes in Judaism, Christianity, and Islam.

REL 120 Old Testament /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Major books of the Old Testament with emphasis on their religious, moral, historical and literary significance.

REL 121 New Testament /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The major books of the New Testament with emphasis on their religious, moral, historical and literary significance.

REL 125 Islam /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

History and literature of Islam from the prophet Mohammed to the present. Emphasis on the poetry and practices of the Sufis.

REL 130 Comparative Religions: Oriental /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Exploration of Hinduism, Buddhism, Zoroastrianism, Confucianism, Taoism, Shintoism and Zen Buddhism through readings, discussions and movies. Christianity is compared through discussions.

REL 140 Philosophy of Religion /3 cr. hrs./3 periods (3 lec.)

Same as PHI 140.

RESPIRATORY THERAPY

RTH 071 Introduction to Respiratory Care /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: Admission to the RTH core curriculum or consent of instructor.

Overview of respiratory care as it is currently practiced. Includes a brief history of medicine as it relates to respiratory care, concepts in respiratory physiology, and introduction to basic nursing arts, medical terminology and utilization of the medical record. Students practice interpersonal skills and discuss aspects of death and dying as well as legal and ethical aspects of delivering health care. Students also learn CPR techniques and may receive AHA basic CPR certification.

RTH 073 Pharmacology for Respiratory Therapists /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: RTH 071 and CHM 130.

Introduction to general principles of pharmacology, drug dose calculations and methods of administration. Specific emphasis on drugs used by respiratory therapists and other drugs used in the treatment of cardiopulmonary disorders.

RTH 082 Respiratory Physiology /4 cr. hrs./4 periods (4 lec.)

□Prerequisites: BIO 160 and RTH 071.

In-depth study of the cardiopulmonary system, associated structures and principles involved in ventilation and gas transport.

RTH 083 Basic Therapeutics in Respiratory Care /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisite: RTH 071.

Basic respiratory care therapeutics, equipment used and their clinical indication. Includes medical gas administration, humidity and aerosol therapy, IPPB therapy and its alternatives, and chest physiotherapy.

RTH 084 Critical Care Therapeutics /5 cr. hrs./7 periods (4 lec., 3 lab)

□Prerequisites: RTH 073, 082, and 083.

Principles of critical care procedures. Includes airway management, continuous mechanical ventilation of the adult, monitoring techniques, and associated equipment used for ventilation and monitoring.

RTH 085 Diagnostic Studies /3 cr. hrs./4 periods (3 lec., 1 lab)

□Prerequisite: RTH 082.

Diagnostic procedures and testing techniques employed in the detection, monitoring and treatment of adult and pediatric cardiorespiratory disorders.

RTH 086 Cardiorespiratory Disorders I /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: RTH 073, 082 and 083.

Examination of commonly encountered respiratory disorders in the adult patient. Case studies of specific disorders are presented by students.

RTH 087 Advanced and Specialty Therapeutics /5 cr. hrs./7 periods (4 lec., 3 lab.)

□Prerequisites: RTH 084 and concurrent enrollment in RTH 089 and 092.

Basic and advanced respiratory care for special cases. Includes the pediatric and neonatal patient, pulmonary rehabilitation and home care procedures, functioning of a respiratory care department, and recent advances in respiratory care therapeutics and diagnostics, e.g., computerization of respiratory therapy equipment.

RTH 089 Cardiorespiratory Disorders II /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: RTH 086 and concurrent enrollment in RTH 087 and 092.

Continuation of RTH 086. Includes pediatric disorders. Examination of pathophysiology of cardiorespiratory disorders and treatment. Case studies of specific disorders are presented by students.

RTH 091 Clinical Procedures I /4 cr. hrs./16 periods (16 lab)

□Prerequisites: RTH 073, 082 and 083.

Clinical application of all prerequisite respiratory care course work with emphasis on basic respiratory care therapeutics.

RTH 092 Clinical Procedures II /6 cr. hrs./24 periods (24 lab)

□Prerequisites: RTH 084, 085, 086 and 091.

Clinical application of all prerequisite respiratory care course work with emphasis on adult critical care therapeutics.

RTH 093 Clinical Procedures III /4 cr. hrs./16 periods (16 lab)

□Prerequisite: RTH 092.

Clinical practice in hospitals and selected health related agencies. Emphasis on adult and pediatric critical care therapeutics and monitoring. Also includes specialty therapeutics, techniques in rehabilitation, home care and management.

RESTAURANT, CULINARY AND FOOD MANAGEMENT**RCF 101 Principles of Restaurant Operations /3 cr. hrs./3 periods (3 lec.).**

□Prerequisite: None.

Fundamentals of operating and managing small and large restaurants. Includes work stations, food preparation equipment, personnel, sanitation, safety, costs, and food and beverage service.

RCF 102 Food Service Specialties I/Culinary Preparation /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Preparation of cuisine specialties. Includes meat, fish, seafood, poultry, vegetables, soups, sauces and gravies. Also includes organizing, planning and writing menus.

RCF 103 Food Service Specialties II/Baking /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Essentials of baking. Includes preparation of yeast rolls, breads, cakes, cookies, tarts, doughnuts, and desserts. Emphasis on use and care of equipment, sanitation, safety and hygiene.

RCF 104 Food Service Specialties III/Garde-Manger /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: RCF 103 or concurrent enrollment.

Creation and storage of salads, sandwiches and appetizers. Includes eye appeal, texture, color contrast, artistic touch and harmony of combinations.

RCF 105 Advanced Techniques in Garde-Manger /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: RCF 104.

Techniques for preparing aspics, pates, terrines, gelatines, chaudfroids and carvings. Includes the use of tallow, salt and sugar. Manipulation of garde-manger tools is stressed.

RCF 106 Advanced Techniques in Gourmet Food Preparation /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisite: RCF 105 or concurrent enrollment.

Preparation of haute cuisine. Includes proper flavorings, spirits, garnishes and flambe in gourmet food preparation.

RCF 107 Restaurant Sanitation /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of techniques for controlling sanitation in the food service operation. Includes product quality, and time and cost management. Pima County Food Sanitation Certification test given at midterm.

RCF 108 Restaurant Inventory Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: MTH 060 or concurrent enrollment.

Examination of techniques, control transactions and inventory management in the food service industry. Includes records, materials and profit margins. Emphasis on the contribution by the employee to profitability.

RCF 199 Co-op Related Class in RCF /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

RCF 199 Co-op Work in RCF /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

RCF 201 Catering and Banquet Sales and Management /3 cr.hrs./3 periods (3 lec.)

□Prerequisites: RCF 101 and/or one year's experience working in the hospitality-tourism industry.

Techniques of food preparation and service as applied to catering and banquet operations and management.

RCF 299 Co-op Related Class in RCF /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

RCF 299 Co-op Work in RCF /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

ROBOTICS

ROB 270 Robotics and Automated Systems: Mechanical /4 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: PHY 101, 102 or PHY 115.

Classification and overview of hardware found in robotic workcells and material handling systems. Includes hydraulic systems, pneumatic systems, electrical motors, digital logic, switches and relays, converters, memories and microprocessors, servo systems and industrial robots. (Same as MAC 270.)

ROB 271 Programmable Logic Controllers /4 cr. hrs./5 periods (3 lec., 2 lab)

□Prerequisite: MAC 270 or ROB 270.

Concepts and applications of programmable controllers. Includes number systems, logic concepts, central processors, input/output system, peripheral services and programming languages. (Same as MAC 271.)

RUSSIAN

RUS 110 Elementary Russian I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Introduction to the Russian language. Designed to provide proficiency in basic communication (listening, speaking, reading and writing). Emphasis on Russian cultural traditions. A transfer credit course.

RUS 111 Elementary Russian II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: RUS 110.

Continuation of RUS 110. Designed to provide increased proficiency in listening, speaking, reading, and writing. Continued emphasis on Russian cultural traditions. A transfer credit course.

SAFETY EDUCATION

SED 050 Motorcycle Safety /1 cr. hr./1.7 periods (.7 lec., 1 lab)

□Prerequisite: Valid Arizona Driver's License.

Classroom instruction and practice to teach individuals motorcycle safety. Includes controls, basic maneuvers, defensive riding, selecting a motorcycle and insurance.

SED 090 Driving Training /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisite: None.

Fundamentals of safe driving. Includes Arizona law and defensive driving techniques. Students spend their laboratory periods under the supervision of a licensed instructor.

SHEET METAL

SML 101 Sheet Metal and Pattern Layout I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Basic sheet metal and pattern layout techniques. Includes safe use of sheet metal hand tools and machines, soldering, riveting, spot welding, parallel-line development and geometric construction.

SML 102 Sheet Metal and Pattern Layout II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: SML 101.

Continuation of SML 101. Sheet metal practices and radial-line development. Includes duct fabrication and duct connections, pattern layout of such forms as cones, pyramids and transition pieces. Also includes triangulation methods.

SML 103 Precision Sheet Metal I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: SML 102 or MAC 110.

Precision sheet metal layout and construction. Includes precision layout tools and construction of precision parts holding close tolerances.

SML 110 Sheet Metal I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Basic sheet metal techniques. Includes safe use of hand and machine tools, soldering, riveting, spot welding, and fabricating sheet metal projects.

SML 120 Sheet Metal II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: SML 110.

Continuation of SML 110. Sheet metal practices dealing with duct fabrication and duct connections used in air conditioning and solar space heating.

SML 130 Sheet Metal Pattern Layout I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic techniques of pattern layout. Includes parallel line development and geometric construction.

SML 135 Sheet Metal Pattern Layout II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SML 130.

Continuation of SML 130 with emphasis on radial line development. Includes pattern layout of such forms as cones, pyramids and other one-piece tapered fittings.

SML 199 Co-op Related Class in SML /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

SML 199 Co-op Work in SML /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

SML 210 Sheet Metal Pattern Layout III /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SML 135.

Continuation of SML 135. Triangulation and simplified triangulation. Includes the layout of rectangular fittings such as the square-to-round, round-to-round and square-to-square.

SML 220 Architectural Sheet Metal /3 cr. hrs./4 periods (2 lec., 2 lab)

□Prerequisites: SML 110 and 130.

Fabrication of gutterwork, valleys, range hoods, flashing and ornamental work. Emphasis on various designing problems in sheet metal.

SML 299 Co-op Related Class in SML /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

SML 299 Co-op Work in SML /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

SIGN LANGUAGE**SLG 050 Conversational Sign Language I /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Fundamentals of communicating in American Sign Language. Includes a basic vocabulary to use in day-to-day interactions with deaf adults. Emphasis on basic expressive and receptive skills.

SLG 055 Conversational Sign Language II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SLG 050.

Continuation of SLG 050. Continued development of conversational sign language skills. The combination of SLG 050 and SLG 055 is equivalent to SLG 101.

SLG 070 ASL/English Studies I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: Documentation of hearing loss or permission of the Disabled Student Resources office.

A bilingual developmental course in American Sign Language and written English. Includes ASL grammar, vocabulary, and composition paired with the grammar, vocabulary, and composition of written English.

SLG 071 ASL/English Studies II /4 cr. hrs./4 periods (4 lec.)

□Prerequisites: SLG 070 or consent of instructor.

Advanced topics in American Sign Language and English grammar: pronouns, referencing, tenses, relative clauses and conditionals as well as composition in both languages. Adapted to the needs of deaf students.

SLG 100 The Community and the Exceptional Person /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of handicapping conditions, including major physical and mental handicaps and the effect of handicapping conditions on educational and social development. Also includes field trips, agency visitations and guest speakers.

SLG 101 American Sign Language I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Level I American Sign Language: principles, methods and techniques for communicating with deaf individuals who sign. Includes development of expressive and receptive sign skills, manual alphabet, numbers and sign vocabulary. Practice in sign language lab is required, and an overview of syntax, grammar and culture of ASL is provided. Each student spends a minimum of three hours per week in the sign lab working with an assigned instructor and/or tutor.

SLG 102 American Sign Language II /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: SLG 101.

Level II American Sign Language: knowledge and language skills for communicating with deaf individuals who sign. Includes sign vocabulary, numbers, fingerspelling, and culture. Emphasis is placed on enhancement of receptive sign skills and further development of expressive sign skills. Application of rudimentary syntactical and grammatical structure is stressed along with expansion of sign vocabulary. Each student spends a minimum of three hours per week in the sign lab working with an assigned instructor and/or tutor.

SLG 105 Expressive/Receptive Fingerspelling and Numbers /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: Concurrent enrollment in SLG 101 or 102.

Refinement of receptive and expressive sign language skills with the manual alphabet and numbers. Includes methodology, theory and application.

SLG 106 Fingerspelling II /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: Completion of SLG 105 or consent of instructor.

Advanced skill development including speed, dexterity, clarity and loan signs in the receptive and expressive modes.

SLG 120 History of Deafness /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Status of deaf individuals in Western cultures from early civilizations to the present. Includes treatment, education and legal status, and political and philosophical stances supporting each.

SLG 150 Principles of Etiology and Audiology /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of hearing and hearing loss. Includes the normal ear and its function, normal audition and its measurement, the most common causes of hearing loss and their effects, and hearing aids and their functions and limitations.

SLG 180 Psychosocial Aspects of Deafness /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SLG 101.

Overview of the psychological and social aspects of deafness and hearing impairment. Includes the effect of hearing loss on the hearing-impaired individual. Emphasis is placed on the perspective of being a deaf or hearing-impaired individual in a hearing world.

SLG 199 Co-op Related Class in SLG /1 cr. hr./1 period (1 lec.)

□Prerequisite: SLG 201 or consent of instructor.

See Cooperative Education section for description.

SLG 199 Co-op Work in SLG /1-8 cr. hrs./5-40 periods (5-40 lab)

□Prerequisite: SLG 201 or consent of instructor.

See Cooperative Education section for description.

SLG 201 American Sign Language III /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: SLG 102.

Level three American Sign Language. Includes idioms, sign language linguistics, body language, and non-manual sign language communication. Emphasis is placed on practical application of ASL signing skills, vocabulary expansion, cultural knowledge and cross cultural communication. Each student spends a minimum of three hours per week in the sign lab working with an assigned instructor and/or tutor.

SLG 202 American Sign Language IV /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: SLG 201.

Level four American Sign Language. Continued expansion of sign vocabulary, sharpening of fingerspelling and number skills is stressed. Emphasis is placed on conversational techniques and skills in ASL in a cross-cultural framework. Review and instruction of linguistic knowledge of ASL is continued. Each student spends a minimum of three hours per week in the sign lab working with an assigned instructor and/or tutor.

SLG 203 American Sign Language V /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SLG 202 or concurrent enrollment.

Introduction and overview of the linguistic structure of American Sign Language. Semantics, morphology, phonology syntax, and other components of ASL will be introduced and compared to English in light of current research. This course seeks to integrate linguistic information introduced in ASL I - IV into an applied linguistic framework.

SLG 220 Interpreting I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SLG 201.

Introduction to theories, principles and special settings of interpreting. Includes code of ethics, definitions, role playing and simulated interpreting.

SLG 250 Interpreting II /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: SLG 220 and 201.

Development of expressive and receptive interpreting skills in educational and community situations. Special emphasis on situations involving platform, conference, interview, television, medical, legal and deaf-blind interpreting.

SLG 270 Sign to Voice /4 cr. hrs/ 4 periods (4 lec.)

□Prerequisite: SLG 202 or concurrent enrollment.

The "sign to voice" aspect of sign language interpreting. Includes enhancement of vocabulary selection and improvement of technical skills.

SLG 299 Co-op Related Class in SLG /1 cr. hr./1 period (1 lec.)

□Prerequisite: SLG 202 or consent of instructor.

See Cooperative Education section for description.

SLG 299 Co-op Work in SLG /1-8 cr. hrs./5-40 periods (5-40 lab)

□Prerequisite: SLG 202 or consent of instructor.

See Cooperative Education section for description.

SOCIAL SERVICES**SSE 115 Drugs in American Society /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

General introduction to the current drug situation in the United States. Includes philosophical exploration of drug use, interpretation within the social context, physical and psychological effects of drugs, and review of current drug programs and research.

SSE 116 Introduction to Alcohol Abuse /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to past and present use and abuse of alcohol, including identification and treatment of the abuser and alcoholic. Emphasis on treatment alternatives and resources available to abusers, alcoholics and their family members.

SSE 127 Political and Legal Aspects of Drug Use /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Overview of the political and legal aspects of drug use and abuse, both current and historical. Emphasis on the influence of political pressure, economics, civil liberties, court decisions and current thinking affecting drug use.

SSE 133 Introduction to Social Welfare /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to the social welfare system: what it is, has been, and may become nationally and locally. Emphasis on local community agencies and resources, welfare policies and case histories.

SSE 134 Casework Methods I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Theory and practice of casework within the context of the Southwest. Includes interviewing, case history and review, and development of helping relationships. Case examples from various social service settings are examined.

SSE 135 Group Work /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of group dynamics. Includes development of skills in group development and functioning, such as leadership, decision making and problem solving. Emphasis on experiential learning. Case examples are observed and discussed.

SSE 138 Domestic Violence: Causes and Cures /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

A survey of historical and contemporary causes of domestic violence. Five abused populations will be examined: spouse, sibling, adult child-to-parent, children, and victims of dating violence. Diagnosis, prevention, and treatment of domestic violence will be presented. Identification of and need for treatment programs are examined.

SSE 140 Casework/Assessment Rehabilitation In Gerontology /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Practice casework skills with special emphasis on serving the elderly. Case management emphasizing intake, referral, mental status, care planning, and communication within a professional team setting. Additional focus will be on the wellness of elders living in the community.

SSE 141 Aging-Health & Physiology /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Fundamental health and physiology of the elderly. Enables the student to recognize health problems and make appropriate referrals. Includes disabilities, nutrition, medication/drugs, chronicity, sensory loss, and other aspects of the normal aging process.

SSE 199 Co-op Related Class in SSE /1 cr. hr./1 period (1 lec.)

□Prerequisite: SSE 133 and SSE 134.

Introduction to cooperative education: social and psychological reasons for working; methods of securing employment; preparation of career and job-related objectives; evaluation of student work experience.

SSE 199 Co-op Work in SSE /3 cr. hrs./15 periods (15 lab)

□Prerequisite: SSE 133 and SSE 134.

A supervised cooperative work program for students in an occupation related to their program of study.

SSE 199 Co-op Work in Gerontology /3 cr. hrs./15 periods (15 lab)

□Prerequisites: SSE 140; concurrent enrollment in SSE 199 Co-op Related Class in SSE.

Supervised placement in a gerontologic social service setting.

SSE 216 Community Organization and Development /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SSE 133.

Principles and techniques of organizing to effect change. Includes role of the professional organizer, nature of institutions, causes of change or failure to change, and strategies for effective change.

SSE 218 Treatment of the Drug Abuser /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles and techniques of treating the drug abuser. Includes the following methods of treatment: therapeutic communities, day care programs, methadone maintenance, detoxification and psychotherapy.

SSE 234 Casework Methods II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SSE 134.

Advanced techniques in interviewing, case recording and evaluation of client situations. Students participate in interview sessions.

SSE 236 Crisis Intervention, Theory and Techniques /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SSE 134.

Basic principles and practice of crisis intervention. Includes techniques of intervention, referrals and diagnosis utilized in resolving crisis situations encountered in social services.

SSE 237 Group Technique Applications /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SSE 135.

Continuation of SSE 135. Further experience and skill development in analyzing, working in and facilitating groups using major group approaches. Students use groups in the community as case examples.

SSE 290 Social Services Field Experience /3 cr. hrs./15 periods (15 lab)

□Prerequisites: SSE 134 and consent of instructor.

Supervised placement in community social services agencies so that students gain experience in the delivery of social services. In class seminars, students discuss pertinent theory and issues raised through the field experience. May be taken two times for a maximum of six credit hours.

SSE 298 Topics in Community Involvement /3 cr. hrs./3 periods (3 lec.)

Same as SOC 298.

SSE 299 Co-op Related Class in SSE /1 cr. hr./1 period (1 lec.)

□Prerequisites: SSE 199 Co-op Work in SSE.

Preparation of job related objectives, individual progress and advancement on the job, labor relations, role of management, evaluation of student work experience.

SSE 299 Co-op Work in SSE /3 cr. hrs./15 periods (15 lab)

□Prerequisites: SSE 199 Co-op Work in SSE.

A supervised work program for students in an occupation related to their program of study.

SSE 299 Co-op Work in Gerontology /3 cr. hrs./15 periods (15 lab)

□Prerequisite: SSE 199 Co-op Work in Gerontology.

A continuation of SSE 199. In depth working-relations with the elderly within a supervised placement.

SOCIOLOGY

SOC 052 Sociological Forces in Later Life /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Sociological problems faced by the elderly, including the intellectual, cognitive and behavioral aspects of the aging process. Also includes the social and traumatic concerns of the aged and retired.

SOC 100 Introduction to Sociology /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to the basic concepts of sociology and sociological analysis with emphasis on group, status, personality, role, socialization, social processes, institutions, social organization, and social change.

SOC 101 Current United States Social Problems /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SOC 100.

Analysis of such forms of social disorganization as crime, mental illness and urban problems as they relate to modern American society. Problems are studied within the context of the international community.

SOC 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.)

□Prerequisite: None.

Basic concepts involved in population studies. Analysis of environmental factors affecting social trends, problems and solutions in both advanced and developing nations.

SOC 110 Introduction to Cities and Community Planning /3 cr.hrs./3 periods (3 lec.)

□Prerequisite: SOC 100.

Introduction to the study of the urban environment, including its history, structure and dynamics. Special emphasis on understanding the function of cities on the local level.

SOC 115 Human Sexuality /3 cr. hrs./3 periods (3 lec.)

(Same as PSY 115.)

SOC 127 Marriage and the Family /3 cr. hrs./3 periods (3 lec.)

Same as HEC 127.

SOC 166 Social Gerontology I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to the bio-cultural and holistic study of aging, dying, and death. The bio-social process of aging, factors in longevity and the social meaning of death.

SOC 167 Social Gerontology II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Continuation of SOC 166. The psycho-social foundation of aging, retirement crisis, sociocultural factors, economics of aging and cross-cultural perspectives.

SOC 201 Minority Relations and Urban Society /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Analysis of minority relations and urban society. Emphasis on minority socialization, social order and conflict, and current social trends.

SOC 202 Introduction to Civil Rights Practices /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Explanation of legal practices and regulations with emphasis on the welfare system, financial contracting, health and building codes, and administrative processes in the schools. May include applied field work.

SOC 203 Sociology of Utopia /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

An exploration of life in the ideal society. Includes "alternative lifestyles" and the history of the communal movement in America with special emphasis on the literature of Utopia and modern communal experimentation.

SOC 204 Women in Society /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination of the status of women in society. Includes the legal, social, economic, religious and psychological factors affecting their status.

SOC 289 Individual Studies in Sociology /3-6 cr. hrs./3-6 periods (3-6 lec.)

□Prerequisite: Consent of instructor.

Exploration of special interest areas. Content to be determined by conference between student and instructor.

SOC 298 Topics in Community Involvement /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.)**

□Prerequisite: None.

Basic concepts and applications of passive solar energy. Includes structural design, landscaping, orientation of building, and component selection.

SET 101 Solar Energy Fundamentals /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Basic solar collector systems. Includes residential heating and cooling systems, refrigeration and evaporative cooling systems, solar system sizing and energy costs.

SET 102 Solar Design and Installation /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Design and installation of an active water and space heating system. Includes sizing and selecting components and installing the system, using proper techniques of plumbing, electricity and mechanical crafts.

SET 103 Solar Maintenance and Repair /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisite: None.

Maintenance and repair of active hydronic and air solar systems, including troubleshooting, collector and energy transport evaluation, and backup system controls.

SET 104 Uniform Solar, Building, and Electrical Code /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Use of 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)

□Prerequisite: None.

Use of the current uniform plumbing code as related to solar applications. Includes local and state plumbing codes for hydronic installations, and designing and fabricating efficient liquid solar systems.

SET 201 Energy Conservation /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Energy conservation and use. Includes sources of energy, energy analysis, energy and the environment, and descriptions of job functions typical of energy technicians.

SET 202 Solar and Energy Assessment /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Examination and evaluation of solar energy as a practical source of power. Includes alternative heating and cooling, insulating, power and lighting systems, and economic feasibility for use in single family residences.

SPANISH**SPA 050 Conversation for Beginners I /4 cr. hrs./4 periods (4 lec.)**

□Prerequisite: None.

Listening to and speaking elementary Spanish, emphasizing prevailing local and regional terminologies. Designed for persons with no previous knowledge of Spanish. Transferable as elective credit.

SPA 051 Conversation for Beginners II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: SPA 050 or equivalent.

Designed for persons able to ask and respond to simple questions relevant to self and to the environment. Transferable as elective credit.

SPA 052 Advanced Conversational Spanish /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: SPA 051 or 111.

Continued practice in listening to and speaking Spanish. Designed for persons with essential knowledge of Spanish. Classes are conducted in Spanish. Transferable as elective credit.

SPA 070 Spanish for Medical Personnel /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Conversational practice in a medical context. Designed to develop speaking and listening techniques essential for basic medical situations, stressing expressions of courtesy and medical terminology. Non-transferable course.

SPA 110 Elementary Spanish I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Skill development to provide proficiency in basic communication (listening, speaking, reading, and writing), emphasizing an examination of Spanish cultural traditions. A transfer course.

SPA 111 Elementary Spanish II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: SPA 110 or equivalent.

Continuation of SPA 110. Designed to provide increased proficiency in listening, speaking, reading, and writing. Includes continued study of Spanish cultural traditions. A transfer credit course.

SPA 201 Spanish for Native Speakers I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: Speak Spanish.

Skill development designed to prepare native speakers for composition and Spanish literature courses through grammatical review, and comprehensive reading and writing in Spanish. A transfer credit course.

SPA 202 Spanish for Native Speakers II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: SPA 201.

Intensified continuation of SPA 201. Major emphasis on literature and grammar. A transfer credit course.

SPA 205 Imaginative Writing I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles and practice of creative writing. Includes study and application of literary techniques used in works of local and other authors. Also includes the oral tradition of local legends. Students' best works are published in *Llueve Tlaloc*, the bilingual literary magazine. A transfer credit course.

SPA 206 Imaginative Writing II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SPA 205.

Continuation of SPA 205. Further study of literary techniques and development of students' writing abilities. The best writings are published at the end of the school year in *Llueve Tlaloc*, the bilingual literary magazine. A transfer credit course.

SPA 210 Intermediate Spanish I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: SPA 111 or two years of high school Spanish.

Continuation of SPA 111. Intensive review of grammar in addition to reading selected authors and writing short compositions. Emphasis on continued practice in speaking Spanish. A transfer credit course.

SPA 211 Intermediate Spanish II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: SPA 210.

Continuation of SPA 210. Intensive review of grammar in addition to reading selected authors and writing short compositions. Emphasis on efficient and contemporary language usage. A transfer credit course.

SPA 217 Spanish for Business Communications /4 cr. hrs./4 periods (4 lec.)

□Prerequisites: SPA 210 or equivalent and BUS 100 or equivalent, or consent of instructor.

Spanish for general use in business. Business terminology, situations, and correspondence in Spanish, including cultural differences that can affect business transactions. Provides contact with bilingual business people who lecture throughout the semester in Spanish in their area of expertise. A transfer credit course.

SPA 225 Intermediate Spanish Composition and Conversation I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SPA 211 or equivalent.

Designed to give 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 226 Intermediate Spanish Composition and Conversation II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: SPA 225.

A continuation of Intermediate Spanish Composition and Conversation I.

SPA 230 Introduction to Literature in Spanish /4 cr. hrs./4 periods (4 lec.)

□Prerequisites: SPA 102 and 211.

Survey of literature written in Spanish. Designed to give students a broader knowledge of the language through literature selected from representative Spanish, Latin American and Chicano writers. A transfer credit course.

SPA 240 Independent Study in Spanish Language /1-4 cr. hrs./1-4 periods (1-4 lec.)

□Prerequisite: Consent of instructor.

Independent Spanish readings or other projects under the supervision of an instructor. May be taken four times for a maximum of 16 credit hours. A transfer credit course.

SPEECH COMMUNICATION**SPE 102 Introduction to Oral Communication /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Introduction to basic concepts and skills of oral communication in interpersonal and public address situations. Includes communication barriers, research techniques and norms of speech delivery.

SPE 105 Voice and Diction /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Training in basic voice production. Includes speech and personality, the physiological system, and general speech standards.

SPE 110 Public Speaking /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Training in public speaking. Includes reading and speech assignments focusing on research, organization, logic, analysis and delivery as techniques of audience adaptation.

SPE 115 Voice and Articulation for the Stage /2 cr. hrs./2 periods (2 lec.)

□Prerequisite: None.

Training in basic voice production as required for the stage. Includes norms and techniques of stage diction, characterizations, dialects and sight reading.

SPE 120 Business and Professional Communication /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Training in communication situations and problems within the organizational complex. Includes oral reports, interviewing, problem solving, conference groups, listening and persuasion.

SPE 124 Argumentation and Debate /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles and practice of argumentation. Includes basic forms of analysis, evidence, proof, reasoning and refutation.

SPE 125 Forensics /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Individualized instruction and practice in speech competition skills. Includes debate, oral interpretation, and persuasive, extemporaneous and impromptu speaking. Each student must participate in at least one intercollegiate speech tournament. May be taken four times for a maximum of four credit hours.

SPE 136 Oral Interpretation of Literature /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Training in the oral presentation of literature. Includes analysis techniques, use of voice and body, role of the interpreter, characterization, literary conventions and oral interpretation modes.

SPE 149 Independent Study in Speech /1-4 cr. hrs./1-4 periods (1-4 lec.)

□Prerequisite: Six credit hours in speech.

Under individual guidance of an instructor, students research some aspect of communication not available through regular course offerings such as nonverbal communication, communication theory, mass media, rhetorical criticism, etc.

TECHNICAL ILLUSTRATION

TIL 100 Applied Computer Graphics /3 cr. hrs./5 periods (2 lec., 3 lab)

Same as ADA 100.

TIL 102 Technical Illustration I /4 cr. hrs./6 periods (3 lec., 3 lab)

□Prerequisites: DFT 101, DFT 150, and TIL 100.

Drawing techniques and use of specialized instruments in producing technical illustrations.

TIL 103 Visual Arts Production /3 cr. hrs./5 periods (2 lec., 3 lab)

□Prerequisites: ADA 111 and 211, or concurrent enrollment.

Technical art for sales presentations and technical manuals. Includes flip charts, overhead transparency production, camera-ready copy for printing, and 35 mm slide production.

TOHONO O'ODHAM

PGO 050 Conversational Tohono O'odham I /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: None.

Designed for persons with no previous knowledge of Tohono O'odham. Primary focus on listening to and speaking elementary Tohono O'odham. A non-transfer credit course.

PGO 051 Conversational Tohono O'odham II /4 cr. hrs./4 periods (4 lec.)

□Prerequisite: PGO 050 or equivalent.

Designed for persons able to ask and respond to simple questions relevant to self and to the environment. A non-transfer credit course.

TRAFFIC MANAGEMENT

TTM 101 Fundamentals of Transportation /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Domestic freight and passenger transportation systems, and the role played by the users, carriers and government. Includes the most significant changes and historical trends in transportation, present systems, supply and demand, shipper problems, regulatory systems and transportation policy. Provides the minimum transportation background necessary for general business activity in the transportation industry.

TTM 102 Economics of Transportation /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Development of the economic and philosophic bases of transportation as a regulated industry. Includes a critical analysis of the impact of regulatory decisions on managerial options.

TTM 104 Rates and Tariffs /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

In-depth study of transportation costs and freight rates. Includes the following topics relating to rates and tariffs: economic and legal aspects, regulation, application, terminology and structures.

TTM 199 Co-op Related Class in TTM /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

TTM 199 Co-op Work in TTM /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

TTM 201 Principles of Air Transportation /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Introduction to the commercial airline industry, its managerial practices and regulatory policies. Includes historical developments, industry structure, economics, marketing, finance, aircraft selection, scheduling, labor relations, route regulations, pricing, international aviation, and regulatory policies and procedures.

TTM 202 Principles of Motor Transportation /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Managerial and economic aspects of motor transportation as conducted under the auspices of state and federal regulations. Includes highways and highway financing, labor, management and operations, administration of claims, insurance and rates, federal regulations and passenger operations.

TTM 204 Physical Distribution Management /3 cr. hrs./3 periods (3 lec.)

Same as MKT 150.

TTM 299 Co-op Related Class in TTM /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

TTM 299 Co-op Work in TTM /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

TRAINING FOR SPECIAL EDUCATION**TSE 130 Techniques for Teaching Multiple Handicapped /3 cr. hrs./3 periods (3 lec.)**

□Prerequisite: None.

Teaching techniques and related practices designed to minimize the disabilities of persons with multiple handicaps. Includes appropriate tasks and materials, behavior control, adaptive equipment and therapeutic motor training.

TSE 132 Behavior Modification Techniques for Special Education I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Major theories of personality development and methods of changing inappropriate behavior. Major theories include Clinical Behavior Modification and Adlerian Psychology.

TSE 142 Special Speech and Language Techniques /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Overview of speech and language disorders and their remediation. Includes components involved in normal speech and language development.

TSE 150 Behavior Modification Techniques for Special Education II /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: TSE 132.

Continuation of TSE 132. Methods of changing inappropriate behavior through the use of behavior modification techniques, including positive, extinction and aversive contingency systems.

TSE 155 Issues in Special Education /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Exploration of current issues and trends in special education which impact the education of special needs students.

TSE 238 Characteristics of Learning Disabilities /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Principles of learning as related to learning disabilities. Includes definition of learning disabilities, characteristics of specific learning disabilities, and diagnostic procedures for remediation of learning disabilities.

TSE 240 Techniques for Teaching the Mentally Handicapped Student /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Prescribed techniques, materials and procedures for teaching the mentally handicapped. Designed for para-professionals who assist teachers of mentally handicapped students.

TSE 245 The Young Handicapped Child /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

The cause, characteristics, and intervention techniques associated with pre-school handicapped children (ages 0-6). Emphasis on the identification and educational programming of the handicapped child, and on the prevention and prognosis of handicapping conditions in young children.

TSE 250 Classroom Communication Skills /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Development and application of communication skills for improved interpersonal relations in the classroom. Includes interpersonal communication processes and patterns, evaluating interpersonal communication skills and application of techniques for promoting effective interpersonal communication skills.

TSE 255 Behavior Disorders in the Classroom /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Overview of techniques and procedures for teaching behavior-disordered students. Includes evaluation strategies and intervention models for managing behaviors.

TSE 265 Adaptive Technology in Special Education /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Overview of mechanical and electrical adaptive devices and their application with special needs students. Teaches and facilitates communication, self-help skills and environmental control independence.

TRAVEL AND TOURISM

TVL 101 Principles of the Travel-Tourism Industry /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Overview of the industry, including modes, motives and effects of travel-tourism and examination of specific duties performed by a variety of specialists.

TVL 102 Travel Agent Methods and Procedures /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: TVL 101 or concurrent enrollment.

Examination of the duties of a travel agent. Includes booking procedures for hotels, cruises, tours and all modes of transportation. Also includes the use of ARC Travel Agent Handbook, Official Airline Guide (OAG), other airline guides and practical experiences in ticketing procedures.

TVL 199 Co-op Related Class in TVL /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

TVL 199 Co-op Work in TVL /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

TVL 201 Travel Industry Operations Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: TVL 102.

Examination of the duties of a travel agency manager. Includes sales actions, financing, recordkeeping, credit, airline requirements for management and development of ethical relations with the traveling public.

TVL 202 Travel Industry Computer Applications /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: TVL 201 or concurrent enrollment.

Practical applications of computers in the travel industry. Includes practice in resolving current problems within the travel-tourism business, airline computer reservation systems, and automatic ticketing.

TVL 211 Tour Group Development, Sales and Management /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: TVL 101 and/or one year of experience working in the hospitality-tourism industry.

Development, management and marketing of tours. Includes sales techniques, packaging, tour-guide skills and relationships with other destination services.

TVL 299 Co-op Related Class in TVL /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

TVL 299 Co-op Work in TVL /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

WELDING**WLD 110 Combination Welding /3 cr. hrs./5 periods (2 lec., 3 lab)**

□Prerequisite: None.

Techniques and related information in arc and oxyacetylene welding. Arc welding component includes safety, power sources, welding currents, electrodes and flat position welding. Oxyacetylene welding component includes safety, proper handling of cylinders and gases, regulators, torches, filler rods, and flat and vertical position welding.

WLD 115 Blueprint Reading /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Interpretation of blueprints as applied to the welding trade. Includes welding symbols and their significance.

WLD 150 Oxyacetylene Welding /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: None.

Setup and operation of oxyacetylene welding equipment. Includes flat, horizontal, vertical, and overhead welding techniques on standard alloys of steel; and brazing and soldering techniques on ferrous and nonferrous metals and their alloys.

WLD 160 Arc Welding /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: None.

Principles and techniques of joining metals by electric arc with the use of the electrode. Includes current electrodes and other equipment, joint preparation and basic procedures for welding in all positions with all types of electrodes.

WLD 161 Plate Certification Welding /2 cr. hrs./4 periods (1 lec., 3 lab)

□Prerequisites: WLD 150 and 160, or two years of equivalent experience in all-position welding.

Advanced procedures in test plate welding certification using the American Welding Society Code D1.1. Includes preparation, assembly, defects and limitations of test plates. Also includes types of tests given and their period of effectiveness.

WLD 162 Resistance Spot Welding /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: None.

Principles and techniques of joining different types of alloys by resistance spot welding. Includes safety, power sources, proper control settings, electrode care and maintenance, joint preparation, resistance welding symbols, and testing spot welds.

WLD 163 Automatic GTAW Spot Welding/Silver Brazing /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: None.

Principles and techniques of joining different types of alloys by automatic gas tungsten arc spot welding and silver braze welding. Includes safety, power sources, proper control settings, shielding gases, joint preparations and spot weld testing in both processes.

WLD 170 Ornamental Iron /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisites: WLD 110 (or WLD 150 and 160), WLD 115, and MTH 060.

Introduction to artistic ornamental iron fabrication. Includes joint design and assembly, structural shapes, accessories and installation, grinding and finishing, and basic scroll design.

WLD 180 Metal Fabrication I /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisites: WLD 170 and SML 130.

Application of basic metal fabrication. Includes arched, double and roll gates; stair railing; metal doors; and codes, licensing, and liabilities.

WLD 199 Co-op Related Class in WLD /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

WLD 199 Co-op Work in WLD /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

WLD 240 Metal Fabrication II /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: WLD 180.

Application of advanced metal fabrication. Includes design concepts, metal twisting and bending, steel stairs, pipe handrails, forged scrolls, metal fabrication installation and cost estimating.

WLD 250 Pipe Welding /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisites: WLD 150, WLD 160 and SML 130.

Principles and techniques of pipe welding. Includes flame cutting pipe, beveling pipe, welding various pipe joints, tack welding miter joints, and flange welding. Also includes preparation for plate and pipe certification.

WLD 260 Inert Gas Welding /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisite: WLD 250.

Principles and techniques of tungsten inert gas (TIG) welding (helium) and metal inert gas (MIG) welding. Includes proper control settings, proper manipulation of TIG and MIG torch, and welding in all positions on ferrous and nonferrous metals.

WELDING—WELLNESS AND DISEASE PREVENTION—WRITING

WLD 261 Gas Metal Arc Welding /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisites: WLD 150 and 160.

Principles and techniques of metal inert gas (GMAW) welding and flux-core arc welding. Includes procedures, safety, wire selection, and control settings for MIG and flux-core welding.

WLD 262 Gas Tungsten Arc Welding /4 cr. hrs./6 periods (2 lec., 4 lab)

□Prerequisites: WLD 150 and 160.

Principles and techniques of the gas tungsten arc welding (GTAW) process. Includes safety, equipment, tooling, setup and procedures for different types of metals.

WLD 299 Co-op Related Class in WLD /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

WLD 299 Co-op Work in WLD /1-8 cr. hrs./5-40 periods (5-40 lab)

See Cooperative Education section for description.

WELLNESS AND DISEASE PREVENTION

WDP 100 Medical Discharge Planning /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

An introduction to inpatient and outpatient discharge planning. Includes the mechanics of discharging patients from the hospital to safe environments, crisis intervention in the emergency room, and developing assessment and support skills in dealing with patients and their families.

WRITING

WRT 005 Poetry Writing /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Same as WRT 205 but without transfer credit.

WRT 006 Short Story Writing /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Same as WRT 206 but without transfer credit.

WRT 062 Literary Magazine Workshop /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Literary magazine publication. Application of editing, design, layout and production techniques. One or more literary magazines will be published each year. May be taken four times for a maximum of 12 credit hours.

WRT 066 The Dabbler's Touch: A Writing Sampler /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Reading and writing of poetry, short fiction, essay, and autobiography. Students will practice techniques of the craft while pursuing their own interests and, when ready, share their work with the class as an editorial audience.

WRT 070 Developmental Writing /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Training in the fundamental skills, including grammar, usage, organization and development. May be taken in preparation for WRT 100, 101 or 150, or for personal improvement.

WRT 070A Developmental Writing: Basic Skills /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Basic skills in use of sentences, paragraphs, grammar, punctuation and spelling, including writing simple and compound sentences and simple paragraphs.

WRT 070B Developmental Writing: Intermediate Skills /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 070A or concurrent enrollment.

Intermediate skills in use of sentences, paragraphs, grammar, punctuation and spelling, including topic sentences, paragraph structure and practice in correcting common sentence errors.

WRT 070C Developmental Writing: Advanced Skills /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 070B or concurrent enrollment.

Advanced skills in use of sentences, paragraphs, grammar, punctuation and spelling, including paragraph development, coherence and usage.

WRT 072 Sentence Patterns /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

A mini-course in identifying various types of sentence structure and writing various types of sentences. Includes training in distinguishing between dependent and independent clauses, identifying essential sentence elements and correcting common sentence errors.

WRT 073 Punctuation /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

A mini-course in the mechanics of writing, including punctuation, capitalization, numbers and abbreviations.

WRT 075 Developmental Writing for International Students /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: ESL 084 or satisfactory score on the writing assessment test.

Basic skills in the use of sentences, paragraphs, grammar, punctuation and spelling. Equivalent to WRT 070. Includes idiomatic expressions and problems common to non-native speakers of English. Utilizes methodologies appropriate for international students. Designed to prepare international students for WRT 106.

WRT 077 Paragraphs /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

A mini-course providing practice in planning and writing effective paragraphs as basic units for essays. Emphasis on topic sentences, patterns of development and clear transitions.

WRT 088 Writing Journal /1 cr. hr./1 period (1 lec.)

□Prerequisite: None.

Daily practice of writing skills to promote fluency, spontaneity and creativity.

WRT 100 Writing Fundamentals /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: WRT 070 or satisfactory score on writing assessment test.

Review of sentence structure, mechanics and usage, paragraph development and short essay organization. Designed to prepare students for WRT 101.

WRT 100A Sentence Development /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 070 or satisfactory score on writing assessment test.

Review of sentence structure and mechanics and usage with practice in writing and punctuating various sentence patterns.

WRT 100B Paragraph Development /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 100A.

Improvement of skills in writing various types of paragraphs. Includes practice in developing appropriate topic sentences, supporting ideas, clear transitions and coherence.

WRT 100C Essay Development /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 100B.

Practice in writing short, well-organized essays on a variety of subjects.

WRT 101 Writing I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: WRT 100 or satisfactory score on writing assessment test.

Introduction to the principles of good writing with emphasis on the technique and practice of description, explanation and argumentation. A transfer credit course.

WRT 101A Planning the Essay /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 100 or satisfactory score on writing assessment test.

Practice in structuring a college-level essay.

WRT 101B Writing to Persuade /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 101A.

Practice in writing argumentative essays.

WRT 101C Developing a Style /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 101B.

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.

Continuation of WRT 101. Practice in writing longer and more analytical compositions, including a research paper or annotated papers. Readings as a basis for writing may include fiction, poetry, drama or nonfiction. A transfer credit course.

WRT 102A Critical Essay /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 101.

Writing short critical essays on selected works of literature.

WRT 102B Research /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 101.

This module may be taken as a mini-course. Provides practice in gathering information and designing and writing a research paper.

WRT 102C Writing Reports /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 101.

This module may be taken as a mini-course. Practice in writing short formal or informal reports.

WRT 106 Writing Fundamentals for International Students /3 cr. hrs./ 3 periods (3 lec.)

□Prerequisite: WRT 075 or satisfactory score on the writing assessment test.

Review of sentence structure, paragraph development and organization of short essays. Equivalent to WRT 100. Includes reading and analysis of prose models and work on other English fundamentals as required. Emphasis on revising for clarity, coherence and organization. Utilizes methodologies appropriate for international students. Designed to prepare international students for WRT 107.

WRT 107 Writing I for International Students /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: WRT 106 or satisfactory score on the writing assessment test.

The first semester freshman composition course, designed for international students. (Equivalent to WRT 101.) Introduction to the principles of good writing with emphasis on the technique and practice of narration, description, explanation and argumentation. Includes the writing process, paragraph and essay writing, and reading and analysis of prose models. Utilizes methodologies appropriate for international students. Designed to prepare international students for WRT 108. A transfer credit course.

WRT 108 Writing II for International Students /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: WRT 107.

Continuation of WRT 107. The second-semester freshman composition course, designed for international students. (Equivalent to WRT 102.) Practice in writing longer, more analytical compositions, including a research paper or annotated papers. Reading as a basis for writing may include nonfiction, fiction, drama and poetry. Emphasis on critical thinking. Utilizes methodologies appropriate for international students. A transfer credit course.

WRT 150 Practical Communications /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Practice in effective everyday communication. Emphasis on writing and speaking skills necessary in specific career fields. May transfer as an elective.

WRT 154 Technical Communications I /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: WRT 100 or 101.

Practice in writing and speaking skills needed in technical fields. Includes writing formal and informal reports, form completion, letters, abstracts and reviews. Also includes presentation of oral reports and other communication skills as prescribed by vocational areas.

WRT 154A Technical Communications I: Technical Writing Principles /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 100 or 101.

Basic technical writing skills, including the writing process, basic writing strategies and technical writing style.

WRT 154B Technical Communications I: Technical Correspondence /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 154A.

Writing of memos, letters and resumes. Also includes form completion and technical illustrations.

WRT 154C Technical Communications I: Basic Technical Reports /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 154B.

Writing of informal reports and other applications, including activity reports and technical descriptions, instructions and processes.

WRT 205 Poetry Writing /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: WRT 101 and 102.

Introduction to the techniques used in contemporary poetry. Includes study of selected poems as examples and practice in applying techniques by writing and discussing original poetry. For transfer credit, students must have completed WRT 102. May be taken as WRT 005 for non-transfer credit. May be taken three times for a total of nine credit hours.

WRT 206 Short Story Writing /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: WRT 101 and 102.

Introduction to the techniques used in contemporary short fiction. Includes study of selected short fiction as examples and practice in separate elements of technique through short exercises as well as writing and discussion of original manuscripts. For transfer credit, students must have completed WRT 102. May be taken as WRT 006 for non-transfer credit. May be taken three times for a total of nine credit hours.

WRT 207 Sophomore Composition /3 cr. hrs./3 periods (3 lec.)

□Prerequisites: WRT 101 and 102 with grade of C or better.

A second-year course offering extensive practice in exposition and critical analyses. Narrative may be included.

WRT 215 Advanced Poetry Writing /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: WRT 005 or 205.

Continuation of poetry writing with increased emphasis on craft. Candid peer and instructor criticism of both published models and student poems. Transfers as an elective.

WRT 254 Technical Communications /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: WRT 154 or 102.

Techniques of writing long and short reports, proposals and other forms required in scientific and technical occupations. Designed to allow students to work on writing required in courses and in future occupations. WRT 154 is recommended as preparation.

WRT 254A Technical Communications II: Brief Technical Reports /1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 154 or 102.

Advanced technical writing skills, including writing various types of brief formal reports.

WRT 254B Technical Communications II: Formal Technical Reports / 1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 254A.

Writing of longer advanced technical reports, including evaluation reports, feasibility studies and technical proposals.

WRT 254C Technical Communications II: Technical Research / 1 cr. hr./1 period (1 lec.)

□Prerequisite: WRT 254B.

Technical research techniques and the writing of a formal research report.

WRT 280 Workshop in Tutoring Composition /3 cr. hrs./9 periods (9 lab)

□Prerequisites: WRT 101 and 102.

Instruction and practice in tutoring writing.

WRT 280A Beginning Workshop in Tutoring Composition /1 cr. hr./3 periods (3 lab)

□Prerequisites: WRT 101 and 102.

Introductory workshop in tutoring composition. Instruction and practice in tutoring techniques.

WRT 280B Intermediate Workshop in Tutoring Composition /1 cr. hr./3 periods (3 lab)

□Prerequisite: WRT 280A.

Continued improvement of tutoring skills acquired in WRT 280A. Additional instruction and practice in tutoring techniques.

WRT 280C Advanced Workshop in Tutoring Composition /1 cr. hr./3 periods (3 lab)

□Prerequisite: WRT 280B.

Continued improvement of tutoring skills acquired in WRT 280B. Additional instruction and practice in tutoring techniques.

YOUTH CARE

YCA 163 Introduction to Youth Care /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: None.

Survey of the rights, roles and responsibilities of a youth care specialist in the supervision and treatment of children in 24-hour care outside the home, e.g., in detention, residential facilities for youth and foster care. Includes the concept of youth care work, understanding the child's behavior, communication skills, problem solving, effective discipline, interviewing and counseling skills, and structuring recreation and creative programs. (Same as AJS 163.)

YCA 263 Youth Care Methods /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: YCA 163.

Specific methods of youth care. Includes building positive relationships, problem solving, and observing and recording behavior. Also available in modularized format.

YCA 263A Building Youth Care Relationships: Methods /1 cr. hr./1 period (1 lec.)

□Prerequisite: YCA 163.

Building positive relationships with youth in alternative care settings.

YCA 263B Problem-Solving Methods /1 cr. hr./1 period (1 lec.)

□Prerequisite: YCA 163.

Problem-solving methods applicable to youth care situations.

YCA 263C Observing and Recording Methods /1 cr. hr./1 period (1 lec.)

□Prerequisite: YCA 163.

Methods of observing and recording the behavior of youth in a youth care setting.

YCA 264 Issues in Youth Care /3 cr. hrs./3 periods (3 lec.)

□Prerequisite: YCA 163.

Issues commonly experienced in the youth care field. Includes health and safety, stress, and the special needs child. Also available in a modularized format.

YCA 264A Health and Safety Issues /1 cr. hr./1 period (1 lec.)

□Prerequisite: YCA 163.

Health and safety issues in youth care work. Includes health awareness, daily development and behavior, signs of illness, medication, record keeping, and environmental and legal safety issues.

YCA 264B Stress Issues in Youth Care Work /1 cr. hr./1 period (1 lec.)

□Prerequisite: YCA 163.

Stress in youth care and its impact on the worker, the youth and the setting.

YCA 264C The Special Needs Child /1 cr. hr./1 period (1 lec.)

□Prerequisite: YCA 163.

The special needs child in a youth care setting. Includes the following special needs categories: learning disabled, physically disabled, emotionally disabled, mentally retarded, dangerous delinquent, autistic and others. One topic will be chosen for emphasis in a given session.

YCA 290 Field Experience /3 cr. hrs./16 periods (1 lec., 15 lab)

□ Prerequisite: Consent of instructor.

Participation in community administration of justice and youth care agencies to provide experience in the practical application of classroom instruction. Biweekly seminars are conducted to discuss theory and practice pertinent to the agency experience. May be taken two times for a maximum of six credit hours.

YCA 299 Co-op Related Class in YCA /1 cr. hr./1 period (1 lec.)

See Cooperative Education section for description.

YCA 299 Co-op Work in YCA /1-3 cr. hrs./5-15 periods (5-15 lab)

See Cooperative Education section for description.

Apprentice Related Instruction

Before students may enroll for apprentice related instruction, they must be tested, selected, signed up (indentured) and registered with the U.S. Department of Labor's Bureau of Apprenticeship and Training, and the organization operating a specific training program. Apprentice related instruction at Pima Community College is presently offered in these areas:

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.)

CARPENTRY

- CRP 101 Concrete Formwork: Building Layout /1 cr. hr./1 period (1 lec.)
 CRP 102 Concrete Formwork: Residential Footing Form /1 cr. hr./1 period (1 lec.)
 CRP 103 Concrete Formwork: Footing Forms and Bolt Layout /1 cr. hr./1 period (1 lec.)
 CRP 104 Concrete Formwork: Basic Wall Forms /1 cr. hr./1 period (1 lec.)
 CRP 105 Concrete Formwork: Circular Wall Form /1 cr. hr./1 period (1 lec.)
 CRP 106 Concrete Formwork: Column Form /1 cr. hr./1 period (1 lec.)
 CRP 107 Concrete Formwork: Spandrel Beam /1 cr. hr./1 period (1 lec.)
 CRP 108 Concrete Formwork: Deck Forms and Shoring /1 cr. hr./1 period (1 lec.)
 CRP 109 Concrete Formwork: Concrete Stair Forms /1 cr. hr./1 period (1 lec.)
 CRP 110 Concrete Formwork: Tilt-up Construction I /1 cr. hr./1 period (1 lec.)
 CRP 111 Concrete Formwork: Tilt-up Construction II /1 cr. hr./1 period (1 lec.)
 CRP 112 Concrete Formwork: Bridge Pier Column /1 cr. hr./1 period (1 lec.)
 CRP 113 Concrete Formwork: Flatwork /1 cr. hr./1 period (1 lec.)

CRP 114	Concrete Formwork: Culverts, Headwall and Wingwalls / 1 cr. hr./1 period (1 lec.)
CRP 115	Concrete Formwork: Concrete Wall Blockouts /1 cr. hr./ 1 period (1 lec.)
CRP 116	Concrete Formwork: Gang Forms /1 cr. hr./1 period (1 lec.)
CRP 117	Concrete Formwork: Retaining Wall Footing Form / 1 cr. hr./1 period (1 lec.)
CRP 118	Framing: Basic Wall Framing /1 cr. hr./1 period (1 lec.)
CRP 119	Framing: Wall Layout, Plating and Detailing /1 cr. hr./ 1 period (1 lec.)
CRP 120	Framing: Floor Joist /1 cr. hr./1 period (1 lec.)
CRP 121	Framing: Gable Roof /1 cr. hr./1 period (1 lec.)
CRP 122	Framing: Hip Roof /1 cr. hr./1 period (1 lec.)
CRP 123	Framing: Intersecting Roof /1 cr. hr./1 period (1 lec.)
CRP 124	Framing: Wood Stairs /1 cr. hr./1 period (1 lec.)
CRP 125	Framing: Framing Square /1 cr. hr./1 period (1 lec.)
CRP 126	Framing: Advanced Framing Square Application /1 cr. hr./ 1 period (1 lec.)
CRP 127	Framing: Residential Layout /1 cr. hr./1 period (1 lec.)
CRP 128	Exterior Finish: Canopy /1 cr. hr./1 period (1 lec.)
CRP 129	Exterior Finish: Roof Covering /1 cr. hr./1 period (1 lec.)
CRP 130	Exterior Finish: Commercial Display /1 cr. hr./1 period (1 lec.)
CRP 131	Interior Finish: Standard Door Installation /1 cr. hr./ 1 period (1 lec.)
CRP 132	Interior Finish: Running Trim /1 cr. hr./1 period (1 lec.)
CRP 133	Interior Finish: Door Hardware /1 cr. hr./1 period (1 lec.)
CRP 134	Interior Finish: Metal Partitions /1 cr. hr./1 period (1 lec.)
CRP 135	Interior Finish: Soffit Panel /1 cr. hr./1 period (1 lec.)
CRP 136	Interior Systems: Metal Frame Walls /1 cr. hr./1 period (1 lec.)
CRP 137	Interior Systems: Dry Wall Application /1 cr. hr./1 period (1 lec.)
CRP 138	Interior Systems: Dry Wall Estimation of Material /1 cr. hr./ 1 period (1 lec.)
CRP 139	Interior Systems: Suspended Lay-in Ceiling /1 cr. hr./ 1 period (1 lec.)

ELECTRICAL APPRENTICESHIP TRAINING

ELT 101	Apprentice Inside Wireman I /6 cr. hrs./6 periods (6 lec.)
ELT 102	Apprentice Inside Wireman II /6 cr. hrs./6 periods (6 lec.)
ELT 103	Residential Wireman Trainee I /4 cr. hrs./4 periods (4 lec.)

ELT 104	Residential Wireman Trainee II /4 cr. hrs./4 periods (4 lec.)
ELT 201	Apprentice Inside Wireman III /6 cr. hrs./6 periods (6 lec.)
ELT 202	Apprentice Inside Wireman IV /6 cr. hrs./6 periods (6 lec.)
ELT 203	Residential Wireman Trainee III /4 cr. hrs./4 periods (4 lec.)
ELT 204	Residential Wireman Trainee IV /4 cr. hrs./4 periods (4 lec.)
ELT 205	Journeyman-Wireman Advancement Course I /6 cr. hrs./ 6 periods (6 lec.)
ELT 206	Journeyman-Wireman Advancement Course II /6 cr. hrs./ 6 periods (6 lec.)
ELT 231	Apprentice Inside Wireman V /6 cr. hrs./6 periods (6 lec.)
ELT 232	Apprentice Inside Wireman VI /6 cr. hrs./6 periods (6 lec.)
ELT 241	Apprentice Inside Wireman VII /6 cr. hrs./6 periods (6 lec.)
ELT 242	Apprentice Inside Wireman VIII /6 cr. hrs./6 periods (6 lec.)

IRONWORKING

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., 1 lab)
IRW 054	Rigging and Safety /3 cr. hrs./4 periods (3 lec., 1 lab)
IRW 055	Structural Blueprint Reading I /3 cr. hrs./4 periods (3 lec., 1 lab)
IRW 056	Structural Blueprint Reading II /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)

MACHINE TOOL APPRENTICE

MTA 101	Shop Theory I: Safety/Chip Formation/Cutting Fluids / .5 cr. hr./ .5 period (.5 lec.)
MTA 102	Shop Theory I: Saws and Sawing / .5 cr. hr./ .5 period (.5 lec.)
MTA 103	Shop Theory I: Drill Presses / 1 cr. hr./ 1 period (1 lec.)
MTA 104	Shop Theory I: Milling Machines / 1 cr. hr./ 1 period (1 lec.)
MTA 111	Blueprint Reading I / 1 cr. hr./ 1 period (1 lec.)
MTA 113	Machine Tool Mathematics I: Basic Math/Algebra / 1 cr. hr./ 1 period (1 lec.)
MTA 114	Machine Tool Mathematics I: Geometry/Trigonometry / 1 cr. hr./ 1 period (1 lec.)

PAINTING AND DECORATING

PNA 101	Spray Painting / 6 cr. hrs./ 6 periods (6 lec.)
PNA 102	Wood Finishing / 6 cr. hrs./ 6 periods (6 lec.)
PNA 103	Drywall Taping / 6 cr. hrs./ 6 periods (6 lec.)
PNA 104	Color Mixing and Matching / 6 cr. hrs./ 6 periods (6 lec.)
PNA 105	Special Decorative Finishes / 6 cr. hrs./ 6 periods (6 lec.)
PNA 106	Wallcovering / 6 cr. hrs./ 6 periods (6 lec.)

PLUMBING AND PIPEFITTING

PFA 050A	Plumbing and Pipefitting I / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 050B	Plumbing and Pipefitting I / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 051A	Plumbing and Pipefitting II / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 051B	Plumbing and Pipefitting II / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 052A	Plumbing and Pipefitting III / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 052B	Plumbing and Pipefitting III / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 053A	Plumbing and Pipefitting IV / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 053B	Plumbing and Pipefitting IV / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 054A	Plumbing V / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 054B	Plumbing V / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)

PFA 055A	Plumbing VI / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 055B	Plumbing VI / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 056A	Plumbing VII / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 056B	Plumbing VII / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 057A	Plumbing VIII / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 057B	Plumbing VIII / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 058A	Plumbing IX / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 058B	Plumbing IX / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 059A	Plumbing X / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 059B	Plumbing X / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 060A	Pipefitting V / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 060B	Pipefitting V / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 061A	Pipefitting VI / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 061B	Pipefitting VI / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 062A	Pipefitting VII / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 062B	Pipefitting VII / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 063A	Pipefitting VIII / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 063B	Pipefitting VIII / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 064A	Pipefitting IX / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 064B	Pipefitting IX / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 065A	Pipefitting X / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 065B	Pipefitting X / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 066A	Refrigeration I / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 066B	Refrigeration I / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 067A	Refrigeration II / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 067B	Refrigeration II / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 068A	Refrigeration III / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 068B	Refrigeration III / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 069A	Refrigeration IV / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)
PFA 069B	Refrigeration IV / 4.5 cr. hrs./ 4.5 periods (4.5 lec.)

ROOFING

ROF 101	Built-up Roofing I / 5 cr. hrs./ 5 periods (5 lec.)
ROF 102	Built-up Roofing II / 5 cr. hrs./ 5 periods (5 lec.)
ROF 103	Elasto-Plastic Roof Systems / 5 cr. hrs./ 5 periods (5 lec.)
ROF 104	Steep Roofing / 5 cr. hrs./ 5 periods (5 lec.)

SHEET METAL

SMA 011	Apprentice Sheet Metal I / 5 cr. hrs./ 5 periods (5 lec.)
SMA 012	Apprentice Sheet Metal II / 5 cr. hrs./ 5 periods (5 lec.)
SMA 021	Apprentice Sheet Metal III / 5 cr. hrs./ 5 periods (5 lec.)
SMA 022	Apprentice Sheet Metal IV / 5 cr. hrs./ 5 periods (5 lec.)

SMA 031	Apprentice Sheet Metal V /5 cr. hrs./5 periods (5 lec.)
SMA 032	Apprentice Sheet Metal VI /5 cr. hrs./5 periods (5 lec.)
SMA 041	Apprentice Sheet Metal VII /5 cr. hrs./5 periods (5 lec.)
SMA 042	Apprentice Sheet Metal VIII /5 cr. hrs./5 periods (5 lec.)
SMA 051	Apprentice Sheet Metal IX /5 cr. hrs./5 periods (5 lec.)
SMA 052	Apprentice Sheet Metal X /5 cr. hrs./5 periods (5 lec.)

THEORY AND PRACTICE OF ELECTRICITY

TGE 050	Electrical Theory I /6 cr. hrs./6 periods (6 lec.)
TGE 051	Electrical Theory II /6 cr. hrs./6 periods (6 lec.)
TGE 052	Electrical Theory III /6 cr. hrs./6 periods (6 lec.)
TGE 053	Advanced Apprenticeship Training I /1 cr. hr./1 period (1 lec.)
TGE 054	Advanced Apprenticeship Training II /1 cr. hr./1 period (1 lec.)
TGE 055	Advanced Apprenticeship Training 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	Advanced Apprenticeship Training VI /6 cr. hrs./6 periods (6 lec.)
TGE 059	Advanced Apprenticeship Training VII /6 cr. hrs./6 periods (6 lec.)
TGE 060	Advanced Apprenticeship Training VIII /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	Advanced Apprenticeship Training XI /1 cr. hr./1 period (1 lec.)
TGE 064	Advanced Apprenticeship Training XII /1 cr. hr./1 period (1 lec.)
TGE 065	Advanced Apprenticeship Training XIII /2 cr. hrs./2 periods (2 lec.)
TGE 067	Advanced Apprenticeship Training XV /6 cr. hrs./6 periods (6 lec.)
TGE 068	Advanced Apprenticeship Training XVI /6 cr. hrs./6 periods (6 lec.)

WHEELS OF LEARNING

CARPENTRY

WOL 101	Carpentry I /6 cr. hrs./6 periods (6 lec.)
WOL 102	Carpentry II /6 cr. hrs./6 periods (6 lec.)
WOL 103	Carpentry III /6 cr. hrs./6 periods (6 lec.)
WOL 104	Carpentry IV /6 cr. hrs./6 periods (6 lec.)
WOL 105	Carpentry V /6 cr. hrs./6 periods (6 lec.)
WOL 106	Carpentry VI /6 cr. hrs./6 periods (6 lec.)
WOL 107	Carpentry VII /6 cr. hrs./6 periods (6 lec.)
WOL 108	Carpentry VIII /6 cr. hrs./6 periods (6 lec.)

HVAC

WOL 111	HVAC I /6 cr. hrs./6 periods (6 lec.)
WOL 112	HVAC II /6 cr. hrs./6 periods (6 lec.)
WOL 113	HVAC III /6 cr. hrs./6 periods (6 lec.)
WOL 114	HVAC IV /6 cr. hrs./6 periods (6 lec.)
WOL 115	HVAC V /6 cr. hrs./6 periods (6 lec.)
WOL 116	HVAC VI /6 cr. hrs./6 periods (6 lec.)
WOL 117	HVAC VII /6 cr. hrs./6 periods (6 lec.)
WOL 118	HVAC VIII /6 cr. hrs./6 periods (6 lec.)

MASONRY

WOL 121	Masonry I /6 cr. hrs./6 periods (6 lec.)
WOL 122	Masonry II /6 cr. hrs./6 periods (6 lec.)
WOL 123	Masonry III /6 cr. hrs./6 periods (6 lec.)
WOL 124	Masonry IV /6 cr. hrs./6 periods (6 lec.)
WOL 125	Masonry V /6 cr. hrs./6 periods (6 lec.)
WOL 126	Masonry VI /6 cr. hrs./6 periods (6 lec.)

SHEET METAL

WOL 131	Sheet Metal I /6 cr. hrs./6 periods (6 lec.)
WOL 132	Sheet Metal II /6 cr. hrs./6 periods (6 lec.)
WOL 133	Sheet Metal III /6 cr. hrs./6 periods (6 lec.)
WOL 134	Sheet Metal IV /6 cr. hrs./6 periods (6 lec.)
WOL 135	Sheet Metal V /6 cr. hrs./6 periods (6 lec.)
WOL 136	Sheet Metal VI /6 cr. hrs./6 periods (6 lec.)
WOL 137	Sheet Metal VII /6 cr. hrs./6 periods (6 lec.)
WOL 138	Sheet Metal VIII /6 cr. hrs./6 periods (6 lec.)

PLUMBING

WOL 141	Plumbing I /6 cr. hrs./6 periods (6 lec.)
WOL 142	Plumbing II /6 cr. hrs./6 periods (6 lec.)
WOL 143	Plumbing III /6 cr. hrs./6 periods (6 lec.)

- WOL 144 Plumbing IV /6 cr. hrs./6 periods (6 lec.)
- WOL 145 Plumbing V /6 cr. hrs./6 periods (6 lec.)
- WOL 146 Plumbing VI /6 cr. hrs./6 periods (6 lec.)
- WOL 147 Plumbing VII /6 cr. hrs./6 periods (6 lec.)
- WOL 148 Plumbing VIII /6 cr. hrs./6 periods (6 lec.)

PAINTING

- WOL 151 Construction Painting I /6 cr. hrs./6 periods (6 lec.)
- WOL 152 Construction Painting II /6 cr. hrs./6 periods (6 lec.)

BUILDING TECHNOLOGY

BLT 050 Plumbing /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: None.

Basic principles and techniques of plumbing. Plumbing materials and their practical use in construction and maintenance of buildings; proper use and care of hand power tools; 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.

Introduction to carpentry. Care and use of hand and power tools and equipment; carpentry materials and their uses; basic construction techniques. Emphasis on safety.

BLT 057 Carpentry II /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: BLT 055.

Continuation of BLT 055. Advanced knowledge and skills involving materials and their application to structures. Emphasis on safety and experience with basic construction techniques to develop a higher level of craftsmanship.

BLT 060 Masonry /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: MTH 060.

Safe use of the basic tools and materials of masonry. Basic knowledge and skills for preparation, protection and curing of concrete. Includes construction of brick, concrete block and stonewalls.

BLT 062 Glazing /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: MTH 060.

Basic principles and techniques of glazing. Care of windows, preparation of surfaces, cutting and installing glass, and repairing glass and glazing materials. Use of special tools, materials, textures and surfaces.

BLT 070 Painting I /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: None.

Introduction to the principles and techniques of painting. Includes components of paint, application of paint to various surfaces, and use of ladders and scaffolds. Emphasis on safety in all aspects of the painting trade.

BLT 072 Painting II /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisites: BLT 070 and MTH 060.

Continuation of BLT 070 with greater emphasis on selecting, maintaining and using painting equipment and tools. Includes paint and color selection, color mixing and matching, and wood furniture stripping and refinishing techniques.

BLT 074 Conventional and Airless Spray Painting /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: None.

Specialized classroom instruction and practical experience in the principles and techniques of both conventional and airless spraying. Includes operating principles, uses and relative advantages of both types of spray units, techniques of high quality work, and causes and remedies for common spray and painting defects.

BLT 076 Advanced Blueprint Reading /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: GTC 099.

Continuation of GTC 099 (Basic Blueprint Reading). Includes commercial building specifications, steel and heavy timber construction, multi-story drawings and material estimating for drywall and painting.

BLT 090 Drywall I /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: MTH 060.

Basic principles and techniques of drywall construction. Includes safety, trade vocabulary, materials, proper care and use of equipment and tools, and performance of practical tasks.

BLT 092 Drywall Taping /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: MTH 060.

Basic principles and techniques of drywall taping. Includes safety, terminology, equipment, tools, material applications, texturing and final finishing. Emphasis on performance of practical tasks.

BLT 094 Drywall II /3 cr. hrs./6 periods (1 lec., 5 lab)

□Prerequisite: BLT 090.

Continuation of BLT 090. Includes in-depth coverage of job planning and blueprint estimating, familiarization with building documents and legal requirements, framing terminology and types of framing. Also includes in-depth coverage of drywall construction in residential, multiple-unit and commercial buildings. Safe performance is stressed.

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 Ph.D.—University of Arizona

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 M.S.—University of Arizona

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B.A.—Mt. St. Mary's College
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M.Ed.—University of Arizona

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M.Ed.—University of Arizona

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B.S.—Brigham Young University
M.S.—Brigham Young University
Ph.D.—Arizona State University

Margaret Brigham Sprague, Interim Director of Minority Education

B.Ph.—Grand Valley State College
M.Ed.—University of Arizona

Lawrence R. Toledo, Director of Athletics/

Community Recreation Programs

B.A.—California Western University
M.Ed.—University of Arizona

OPERATIONS

Kenneth M. Sternstein, Acting Vice President of Finance/Chief Fiscal Officer

B.S.—University of Arizona

Harold J. Thompson, Acting Associate Vice President of Operations and Plant Management

Helen L. Rebeske, Interim Assistant Vice President of Human Resources

B.S.—University of Arizona

WEST CAMPUS (1970)

Wesley E. Soderquist, Executive Dean

B.S.—Illinois Institute of Technology
M.B.A.—University of Chicago
Ed.D.—Loyola University

J. Graham Smart, Dean of Instruction

B.S.—Appalachian State University
M.A.—Appalachian State University

Joseph W. Cosentino, Dean of Admissions and Records

B.A.—Mt. Union College
M.Ed.—Kent State University

Elizabeth Gonzalez, Dean of Student Affairs

B.A.—University of Arizona
M.Ed.—University of Arizona
Ed.D.—University of Arizona

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B.S.—Dickinson State College
M.A.—Arizona State University

Angela Zerdavis, Associate Dean, Business, Computer and Human Sciences Division

Certificate—Beijing Normal University
B.A.—University of Illinois
M.A.—California State University
Ed.D.—Brigham Young University

Lucy A. Brajevich, Associate Dean, Health Related Professions

B.S.—Northern Arizona University
M.Ed.—University of Arizona

Kenneth E. McColester, Associate Dean, Mathematics and Sciences Division

B.S.—Rollins College
M.S.—North Carolina State University
Ph.D.—University of Arizona

Mildred V. Frank, Acting Director of Nursing

B.S.N.—Adelphi University
M.S.N.—Adelphi University

DOWNTOWN CAMPUS (1974)

Miguel Palacios, Executive Dean

B.A.—University of Arizona

M.A.—University of Arizona

Ph.D.—University of Arizona

Kenneth B. White, Dean of Instruction

B.A.—California State University, Chico

M.A.—Florida State University

Kathleen S. White, Associate Dean of Arts and Sciences

B.A.—University of Utah

M.A.—University of Utah

M.A.—University of Arizona

Ph.D.—University of Arizona

Barbara Sinclair, Interim Dean of Student Affairs

B.S.—South Dakota State University

M.S.—South Dakota State University

Ralph L. Wahrer, Associate Dean of Occupational Education

B.A.—Iowa Wesleyan College

M.A.—University of Iowa

Ph.D.—University of Iowa

COMMUNITY CAMPUS (1975)

James E. Gibson, Executive Dean

B.S.—Southwest Missouri State College

M.A.—Northern Colorado University

Ed.D.—University of Arizona

Carl R. Webb, Dean of Instruction

B.S.—U.S. Naval Academy

M.A.—University of California at Los Angeles

Carolyn C. Christian, Associate Dean of Academic Services

B.S.—Bowling Green State University

M.A.—Ball State University

EAST CAMPUS (1976)

Paul J. Welsh, Acting Executive Dean

B.S.—John Carroll University

M.S.—University of Notre Dame

Ph.D.—University of Notre Dame

Stanley P. Witt, Acting Dean of Instruction

B.A.—University of Arizona

M.A.—University of Arizona

Ph.D.—University of Arizona

Thomas E. Hines, Associate Dean of Instruction

B.A.—Thiel College

M.S.—Miami University

Ph.D.—University of Northern Colorado

Gustavo Chavez, Acting Dean of Student Affairs

A.A.—Mesa Community College

B.A.—Arizona State University

M.A.—Arizona State University

John R. McClain, Director,

Arizona State Environmental Technology Training Center

B.S.—Northern Arizona University

M.S.—University of Arizona

EDUCATION CENTER-SOUTH (1985)

Edward Acuna, Dean

B.S.—University of Arizona

M.Ed.—University of Arizona

Pima Community College Faculty

Arthur Alberding, Mathematics (1969)

B.S.—Nebraska State Teachers College
M.A.—University of South Dakota
Ph.D.—University of Arizona

Javier Alcaraz, Spanish-French (1978)

B.A.—Montezuma Pontifical College
M.A.—Universidad Jaime Balmes
M.Ed.—St. Mary's College

Richard P. Alday, Fitness and Sports Science (1973)

B.S.—Kansas State Teachers College
M.A.—Kansas State Teachers College

Mary H. Allison, Nursing (1971)

B.S.N.—University of Arizona
M.S.—University of Arizona

Grace H. Altamirano, Office Education (1971)

B.S.—University of Arizona
M.Ed.—University of Arizona

Delfina Alvarez, Counselor (1971)

B.A.—University of Arizona
M.Ed.—University of Arizona

Barbara M. Anderson, Office Education (1970)

A.A.—Cochise College
B.S.—University of Arizona
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Jo Anne Anderson, Office Education (1977)

B.A.—Arizona State University
M.Ed.—University of Arizona

Lino Aragon, Graphic Technology (1980)

A.A.—Pima Community College

Cynthia P. Arcala, Nursing (1988)

B.S.N.—Philippine Women's University
M.S.—University of Michigan

Cynthia A. Arem, Counselor (1975)

B.A.—City University of New York
M.S.—City University of New York
Ph.D.—University of Arizona

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

G. Elisabet Bailey, Speech (1973)

B.A.—University of Arizona
M.A.—University of Arizona

Kay S. Baker, Nursing (1978)

B.S.N.—Arizona State University
M.Ed.—University of Arizona
M.S.N.—University of Arizona

Pamela Barnes, Writing (1974)

B.A.—Cedar Crest College
M.A.—Seton Hall University
M.Ed.—University of Arizona

Stewart Barr, Humanities and Philosophy (1986)

B.A.—University of Arizona
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Tori Basford, Computer Science (1978)

BSEE—University of Texas
MSEE—New York University
Ph.D.—Columbia University

Dan Beeson, Electronics (1985)

B.S.—Southeast Missouri State University

Robert P. Beitz, Counselor (1979)

A.S.—Mercer County Community College
B.A.—University of Arizona
M.Ed.—University of Arizona

Philip Bellomo, Ceramics (1975)

B.F.A.—University of Arizona
M.F.A.—University of Arizona

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.S.—Pima Community College

Michael Blicharz, Computer Science (1979)

B.S.—University of San Francisco

Lynn G. Bonner, Speech (1971)

B.A.—Western Michigan University
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Sam Borah, Mathematics (1987)

B.S.—Hardin-Simmons University
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Virginia Bowler, Nursing (1982)

B.S.—Marquette University
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Aristeo Brito, Jr., Spanish (1970)

B.A.—Sul Ross State College
M.A.—University of Arizona
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Fé Carol Brittain, Languages (1977)

B.A.—Florida State University
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Richard Brodesky, Writing (1978)

B.A.—Brandeis University
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Louise F. Bronson, Psychology and Sociology (1969)

B.A.—University of Rochester
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Otis F. Bronson, Writing, Humanities and Art (1969)

B.S.—University of Florida
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Cynthia Brown, Nursing (1980)

B.S.N.—Catholic University
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David K. Bruce, Administration of Justice (1975)

B.S.—Central Missouri State University
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Nancy Buchanan, Librarian (1974)

B.A.—University of Arizona
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M.A.—University of Arizona

Nicholas C. Busch, Biology (1969)

B.A.—Sonoma State College

Colin E. Campbell, Biology (1970)

B.S.—University of Arizona
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Jefferson Carter, Writing (1977)

B.A.—Pomona College
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P. Michael Carter, Respiratory Therapy (1977)

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Registered Respiratory Therapist (RRT)

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Irma J. Celaya, Office Education (1982)

B.A.—University of Arizona
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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

Kenneth R. Chiaro, Political Science and History (1975)

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B.S.—Bowling Green State University
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Christine P. Clifford, Biology (1975)

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John Clifford, Automotive (1974)

B.Ed.—Colorado State University

Helene Cohen, Sign Language (1986)

A.G.S.—Pima Community College
NRID, Certified CSC

Robert C. Coleman, Computer Science (1985)

B.S.—University of Arizona
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Alan Coons, Mathematics (1983)

B.S.—Northern Arizona University
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Joseph D. Cortez, Mathematics (1975)

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Ed.D.—University of Denver

Ronald D. Crabtree, Humanities (1970)

B.A.—Washington University
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Barbara Crowley, Dental Assisting (1975)

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Michael B. Curry, Mathematics (1970)

B.S.—Wheeling College
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B.A.—Emporia State University
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Ph.D.—Florida State University

Daniel Davidson, Physics/Microcomputer Center (1971)

B.S.—University of Rochester
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June F. Davidson, Counselor (1981)

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Patricia J. Davis, Writing and Literature (1971)

B.A.—University of Texas
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Frank L. Deits, Electronics (1975)

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Certified Dental Technician

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B.A.—John Hopkins University
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Certified Public Accountant

Edward M. Duperret, Counselor (1970)

B.A.—Seton Hall University
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Susan Jo Eavey, Nursing (1985)

B.S.N.—Lake Superior State College
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David G. Ebert, Hospitality Education (1975)

B.A.—University of Arizona
M.P.A.—University of Oklahoma

Roggie Edberg, Counselor (1989)

B.A.—Mills College
M.Ed.—University of Arizona

Mary E. Elasowich, Nursing (1975)

R.N.—St. Vincent's Hospital School of Nursing
B.A.—University of Massachusetts
M.A.—Assumption College

Michael S. Engs, Counselor (1977)

B.A.—College of William and Mary
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Michael Enis, Welding (1970)

Welder's Certificate, Engineers Testing Laboratory
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Ruben C. Estrada, Management and Marketing (1979)

B.S.—University of Arizona
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Francisco Z. Fernandez, Counselor (1981)

B.A.—University of Arizona
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Ellen C. Ferrell, Mathematics (1983)

B.A.—Randolph Macon Woman's College
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Phyllis Fetter, Hospitality (1987)

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Maria Luisa Figueroa, Spanish and ESL (1979)

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M.A.—University of Arizona

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M.A.—University of Illinois

Georgeanne Fimbres, Home Economics (1971)

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M.A.—University of Arizona

Jon Lea Fimbres, Counselor (1983)

B.A.—University of Arizona

M.A.—University of Arizona

Susan S. Finch, Computer Science (1969)

B.S.—University of California at Los Angeles

M.B.A.—University of Arizona

D. Joan Forbes, Radiologic Technology (1974)

RT (ARRT)—St. Cloud Hospital

B.S.—Creighton University

Registered Radiologic Technologist (ARRT)

Mildred V. Frank, Nursing (1978)

B.S.N.—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

M. Beverley Furlow, Writing (1978)

B.A.—University of Tennessee

M.S.—University of Tennessee

M.A.—Governors State University

David W. Gallagher, Psychology (1971)

B.A.—University of Arizona

M.Ed.—University of Arizona

**Rosemary Garcia, Sociology, Business,
and Administration of Justice (1972)**

B.A.—University of California

M.A.—University of California

J.D.—Loyola University

Ken Gardiner, Advertising Art (1976)

B.A.—California State College

Richard Garner, Electronics (1982)

A.A.S.—Pima Community College

Barbara M. Garrett, Counselor (1975)

B.A.—Sonoma State College

M.A.—California State University, San Francisco

Daniel P. Giaquinto, Radiologic Technology (1970)

Diploma—Rochester General Hospital

Registered Radiologic Technologist (ARRT)

Registered Radiotherapy Technologist (ARRT)

B.S.—Northern Arizona University

James R. Goff, Physics and Astronomy (1971)

B.A.—Nebraska Wesleyan University

M.S.—Case Western Reserve University

Bonnie Golden, Counselor (1987)

A.A.—Southwest College

B.S.—University of Illinois

M.Ed.—University of Arizona

C. Barclay Goldsmith, Drama and Writing (1970)

B.A.—Stanford University

M.F.A.—Carnegie-Mellon University

Allan S. Goodman, Physics/Microcomputer Center (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

Joan Groff, Mathematics (1983)

B.S.—Millersville State College

M.S.—Purdue University

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

Sallie A. Guy, Counselor (1975)

B.A.—University of Northern Iowa

M.A.—Syracuse University

Ph.D.—University of Illinois

Clare T. Hamlet, Computer Science (1971)

B.A.—University of Arizona

M.Ed.—University of Arizona

Benjamin Hankey, Music (1978)

A.A.—Iowa Lakes Community College

B.M.—University of Iowa

M.M.—University of Arizona

Laurene G. Harding, Nursing (1971)

B.S.—University of Arizona

M.A.—University of Arizona

Roxanne Harley, Counselor (1980)

B.A.—Grand Valley State University

M.Ed.—University of Arizona

Betty Harris, Art (1977)

B.S.—Pratt University

M.F.A.—University of Arizona

Clinton Harrold, Business (1987)

B.A.—University of Arizona

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 (1980)

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

Margaret A. Holleman, Library Services (1976)

A.A.—St. Petersburg Junior College

B.A.—University of South Florida

M.A.—Arizona State University

M.L.S.—University of Arizona

Pamela Anne Holzmillier, Librarian (1979)

B.A.—University of Arizona

M.Ed.—University of Arizona

Ph.D.—University of Arizona

Mark S. Homan, Social Services (1978)

B.A.—University of Arizona

M.S.W.—Arizona State University

James Homewood, Mathematics (1988)

B.A.—University of Oregon

B.S.—Portland State University

M.S.—Portland State University

Ann W. Houck, Computer Science (1982)

A.A.S.—Pima Community College

Patricia Hruby, Physics and Astronomy (1969)

B.S.—College of Mt. St. Vincent

M.S.T.—Cornell University

David G. Iadevaia, Electronics (1984)

A.S.—Community College of Rhode Island

B.A.—University of Rhode Island

M.A.T.—Rhode Island College

Madeleine Irell, Reading (1979)

B.A.—University of Arizona

M.Ed.—University of Arizona

Roger D. Irwin, Sociology, Psychology and Religion (1970)

B.A.—University of Wichita

M.S.—Kansas State College

Ph.D.—Paideia

Ed.D.—Brigham Young University

F.S.A. Scot.—Society of Antiquaries of Scotland

Kathryn Iverson, Biology (1988)

B.A.—California State University

M.A.—California State University

Carol G. Jacques, Art (1976)

B.F.A.—University of Denver

M.F.A.—University of Massachusetts

Robert D. Jameson, Computer Science (1978)

B.B.A.—University of Miami

M.B.A.—University of Miami

John Jarchow, Drafting (1978)

B.Arch.—University of Arizona

Registered Architect

Karl B. Johnson, Librarian (1977)

B.A.—University of Arizona

M.A.—University of Denver

Ph.D.—Arizona State University

Paul C. Johnson, Biology (1975)

B.A.—University of Iowa

M.S.—University of Iowa

Philip E. Johnson, 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

Sandra Keith, Librarian (1982)

A.A.—Pima Community College
B.A.—University of Arizona
M.L.S.—University of Arizona

Carol C. Kelser, Radiologic Technology (1989)

A.A.S.—North Central Technical College
B.S.—University of Akron

Margaret Kenski, Political Science (1969)

B.S.—Georgetown University
Ph.D.—Georgetown University

M. Brian King, Drafting (1983)

B.Arch.—University of Arizona
Registered Architect

James R. Kluger, History (1975)

B.A.—St. Ambrose College
M.A.—University of Arizona
Ph.D.—University of Arizona

Cecilia V. Knauss, Literature and Writing (1976)

B.A.—Silliman University
M.A.—Silliman University

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, Biology (1974)

B.S.—Montana State University
M.S.—University of Arizona

JoAnn B. Little, Writing and Humanities (1976)

B.A.—University of Arizona
M.Ed.—University of Arizona

Charles S. Lochner, Jr., Chemistry (1969)

B.S.—New Jersey State College
M.S.T.—University of Arizona
M.S.—Colorado State University

Robert Longoni, Writing (1970)

B.A.—St. Edwards University
M.A.—University of Notre Dame

James A. Lowell, Biology (1969)

B.S.—University of Arizona
M.S.—University of Arizona
Ph.D.—University of Arizona

Paul Malanga, Writing (1987)

B.A.—University of Arizona
M.A.—University of Arizona

Adolfo Marquez, Welding (1976)

Welder's Certificate, Engineers Testing Laboratory
A.A.—Pima Community College

Daniel J. Martin, Jr., Geology (1969)

B.S.—Colorado State University
M.Ed.—University of Florida
M.A.—University of California

William Martin, Mathematics (1984)

B.A.—Western Michigan University
M.S.—Western Michigan University

Darla J. Masterson, Art (1970)

B.F.A.—University of Arizona
M.A.—University of Arizona
M.F.A.—Indiana University

Shelley Maxfield, Biology (1982)

B.S.—Central State University
M.S.—University of Arizona

David May, Mathematics (1971)

B.S.—University of Arizona
M.A.—University of Arizona

Mark J. McCabe, Counselor (1984)

B.A.—Michigan State University
M.Ed.—University of Arizona

Larry W. McHolland, Humanities and Philosophy (1971)

B.A.—University of Arizona
M.A.—University of Arizona

Gary E. Mechler, Astronomy (1984)

B.S.—University of Pittsburgh
M.S.—Case Western Reserve University
Ph.D.—Case Western Reserve University

Mary M. Memedova, Political Science (1975)

B.A.—Wayne State University
M.A.—Wayne State University

Louise A. Meyer, Writing and Literature (1970)

B.S.—St. Louis University
M.A.—University of Minnesota

James M. Mielke, Fitness and Sports Science (1978)

B.S.—University of Arizona
M.Ed.—University of Arizona

Myrna Mitchell, Mathematics (1976)

B.S.—Anderson College
M.S.—University of Arizona
Ph.D.—University of Arizona

Ronald F. Moody, Electronics (1980)

A.A.—Pima Community College
A.A.S.—Pima Community College
B.S.—Northern Arizona University
M.A.—Northern Arizona University
NARTE, Engineering Certification, Senior Member

Becky J. Moore, Assistant Catalog Librarian (1972)

B.A.—University of Arizona
M.Ed.—University of Arizona

Cody A. Mothershed, Chemistry (1970)

B.S.—Arizona State University
M.Ed.—University of Arizona

Joseph T. Mucenski, Machine Tool Technology (1986)

A.A.S.—Nassau Community College
A.A.S.—Pima Community College
B.S.—New York Institute of Technology

Mary E. Mullin, Office Education (1970)

B.Ed.—Plymouth State College
M.Ed.—Boston University

Maureen A. Murphy, Fitness and Sports Science (1971)

B.S.—University of Wisconsin
M.Ed.—University of Arizona

Timothy C. Murphy, Educational Development (1974)

B.S.E.—Western Illinois University
M.S.E.—Eastern Illinois University

Richard E. Newton, Accounting (1975)

B.S.—University of Wisconsin
M.S.—University of Arizona

Robert Nixon, Marketing and Management (1981)

B.S.—University of Pittsburgh
M.S.—Ohio State - Air Force Institute
M.B.A.—University of Phoenix

Keray Nouri, Counselor (1978)

A.A.—Suffolk County Community College
B.A.—State University of New York
M.A.—Arizona State University

Mary Kay Olsen, Anthropology (1989)

B.A.—Bryn Mawr College
M.A.—University of California, San Diego
Ph.D.—University of California, San Diego

Ronald C. Olson, Drama (1988)

B.A./B.S.—Moorhead State University
M.A.—University of Nebraska
Ph.D.—New York University

Ernest A. Oppenheimer, Psychology (1968)

B.A.—Amherst College
M.B.A.—New York University
Ph.D.—Columbia University

William Pagnotta, Computer Science (1982)

A.G.S.—Pima Community College

Claire Campbell Park, Art (1978)

B.A.—Scripps College
M.A.—University of California at Los Angeles
M.F.A.—University of California at Los Angeles

Lou Ann Pate, Mathematics (1982)

B.A.—University of Michigan
M.Ed.—University of Arizona

Richard A. Patze, Jr., Respiratory Therapy (1982)

BSBA—University of Arizona

Mauro G. Peralta, Electronics (1971)

B.S.—Northern Arizona University

Eileen Perry, Music (1981)
 B.M.—University of Arizona
 M.M.—University of Arizona

Kurt L. Peterson, Computer Science (1988)
 B.S./B.A.—Oregon State University
 M.B.A.—University of Arizona
 M.S.—University of Arizona

Norbert Pittner, Mathematics (1969)
 B.A.—University of California
 M.A.—San Francisco State College

Anthony Pitucco, Physics (1973)
 B.S.—University of Arizona
 M.Ed.—University of Arizona
 M.S.—University of Arizona

David G. Poedel, Emergency Medical Technology (1975)
 A.A.—Pima Community College
 B.S.—University of Arizona
 EMT—Paramedic, Arizona Department of Health Services
 M.Ed.—University of Arizona

Nancy A. Powell, Legal Assistant Studies (1987)
 B.S.—University of Arizona
 J.D.—University of Arizona

Steven Rankin, Writing and Literature (1970)
 B.A.—Washington University
 M.A.—University of Arizona
 M.A.T.—Washington University

William Reynolds, Emergency Medical Technology (1978)
 A.A.—Pima Community College

Vincent J. Riggs, Spanish (1988)
 B.A.—Colorado State College
 M.A.—University of Arizona

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

Deborah P. Rocker, Mathematics (1983)
 B.A.—Brandeis University
 M.A.—University of Arizona

Ernest P. Rubi, Reading (1970)
 B.S.—Arizona State University

Raquel Rubio-Goldsmith, History (1970)
 M.M.L.—National University of Mexico

JoAnn Rust, Fitness and Sports Science (1981)
 B.S.—University of Utah
 M.S.—University of Arizona

Mehdi Sadatmousavi, Mathematics (1988)
 B.S.—University of Arizona
 M.S.—University of Arizona

Arlene W. Scadron, Journalism (1986)
 B.A.—University of California, Berkeley
 M.A.—University of California, Berkeley
 M.A.—University of Arizona
 Ph.D.—University of California, Berkeley

Steven Schneider, Psychology (1972)
 B.A.—University of Arizona
 M.Ed.—University of Arizona
 M.B.A.—University of Arizona

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

Douglas Shakel, Geology (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

Barbara A. 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

Ernest L. Smith, Counselor (1976)
 B.S.—University of Pittsburgh
 M.Ed.—University of Illinois
 M.Ed.—University of Arizona

James W. Snow, Mathematics (1984)

B.A.—Carleton College
M.A.—University of Northern Colorado

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

Carol Spencer, Reading (1986)

B.A.—University of Arizona
M.A.—University of Arizona

Joseph V. Spitler, Jr., Mathematics (1984)

B.S.—Virginia Military Institute
M.S.—University of Arizona
M.A.—Pepperdine University

David Stephen, Anthropology (1975)

A.A.—Long Beach City College
B.A.—California State University
M.A.—University of Arizona

Arlene D. Stevens, ESL (1971)

A.A.—Queensborough Community College
B.A.—Hunter College
M.A.—University of Arizona

Joseph L. Swaffar, Economics (1973)

B.A.—University of Missouri
M.A.—University of California

Harold Symms, Music (1975)

B.A.—Arizona State University
M.M.—Arizona State University

Louis Taber, Electronics (1985)

B.S.E.E.—University of Arizona
M.S.—San Jose State University

Nard N. Taiz, Writing (1970)

B.A.—University of Arizona
M.A.—University of Arizona

Donna Tang, Library Services (1974)

B.A.—Boston University
M.L.S.—University of Arizona
M.S.—University of Arizona

Agustin Taylor, Spanish (1987)

B.A.—University of Southern Illinois

Stella Tetar, Recreation (1970)

A.A.—Kendall College
B.S.—Northwestern University
M.Ed.—University of Arizona

Mary A. Tindall, Health Education (1972)

B.S.—University of Arizona
M.Ed.—University of Arizona
M.S.N.—University of Arizona

Francine B. Trotter, Business, Marketing (1977)

B.S.—University of Arizona
M.S.—University of Arizona

Patricia J. Tuntland, Psychology (1971)

B.A.—Concordia College
M.A.—University of Arizona

Virginia R. Turner, Home Economics (1971)

B.S.—Bennett College
M.Ed.—Wayne State University

Ronald T. Tyler, ESL and Writing (1976)

B.A.—University of California
M.A.—University of Arizona
M.A.—University of California
Ph.D.—University of Nevada

Flame J. Vallentine, Counselor (1972)

B.S.—University of Arizona
M.A.—Northern Arizona University

Yone F. Van Olphen, ESL, Reading, and Writing (1970)

B.A.—San Jose State College
M.A.—Arizona State University

Manuel Velez, Writing (1970)

B.A.—University of Arizona
M.A.—University of Arizona

Marie Vergata, Counselor (1981)

B.S.—Adelphi University
M.Ed.—University of Arizona
Ed.D.—University of Arizona

Laurence J. Victor, Psychology (1974)

B.S.—Rensselaer Polytechnic Institute
M.S.—University of Chicago
Ph.D.—Yale University
Ph.D.—University of Minnesota

Nancy B. Wall, Writing (1970)

B.A.—Colorado State University
M.A.—University of Arizona

Stephen A. Wallace, Humanities (1977)

B.S.—Georgetown University

M.A.—University of Arizona

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, Biology (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, Accounting, Business, Office Education (1970)

B.S.—University of Arizona

M.Ed.—University of Arizona

Certified Professional Secretary

Bruce Weng, Sociology (1978)

B.S.—Central Michigan University

M.A.—Central Michigan University

M.S.S.W.—University of Wisconsin

M.S.—University of Arizona

James P. Wesselmann, Engineering and Mathematics (1972)

B.S.—University of Arizona

M.A.—University of Arizona

M.Ed.—University of Arizona

Alice White, Librarian (1976)

B.A.—George Williams College

M.L.S.—Texas Woman's University

Shirley P. Wicklund, Librarian (1970)

B.A.—Moorhead State College

M.S.—Florida State University

Carol Williams, Office Education (1983)

B.S.—Indiana University

M.Ed.—University of Arizona

David L. Wing, Media Communication (1984)

B.F.A.—University of Arizona

M.F.A.—University of Arizona

Stanley P. Witt, Humanities, Writing, and Literature (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

Mary A. Zimmer, Nursing (1976)

B.S.—College of St. Catherine's

Tamas D. Zsitvay, Political Science and Public Administration (1970)

B.A.—Arizona State University

M.A.—Arizona State University

Ph.D.—University of Arizona

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