

EDUCATIONAL PLANNING
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Pima College Catalog 72|73

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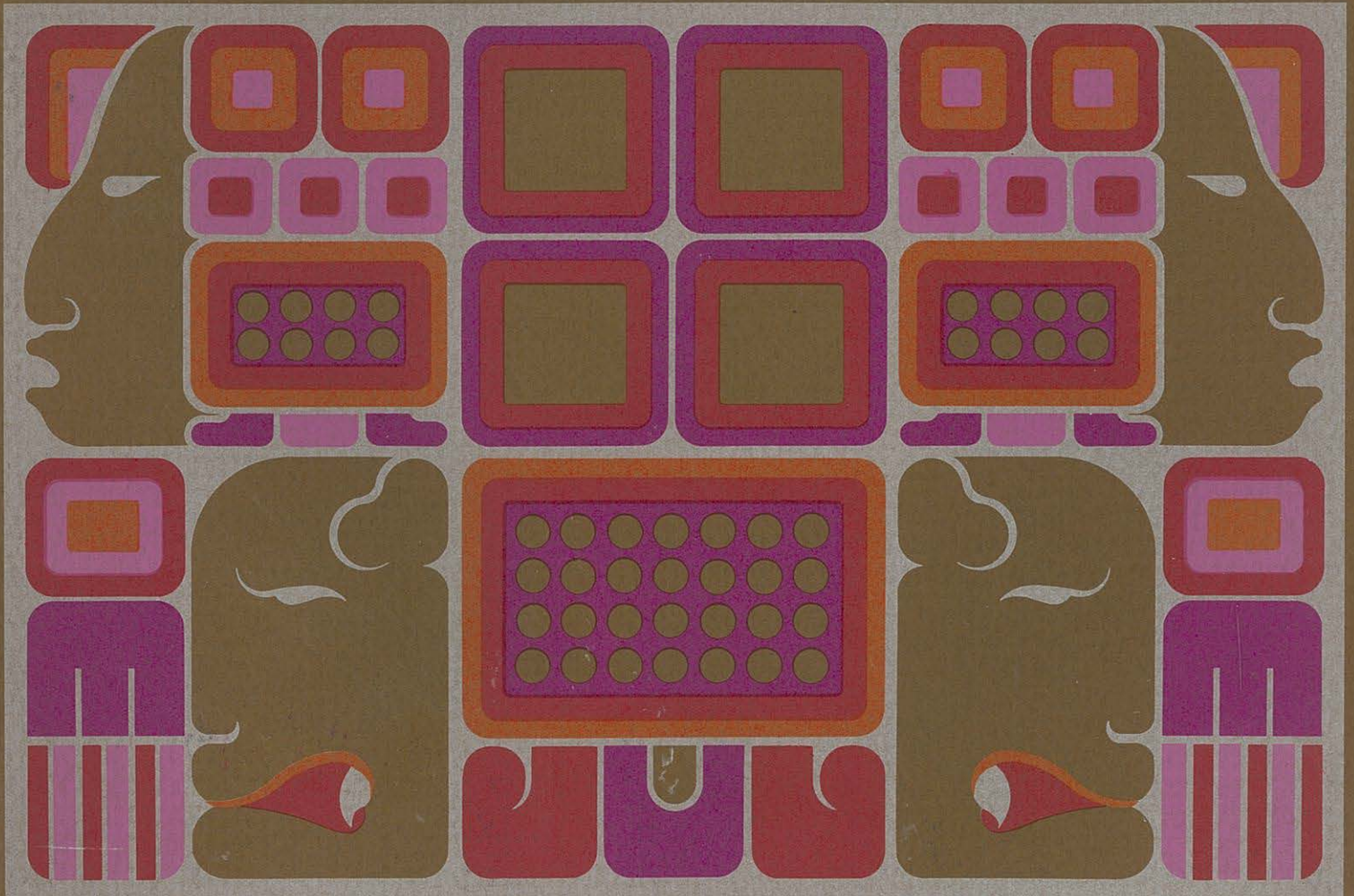


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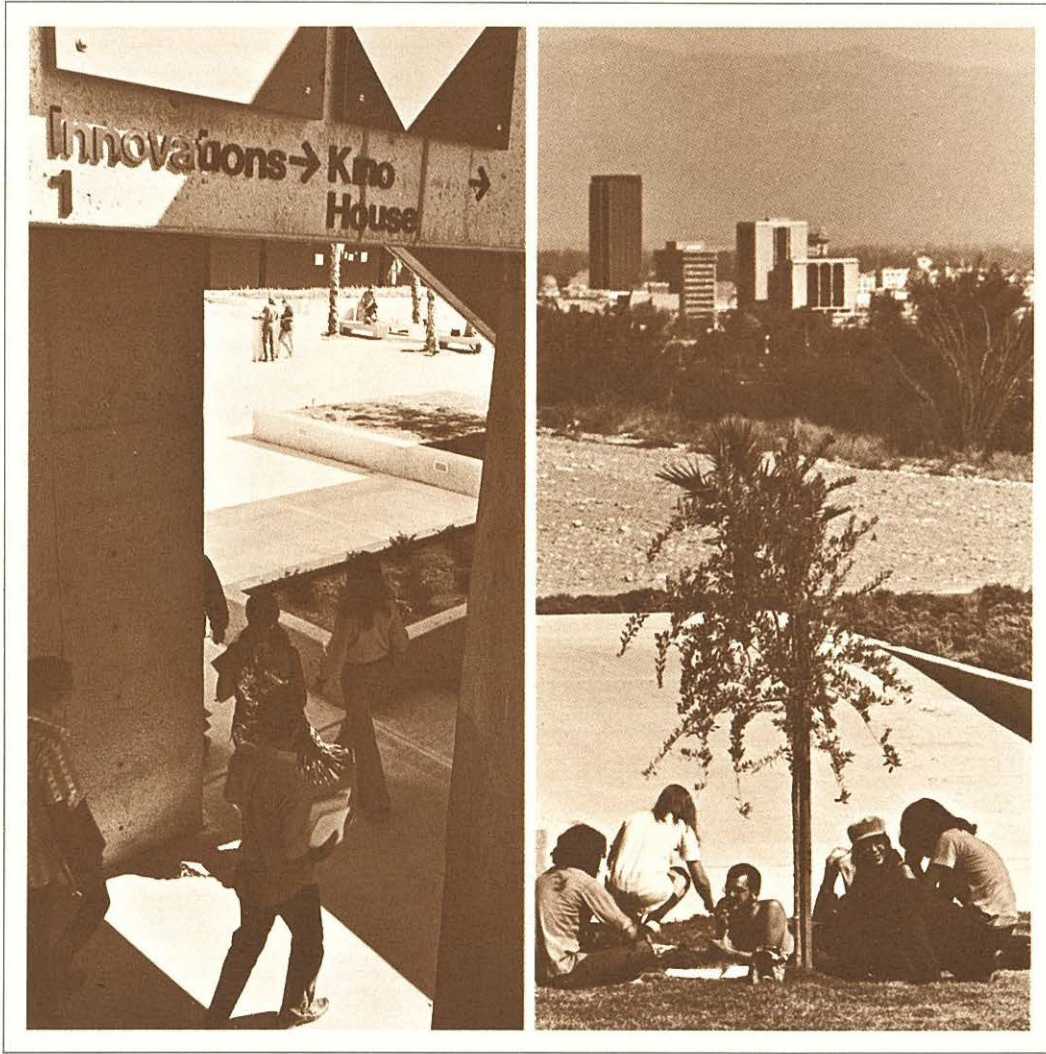
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Catalog information on courses and regulations may be changed following a determination by the college's Board of Governors.



to serve the community

Pima College 2202 West Anklam Road, Tucson, Arizona 85709 (602) 884-6666



Pima College Philosophy

The proper functioning of a democratic society and the well-being of the individual depend on his opportunity to develop his abilities in accordance with his own chosen goals. To achieve this end, Pima College believes education should be designed as a continuous process which develops a man's awareness both of himself and his environment and, thus, prepares him to function more effectively in a highly complex society.

Each individual in the Pima College community is encouraged to take pride in his own heritage and, at the same time, to develop awareness and appreciation of differences which stem from differing backgrounds.

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

Goals

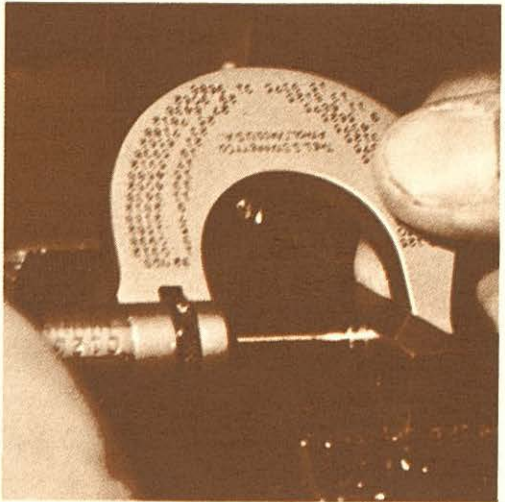
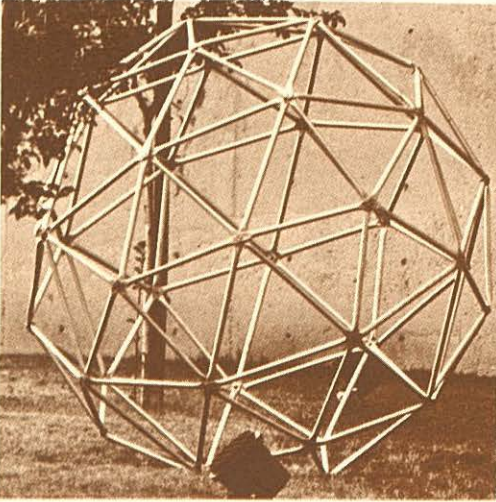
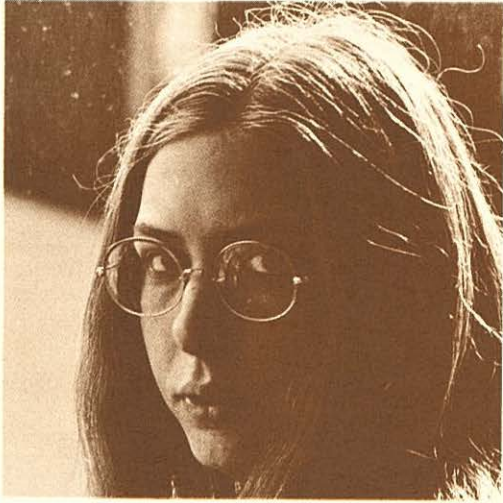
The major goal of Pima College is to provide an open door to continuous educational opportunity. The faculty is more interested in what a student is ready to do than in what he has done. Seriousness of purpose and the ability to profit from selected instruction are the most important qualifications for enrollment.

Pima College es una institución educativa que reconoce la diversidad de las necesidades de toda la comunidad, igual que acepta las valiosas contribuciones de los múltiples grupos étnicos de nuestro Suroeste.

Los programas educativos de Pima College, en los cuales cualquier persona podrá participar sin importar su nivel de instrucción formal, responderán a las necesidades de toda la comunidad. Se efectuarán los programas en un ambiente rico en la diversidad de técnicas pedagógicas, de materiales, y de materias, algunas de las cuales se dictarán en español, de acuerdo con las necesidades del alumnado.

Functions

Arizona law defines a community college as an "educational institution which provides a program not exceeding two years training in the arts, sciences



and humanities beyond the twelfth grade of the public or private high school curriculum or vocational education, including terminal courses of a technical or vocational nature and courses beyond the basic education courses for adults."

Operating within this definition, Pima College declares its functions to include:

General education designed to increase the individual's awareness of man's knowledge and his capacity for intelligent and responsible participation in society.

Educational programs of varying length to prepare students for useful and satisfying vocations with emphasis on community needs.

Two years of lower division collegiate work to enable students to progress smoothly into upper division work at universities.

Continuing education courses to satisfy the vocational and avocational aspirations of young people and adults interested in attending evening classes.

A professional staff responsive to the needs of individuals for assistance in career guidance, academic work and personal counseling.

Community services related to specific needs including cultural, recreational and general interest programs.

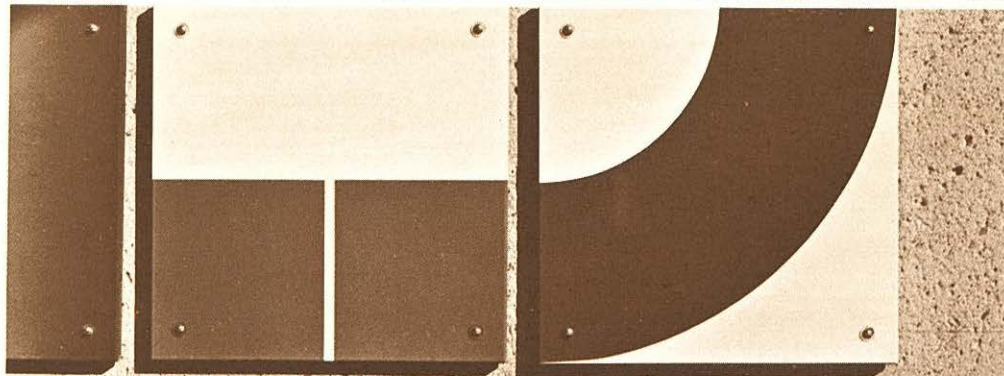
Applicants will be admitted regardless of past performance. The faculty will assist each student in developing an individual program.

Human Relations Committee

Located in an area where history has for generations reflected the interaction of peoples from varied ethnic and cultural backgrounds, Pima College is committed to the concept of a pluralistic society.

The Human Relations Committee, whose members are elected from every instructional and business area of the college, is in keeping with this concept.

The committee remains sensitive to the various needs and concerns of different ethnic groups and to the changing role of women. It also works together with a director who serves as a resource person within the college as well as for various groups of the community. The director, in addition, provides assistance to persons seeking information, professional guidance or special programs from the college.



4 ↑ Innovations ↑ Schnadel ↑
2 House

Both the director and the committee take an active part in keeping the college and community informed of its activities.

Accreditation

Pima College, which officially opened in September of 1970, has Recognized Candidate Status with the North Central Association of Colleges and Secondary Schools and is working toward full accreditation. The Recognized Candidate Status is next to the final step toward winning full accreditation.

Offerings contained in this catalog have been approved by the Arizona Community College Board. Courses designed for transfer to four-year institutions (numbered 1 – 49 in this catalog) have been accepted by the three state universities.

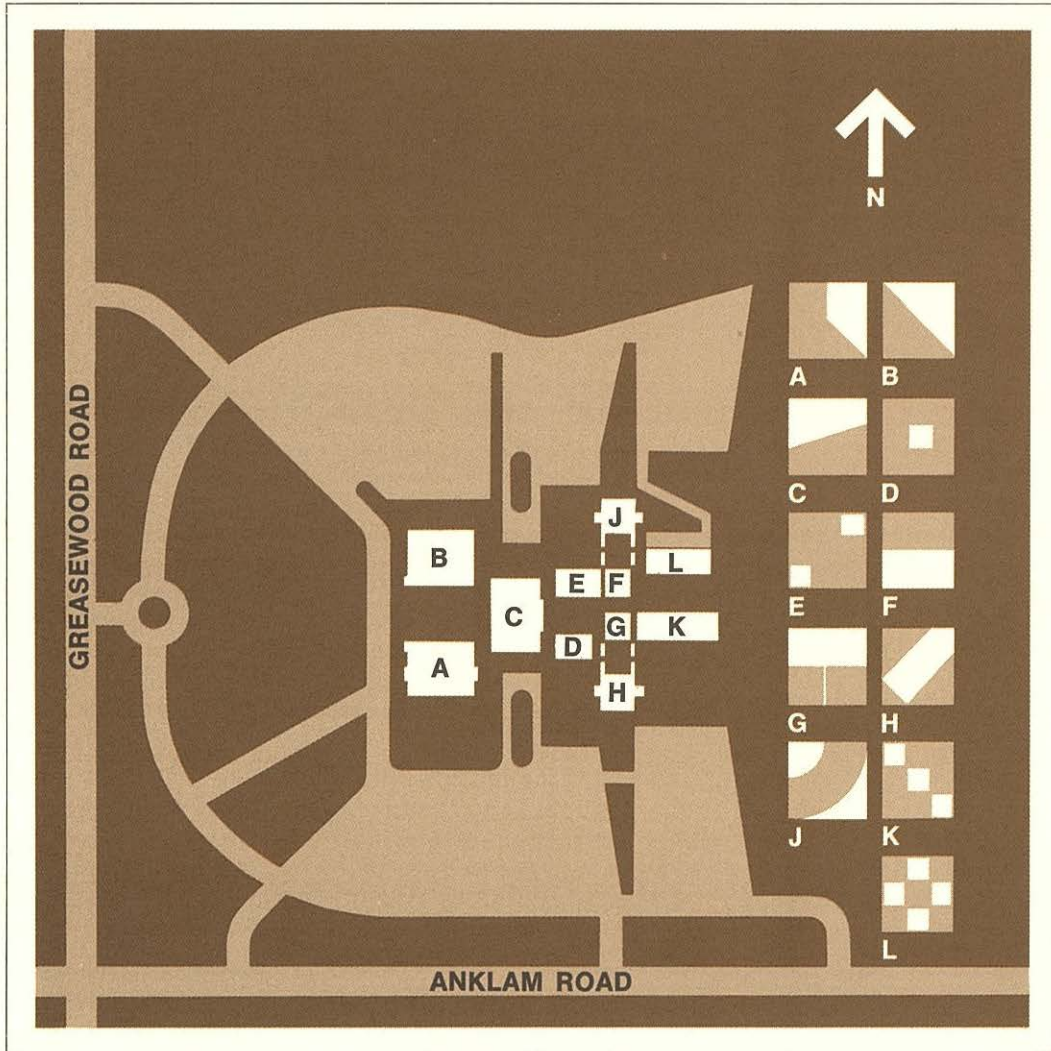
Información – General

Pima College es una institución dedicada a la educación superior. Se reconoce la necesidad que hay en toda comunidad de que exista una institución donde todos los miembros tengan la posibilidad de educarse, de buscar nuevas metas personales, y que todo individuo pueda contribuir al desarrollo cultural de la comunidad.

Esto significa que Pima 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 presenta nuestra comunidad se presta a la creación de un proceso educativo rico en sus raíces, diverso en materia, y amplio en sus métodos.

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

La legislación del Estado de Arizona define el "community college" diciendo que serán instituciones educativas donde se proporcionarán programas en las artes, ciencias y humanidades; se llevarán a



cabo al terminar la escuela secundaria, y se incluirán cursos vocacionales y técnicos.

Al llevar a cabo esta definición, Pima College se compromete a prestar los siguientes servicios a la comunidad:

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

Programas educativos de duración variable que prepare a los estudiantes en carreras útiles y satisfactorias.

Dos años de estudios preparatorios que permitan al estudiante ingresar en cursos universitarios superiores.

Cursos educativos de toda índole que tienen como fin satisfacer las aspiraciones vocacionales o académicas de la población.

Un personal profesional que trata de servir a la comunidad en forma académica y vocacional. Servicios en cuanto a las necesidades culturales, recreativas, y de interés general.

No es necesario el certificado de secundaria para ingresar en Pima College. Si usted desea más informes, comuníquese con la Oficina de Admisión.

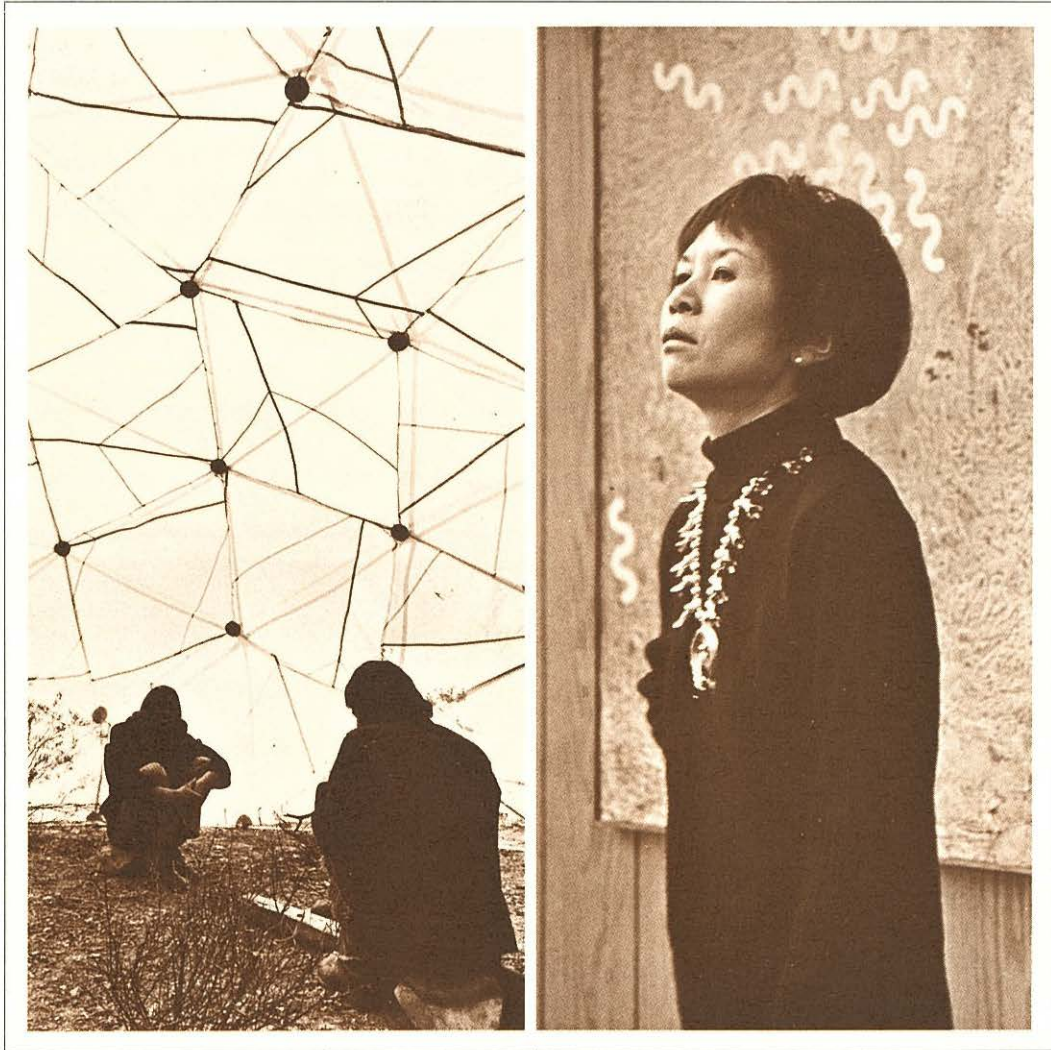
The College Campus

Pima College is located in the foothills of the Tucson Mountains, three miles west of Tucson's central business district. Its 11-building, 273-acre campus is bounded by Anklam Road on the south, Speedway Boulevard on the north, Greasewood Road on the west, and La Cholla Boulevard on the east.

No dormitories are included in present plans. Assistance, however, is offered students requiring housing in Tucson.

College buildings are designated as follows:

- A. College Center
- B. Gymnasium
- C. Learning Resource Center & Administration
- D. Fine Arts & Music
- E. Technical Labs
- F. Faculty Areas & Large Group Instruction
- G. Curriculum Development Center & Large Group Instruction
- H. Classrooms & Faculty Areas
- J. Classrooms & Faculty Areas
- K. Science, Business & Health Labs
- L. Automotive Lab



Pima College Academic Calendar 1972-73

Registration Week (Specific dates to be announced)	Aug. 28 - Sept. 1
Labor Day	Sept. 4
Classes begin	Sept. 5
Late registration, Drop-add	Sept. 5-11
Veteran's Day	Oct. 23
Thanksgiving	Nov. 23-26
First semester ends	Dec. 21
Registration Week (Specific dates to be announced)	Jan. 8-12
Classes begin	Jan. 15
Late registration, Drop-add	Jan. 15-19
Rodeo Days	Feb. 22-23
Pima College Day	Mar. 12
Spring vacation	Apr. 16-23
Second semester ends	May 11

College Admissions

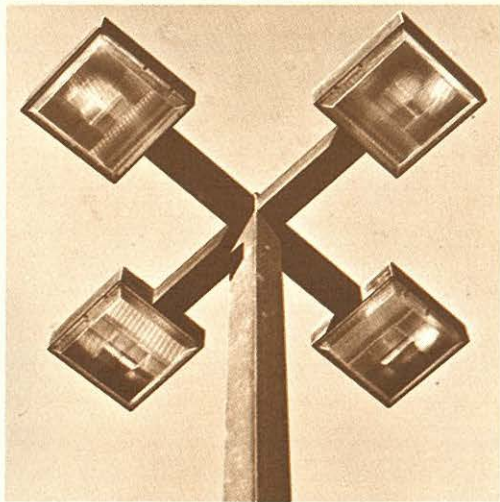
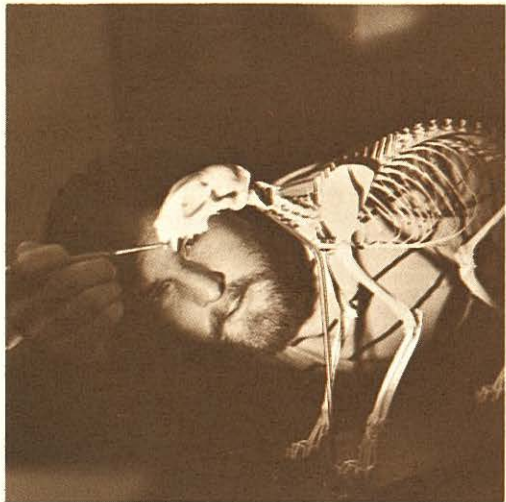
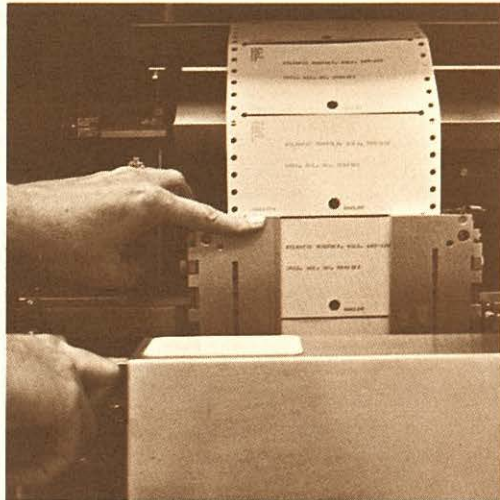
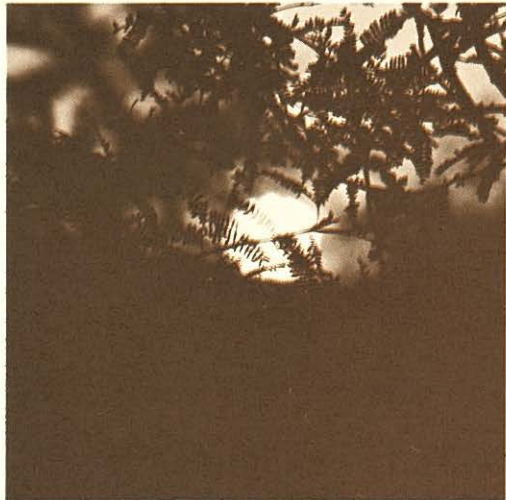
Admission is available to any person upon submission of a completed official application form with the exception of the following two groups which are subject to review by the Admissions Committee:

Non-high school graduates under the age of 19 must obtain the approval of their parents or legal guardians before enrolling. Students affiliated with a Pima County high school within the year preceding application to Pima College also will be requested to present a written acknowledgment of withdrawal, or approval for concurrent attendance, from the principal of the last high school attended. Students currently under suspension for non-academic reasons must submit a written petition to the Admissions Office at least two weeks prior to registration.

It is important that transfer students, 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.

Registration

The college provides a schedule of each semester's classes to each student and applicant. The schedule



includes registration instructions and is available in advance of the registration period.

The following items should be noted before registration for classes is completed:

An official transcript of any work at high school level or above should be provided by (1) students who intend to enroll for full-time status – 12 or more credit hours, (2) part-time associate degree candidates, and (3) all veterans enrolled under the GI Bill.

Although no college placement examination is required, students who have taken the American College Test (ACT) are invited to submit the results for use in preparing individual courses of study.

Fee Schedule – 1972-73

Tuition

<i>County Resident</i>	<i>None</i>
<i>Out-of-County, In-State Resident (12 + hours)</i>	<i>\$462*</i>
<i>Per semester hour (7 to 11)</i>	<i>38</i>
<i>Out-of-State Resident (12 + hours)</i>	<i>600</i>
<i>Per semester hour (7 to 11)</i>	<i>50</i>

Registration Fee

<i>Full-time Student (12 + hours)</i>	<i>60</i>
<i>Part-time Student (7 to 11 hours)</i>	<i>40</i>
<i>Part-time Student (1 to 6 hours)</i>	<i>20</i>

Laboratory Fees

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

Special fees

<i>Out-of-State Application (non-refundable)</i>	<i>10</i>
<i>Graduation</i>	<i>10</i>
<i>Late Registration</i>	<i>5</i>
<i>Late Payment of Fees</i>	<i>5</i>
<i>Music Lessons (Private)</i>	
<i>Non-Music Majors (1 hour/week)</i>	<i>128</i>
<i>(1/2 hour/week)</i>	<i>64</i>

*Excessive Loss or Breakage,
due to Carelessness*

*(up to actual
replacement cost.)*

*Arizona students residing in counties which do not have junior colleges may be eligible to have tuition paid by the county of their residence.



Refunds

Registration Fee Refund: The registration fee generally is not refundable except where classes are cancelled by the college. Students who officially withdraw before the term begins will receive a refund of 50% of the fee paid.

Tuition Refunds: The following graduated scale for refunding tuition fees to out-of-county or out-of-state students who officially withdraw or are dismissed from the college applies:

75% if the withdrawal is prior to the seventh (7th) calendar day after college scheduled classes commence.

50% if withdrawal is between the eighth (8th) and fourteenth (14th) day after college scheduled courses commence.

Residency Requirements for Arizona Community Colleges

A student shall be considered a resident student for fee purposes provided he qualifies under one of the following:

As A Minor:

Living in district with parent or parents having custody.

Living in district with person or persons designated as legal guardians.

Parent or legal guardian has legal residence in district.

Living in district as an "emancipated minor" (must have administrative approval) provided he has been a resident of the district for at least six months directly prior to the first day of instruction of a semester.

An unmarried minor who for at least two years has been in the continuous direct care and control of, and has lived with, an adult resident of the district other than his parent.

Living in district, legally married, under 21 years of age—provided he has been a resident of Arizona for at least six months directly prior to the first day of instruction of a semester.

Living in district as a "ward of the court," having been placed in the district by court action.

As An Adult:

Living in district and being at least 21 years of age—provided he has been a resident of Arizona for at least six months prior to the first day of instruction of a semester.



As An Alien:

If an alien who has taken out first naturalization papers – that residence has been maintained in the district for at least six months prior to the first day of instruction, and that he has filed with the United States Immigration and Naturalization Service an application for such citizenship or a declaration of intention to make such application when eligible.

Non-resident tuition shall be waived for students registering for six or fewer semester hours of credit.

Non-resident tuition shall be waived for members of the immediate families of those on active duty in the Armed Forces of the United States stationed within the State of Arizona.

Questions concerning residency status or requests to change status currently recorded on a student file should be directed to the Office of Admissions and Records. Requests for change of status should be processed before the registration of each term in order to clarify fee status for that term.

Admission of Foreign Students

Foreign students wishing information on admission to Pima College should direct inquiries to the Admissions coordinator.

Veterans

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

Pima College is unable to extend credit to a student waiting for his first check. Therefore, other arrangements for the payment of fees should be made by the student.

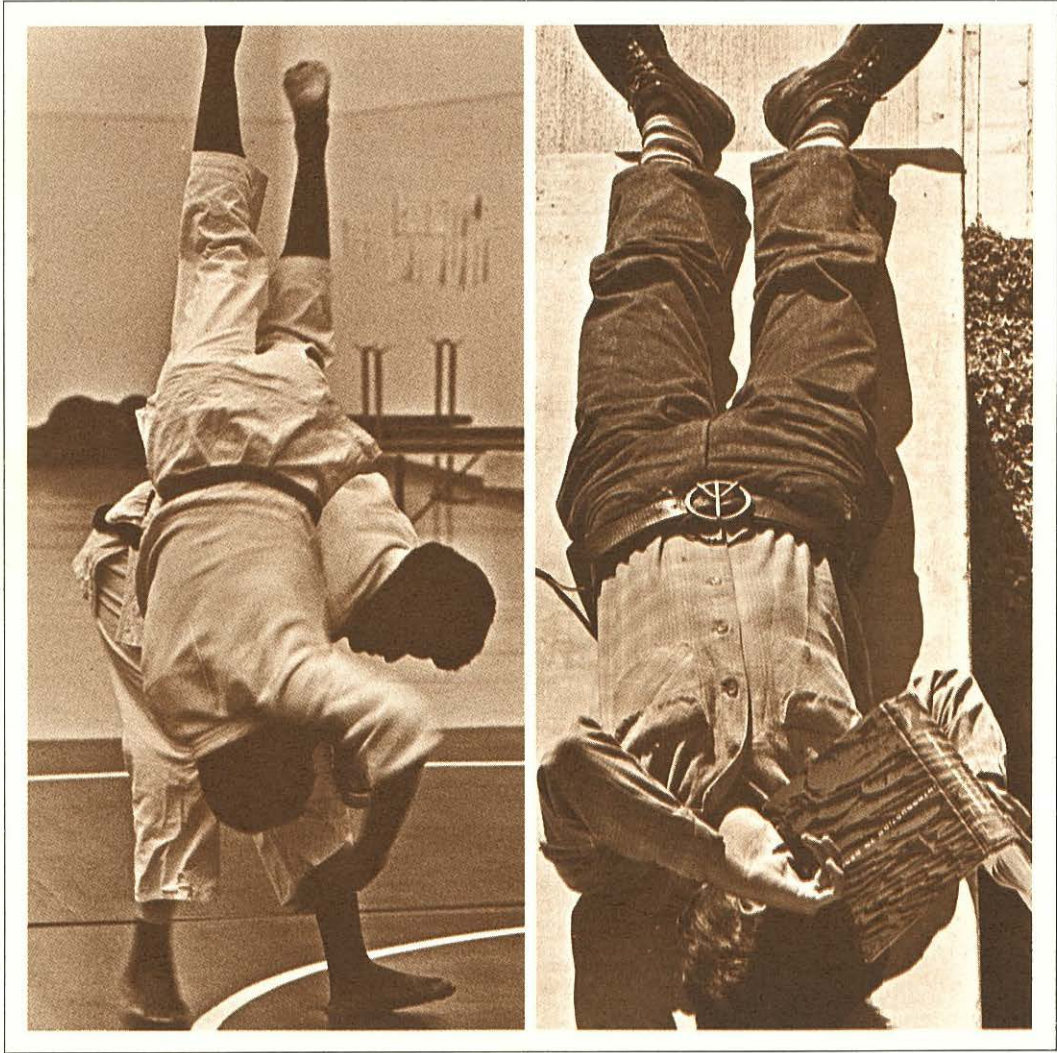
Grading Policies

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

A – Superior (4 grade points per credit hour),

B – Good (3 grade points per credit hour),

C – Average (2 grade points per credit hour).



Students, by arrangement with the instructor, may take a course under special circumstances which will be recorded on his transcript in the following manner:

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

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

At the discretion of the instructor, an individual may elect to receive credit for a course without being given a grade other than "Pass."

Persons officially registered may audit courses with the permission of the instructor. No credit will be earned. Requests for audit status must be made before the end of the regular schedule readjustment period of each term.

A record of "Incomplete" as a grade will be made at the individual's request or at the instructor's option.

Credit by Examination

Credit by examination may be earned for certain courses listed in the catalog. Such credit can be awarded upon satisfactory completion of the College Level Examination Program (CLEP) tests or comprehensive examinations to be administered by a faculty member in the division in which the course is offered.

The maximum number of credits which may be earned through examination, for any one student, is 30 units. Only registered or previously registered students are eligible to request credit through examination.

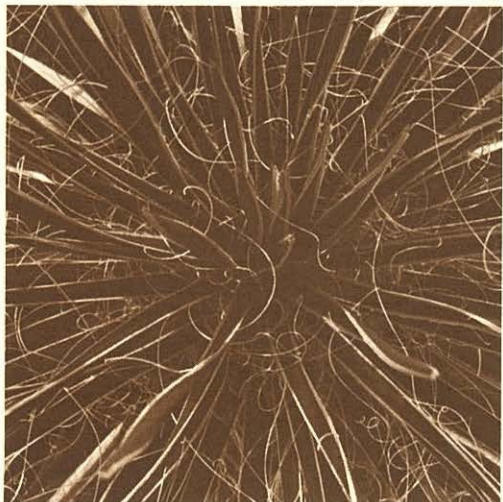
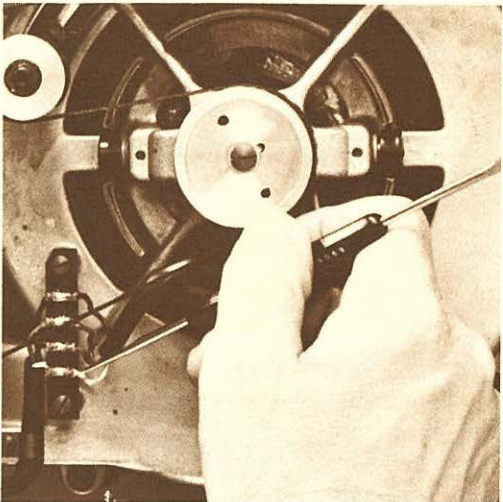
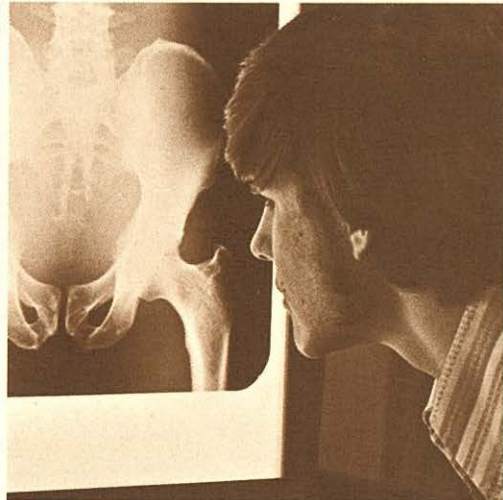
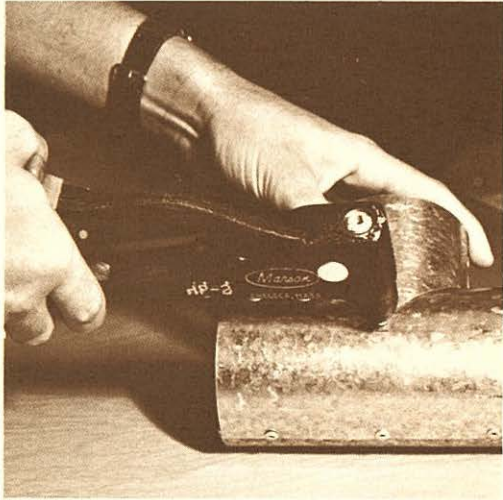
Withdrawals

Individuals may withdraw from a course at any time. However, students who feel they must withdraw from a course should first consult with their instructor or a faculty-counselor.

If, after such consultation, withdrawal still is considered necessary, the student should notify each instructor or the Registrar's Office of his intention. Accurate information on the date and reasons for each withdrawal must be kept as student records are subject to audit by many state and federal agencies which provide financial support.

Degrees

Pima College offers both Associate of Arts and



Associate of Science degrees in a variety of study areas. In general, these degrees are granted upon successful completion of a program, usually two years in duration, outlined by the Pima College faculty and approved by the Arizona Community College Board. Details of programs being offered are listed.

The college, in addition, offers a number of technical, skill improvement, special interest and adult continuing education programs. These range in duration from a one-day seminar to several semesters. Certificates or diplomas usually are awarded to those successfully completing the work covered in such programs.

Classes in non-degree programs are scheduled on the basis of need and interest.

As courses are added to those listed in this catalog, information will be made available to the public through supplementary bulletins and releases to news media.

Appropriate credit will be given at Pima College for work done at other institutions as determined by the faculty of each program area. The equivalent of at least one semester of full-time attendance at Pima College normally is required of degree candidates.

While a minimum of 60 semester hours of credit is required to earn an Associate degree at Pima College, it should be noted that completion of some programs extends beyond the 60 credit hour minimum.

Diplomas and Certificates

Diplomas and certificates are awarded in many short-term study program areas. These are programs not carrying the two-year (60 semester hour minimum) requirement for the Associate of Arts and Associate of Science degrees.

Diplomas are granted upon the completion of a prescribed program of studies requiring at least 30 semester hours of credit, but less than 60 semester hours of credit.

A \$10 graduation fee is charged for the diploma which students can elect to receive either at the May graduation ceremony or at any time upon completing the program.

Certificates are issued at any time upon the completion of any body of work, approved by a program area and involving less than 30 semester hours of credit. Certificate programs can range from a one-day seminar



to several semesters. No charges are made for certificates.

Financial Aid

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

Types of Financial Aid

SCHOLARSHIPS: A limited number of scholarships have been established for students by generous private donors. The awards range from \$20 to \$500 and often can be renewed for a second year.

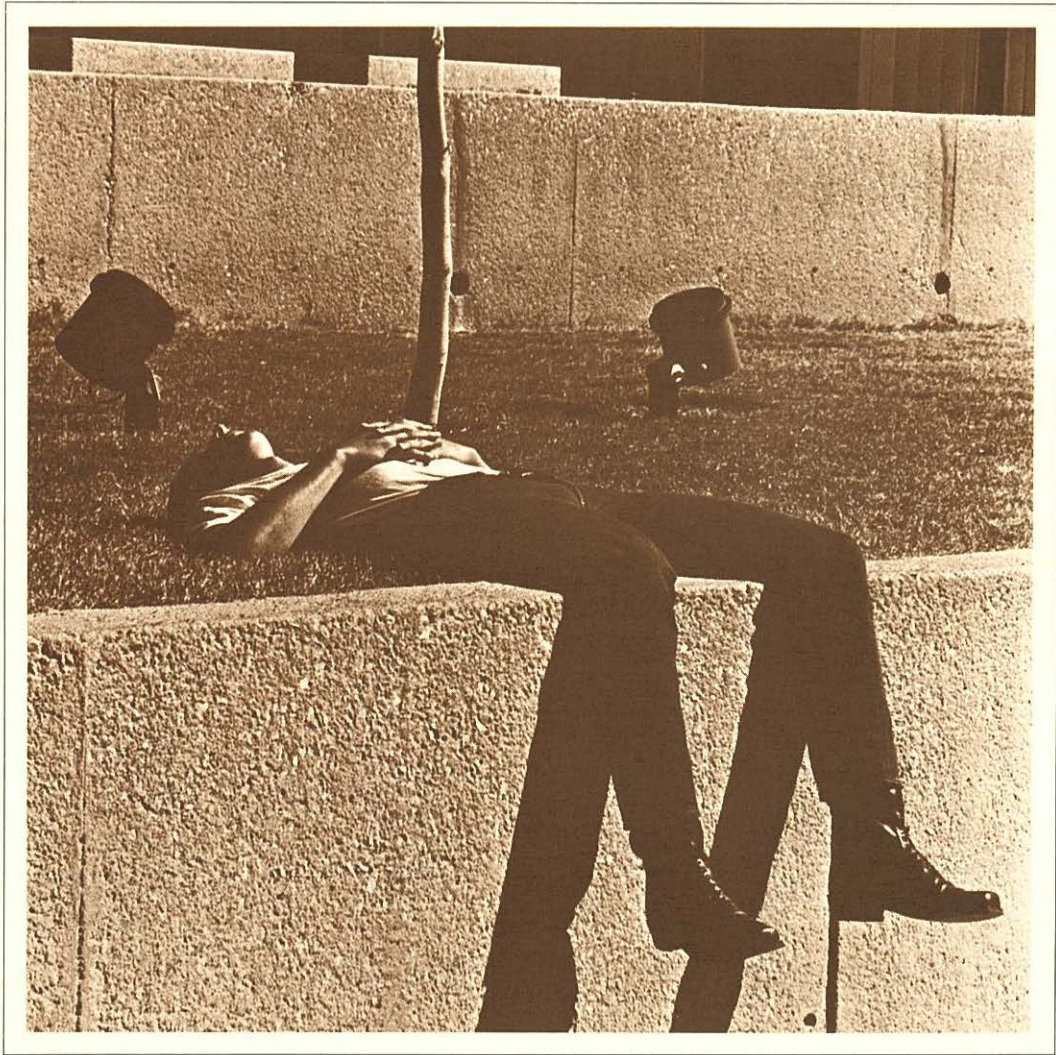
STUDENT LOANS: Pima College offers a large number of student loans at low interest rates and deferred repayment at favorable terms. Among these are Student Nursing Loans, Law Enforcement Student Loans, Federally Insured Student Loans and National Defense Student Loans. A Pima College Emergency Loan Fund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

GRANTS: A large number of Educational Opportunity Grants are offered to students with exceptional financial need. A Law Enforcement Education Grant program is available to students employed by law enforcement or correctional agencies. There also is a Nursing Scholarship (Grant) Program available for students enrolled in Nursing.

EMPLOYMENT: Pima College maintains a large student employment program which enables students to earn a portion of their college costs and provides opportunities for work experience. Part-time positions are available on campus through regular employment or the College Work-Study Program. An active placement service maintains listings of available off-campus openings.

ELIGIBILITY: Each of the above 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.

APPLICATION: Pima College, in cooperation with



other colleges and universities in Arizona, uses the standard "Arizona Financial Aid Application" form along with the American College Testing Service Family Financial Statement form. Both forms are available in the Pima College Financial Aid Office or the office of any Pima County high school counselor.

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

Counseling for Students

As a student, you may need occasional help to get the most out of your life at Pima. All members of the college faculty want to help you – and they are the prime source for assistance. You also may find your fellow students to be helpful. The Listening Post, in particular, consists of students who are interested in providing either direct assistance or referring you to the appropriate resource.

In addition, the Student Development Faculty has about 14 members who provide counseling resources. You are encouraged to go to the Student Development office, in the College Center (Building A), where specialists will assist you with admissions, health, financial aid, student employment, appraisal of abilities and interest, and career planning. G.E.D. testing and counseling is available to encourage students who do not have a high school diploma to obtain an equivalency certificate. An effort is being made to provide these services both during the day and evening.

The Student Development Faculty also provides psychological counseling to develop skills for handling a variety of personal concerns. A group program is offered to provide students an opportunity to help each other in areas such as career exploration, personal growth and cultural awareness. If adequate resources are not available on campus, liaison has been established with a variety of community agencies to facilitate referrals to the service best equipped to help you.



Exploratory Program/Student Workshops/ Leisure-Time Education (Athletics)

To encourage a wide range of curiosity and joy in learning throughout life, Pima College emphasizes both open enrollment and freedom of choice among the varied courses offered. The only requirements for specific courses are those essential for completion of particular programs.

All who enroll are given every possible opportunity to explore and sample courses leading to the development of new ideas and new skills.

Some will choose to make this aspect the major focus of their studies through the Exploratory Program, which may lead either to an Associate of Arts degree or to the selection of a particular transfer major or career oriented program.

All may participate in college community activities which add important dimensions to class work: student organizations that provide experiences in leadership and democratic processes; small learning workshops that provide opportunities to understand ideas and human relationships; and leisure-time education which encourages physical activity, fosters good health and teaches skills for a lifetime of wholesome recreation.

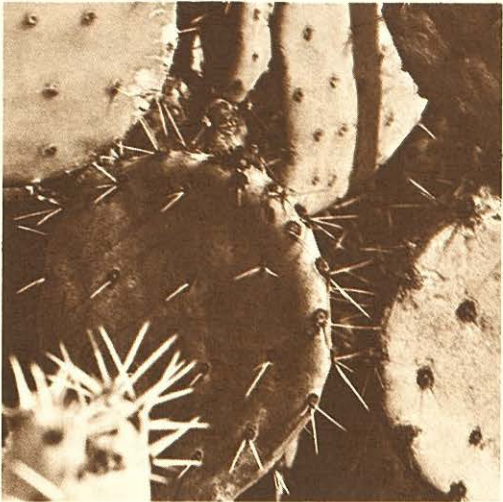
For the student who has yet to define his personal and career goals, the Exploratory Program is an individualized approach to education. While in the program, he is encouraged to sample many ideas, technical skills, arts, crafts and human relationships, and explore a variety of subjects in determining interests and aptitudes.

Classes can be grouped from regular courses or planned to meet individual needs.

Whether a student remains in the Exploratory Program until completion of the minimum requirements for an Associate of Arts degree, or moves into another program, is a personal choice which can be made at any time. Once a desired career or educational goal is determined, the student may proceed, at his own rate, to attain it.

Persons interested in Exploratory are invited to discuss and plan their individual programs with a member of the Student Development Faculty.

The style of education at Pima College also includes informal workshops where small groups of students meet with a faculty member. Students have a chance, through the workshops, to explore ideas and



experiences in many different areas of study, work, cultural awareness and community involvement.

Each group is limited in membership from eight to 16 persons meeting informally once a week for two hours.

The workshops are conducted as forums for discussing concerns of members—experiences with their academic courses, personal goals, inquiries into community problems and the consideration of ideas, art and literature. Also shared by members of each workshop are field experiences, outings, guest resource persons, exchanges with other groups, and recreation activities.

Faculty facilitators can come from any program area of the college.

The workshops are especially emphasized in Exploratory (EXP 60), a one credit course, and are expected to be developed in connection with a number of courses and program areas such as business, industrial technology and the social sciences.

Participation in the wide variety of leisure-time education courses and programs offered is encouraged for each student attending Pima College. Each may choose, according to ability and interest, a lifetime sport, recreational activity or intramural competition as part of his college program.

Important roles also are played by students in determining the types of intramural activities to be offered during any semester.

Community Education and Development

As a community college, Pima aims to meet the educational needs of the community in every way possible.

Specific or general educational programs are available to any group, organization, business, industry or church.

Community Education and Development provides non-credit short courses, college credit extension courses, in-service training, human relations and community development training, community consultation, conferences, institutes, workshops, etc.

Educational programs under CED are free from the restrictions of class hours, semesters, the granting of credits or meeting on campus. Pima College is prepared to design brief or extended and flexible educational experiences to meet the needs of any group.

Resources for developing and conducting the various training programs are drawn from both the college and community.



Arrangements for setting up educational programs for community groups, agencies and businesses are handled by the CED coordinator.

Cooperative Education

Cooperative Education gives students an insight into the actual world of work, as well as the career they are planning, while still attending classes on a full-time basis.

Students participating in co-op work a minimum of 15 hours a week in a job connected with their career interest while taking at least two related courses at the same time. To enter the program, the student must have been enrolled in classes full-time for at least one semester.

Most of the job opportunities available to students are located by college faculty members through an employer cooperative program. Co-op, however, is not intended as an employment service for students. It is designed only to provide students with on-the-job training in their particular fields of interest.

A student already working part-time in a job he plans to make his career also is eligible to take part in the co-op program.

When a student is hired, a work plan is arranged by both the employer and a college coordinator. The coordinator and employer then make periodic checks on the student for both an evaluation and to see how he is doing. Students found to be unsatisfactory can be dismissed from their job and the program.

Those successfully completing the program receive three college credits per semester.

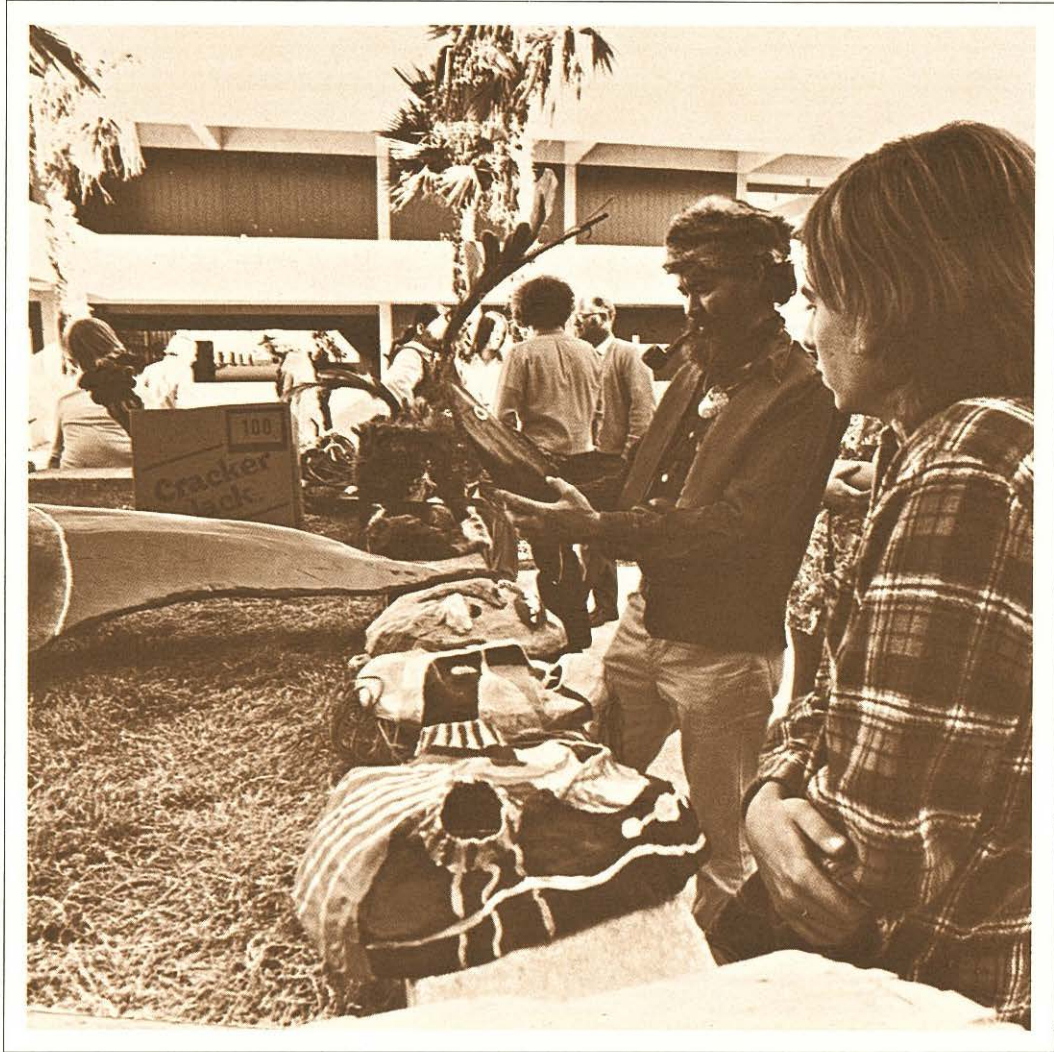
Information on the program is available from division directors in particular study areas and the Cooperative Education coordinator.

Pre-Discharge Education Program (PREP)

PREP is available to Davis-Monthan Air Force Base servicemen to prepare them for discharge. However, those planning to make the service their career also may enroll.

Servicemen participating in the program spend 10 or more weeks in classes both on base and campus. Among subjects they study are mathematics, reading, writing and personal development.

The personal development course is flexible to meet individual needs, but some of its aims are helping you decide your goals, teach you study techniques



and habits, and how to use a library. Field trips to cultural places may be included.

To enroll, servicemen must have been on active duty for at least six months and obtain a release from their commanding officer permitting them to attend classes.

Although the program is funded by the Veterans Administration, it does not affect VA eligibility for future educational studies under the GI Bill.

Enrollment is handled by the program director, located in the Pima College curriculum center, or the Davis-Monthan education office.

Student Health Services

Professional assistance, both in emergency and long-term health problems, are offered the student. Workshops and other means of health education also are available to assist students in recognizing and understanding health needs.

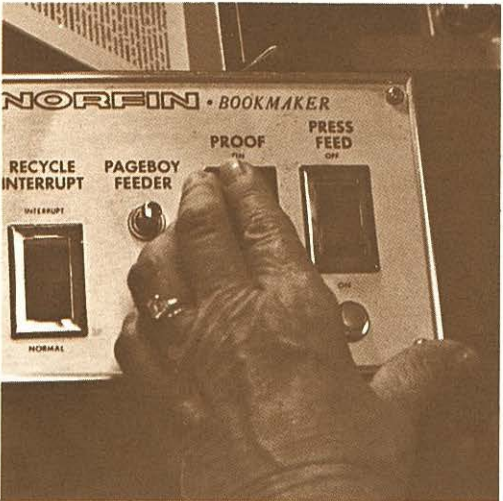
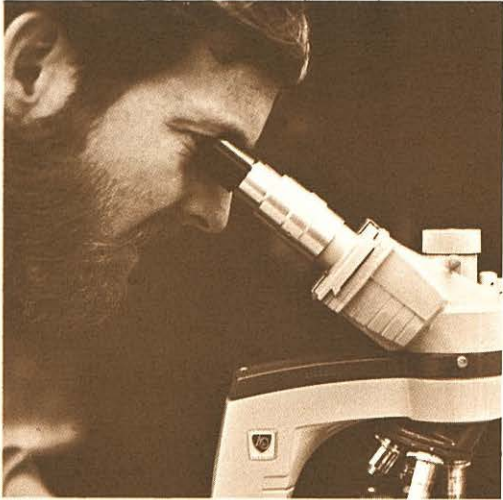
It is hoped that students will avail themselves of these services as they recognize their own health need or would like to have some health counseling.

Accident-sickness insurance is provided Pima College students, without additional cost, under a blanket policy. The policy covers students for injuries and illnesses incurred during college activities, or traveling to or from the campus or a college related activity. Details of the coverage are included in packets presented students at the time of registration.

Supplementary accident and sickness medical expense insurance may be purchased by students at the Health Services office, located in the College Center. The office, in addition, has claim forms available for any injuries sustained while in college-related activities and requiring a doctor's attention.



programs



Accounting**Applied Arts and Design****Art****Arts and Crafts****Bilingual – Bilingue****Business****Chemical Technology****Community Planning****Community Services****Computer Science**

Computer Operator

Computer Programmer/Analyst

Computer Systems Programmer

Control Technician

Key Punch Operator

Drama**Engineering****Exploratory****Fire Science****Health Careers**

Dental Assisting Technology

Emergency Medical Technology

Nursing

Operating Room Technology

Ophthalmic Dispensing Technology

Radiologic (X-ray) Technology

Respiratory Therapy

Home Economics

Child Development and Family Relations

Early Childhood Education

Fashion Designing

Food and Nutrition

Food Services

Home Economics (General)

Home and Family Life

Hospitality Education

Interior Design

Merchandising and Fashion

Seamstress (Professional)

Industrial Technology

Air Conditioning and Sheet Metal

Automotive Mechanics

Automotive Technology

Aviation

Drafting Technology

Electronics Technology

Tool and Machine Technology

Welding

Journalism**Law Enforcement****Leisure-Time Education**

Health Education

Physical Education

Recreation Education

Special Education

Liberal Arts and Sciences

Biology

Chemistry

Communicative Arts

Economics

Geography

Geology

History

Humanities

Languages

Literature

Mathematics

Philosophy

Physics

Political Science

Religions (Comparative)

Social Sciences

Speech

Library Technician**Media Technician****Mid-Management****Military Science****Music****Office Occupations**

Administrative Assistant

Clerk-Typist

Receptionist

Secretary, Executive

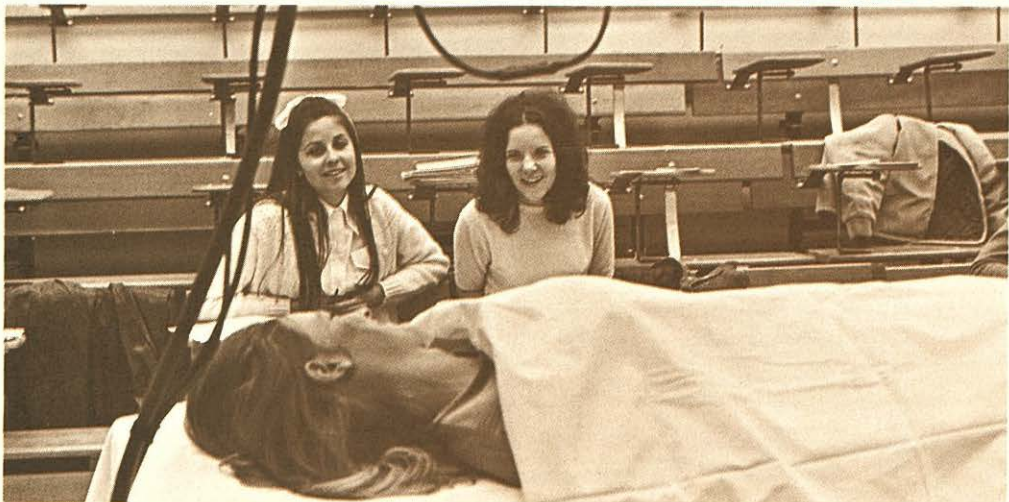
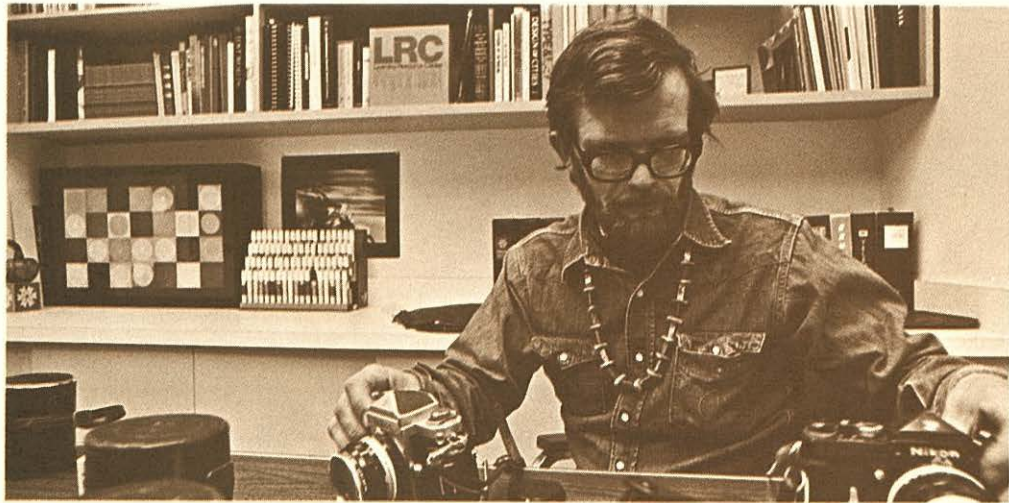
Secretary, General

Secretary, Legal

Secretary, Medical

Service Representative

Pre-Environmental Design



Accounting

There are sufficient course offerings in Accounting and related areas to allow students to pursue a career in Accounting.

Principal courses are taught in English or in Spanish, and students completing the program are prepared to enter accounting departments of private firms or, in some cases, public accounting offices.

A typical two-year accounting technician program might include two semesters of Accounting (BUS 1 and 2), a semester of Cost Accounting (BUS 56) and a semester of Tax Accounting (BUS 57). Important related courses probably would be Introduction to Computers (CSC 47), Programming (CSC 60), Systems Analysis (CSC 80 and 81), Business Mathematics (BUS 51), Machines (OED 21), Typing (OED 11), Business Law (BUS 10) and Cooperative Accounting (BUS 66).

Supplementing these would be courses in Writing (COM 1), Economics (ECO 2 and 3), a semester of management and a semester of government as well as one elective course in each of four semesters. A typical two-year program will include 63-68 semester hours of credit.

Air Conditioning and Sheet Metal

Students at Pima College are provided conditions similar to industry through a fully equipped sheet metal shop and air conditioning laboratory.

In air conditioning, the student learns about both the heating and cooling cycles. He also learns to disassemble, rebuild, repair and reassemble all types of air conditioning units.

Sheet metal shop classes teach him how to calculate, size, lay-out and fabricate duct work for use in air conditioning installation. The student, in addition, is taught how to adapt to other areas of the sheet metal industry.

The two-year program in Air Conditioning and Sheet Metal consists of 45 semester hours work in the major. A total of 66 semester hours of study is required for the Associate of Science degree program. A schedule of classes can be arranged with an instructor either prior to or during the time of registration.

Major studies include Air Conditioning Fundamentals (ACD 60-61), Phase I through IV (ACD 65-68), Air Movement (ACD 70), Estimating (ACD 85) and Sheet Metal Layout (SML 80-81). The degree program



would add Sheet Metal Math (MTH 74, 75), Welding (WLD 52), Physics (PHY 50), Human Relations (MAN 58) and Writing (COM 1).

Applied Arts and Design

Students successfully completing the two-year Applied Arts and Design program will be able to enter fields of commercial illustration, photo-journalism, studio photography, industrial or furniture design, audio-visual production, scientific illustration, commercial graphics, sign writing or typography.

Appropriate courses would include Perception (ART 1); Graphics (ART 10 or 20), Photography (ART 13); Audio-Visuals (ART 23) and Functional Design (ART 12 or 22).

These should be supplemented by related courses in humanities, writing, human relations, art history and electives to make up an average semester class load of 16 credit hours.

Art

Students completing the two-year Art program will have most of the humanities background necessary to transfer to a university or a professional school to continue formal studies in a chosen art field.

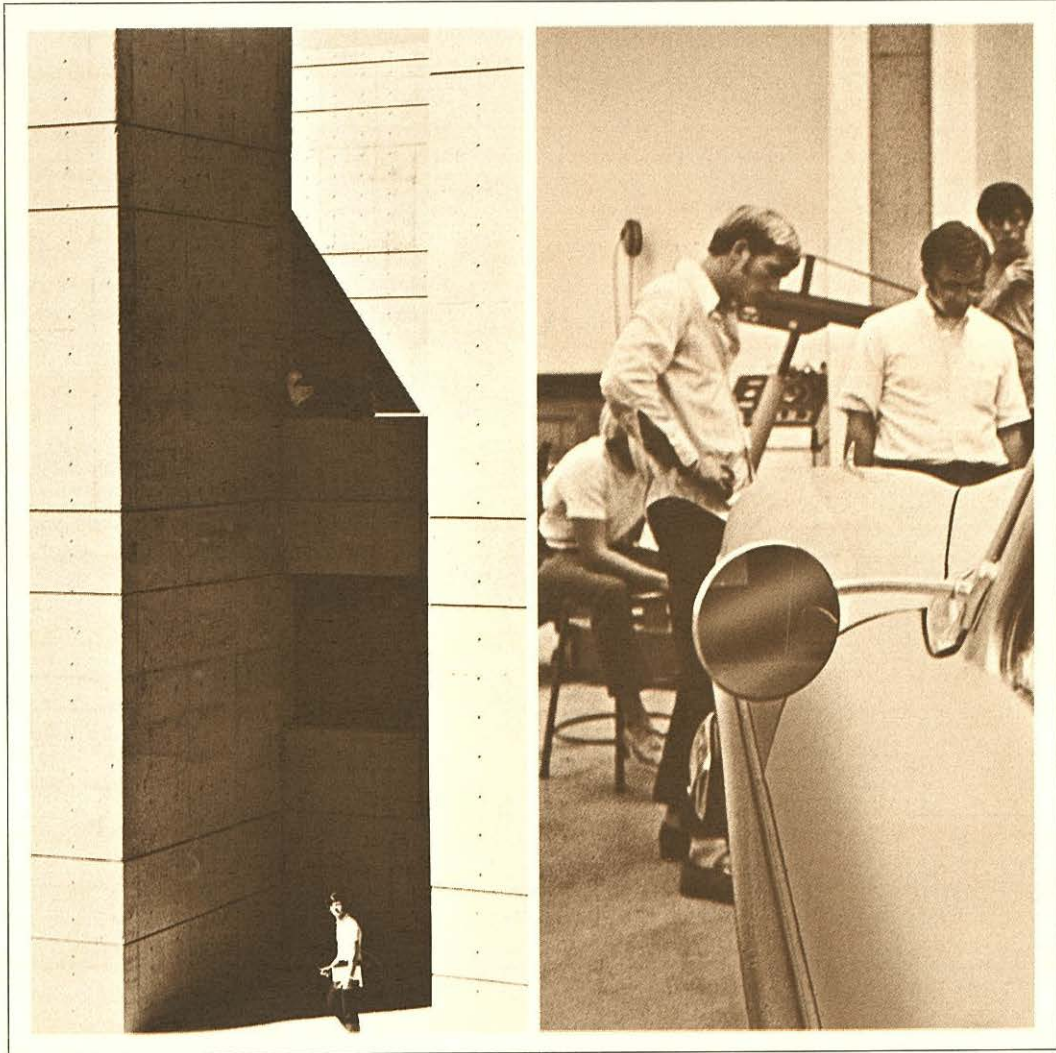
Courses in Perception (ART 1), Art and Culture (ART 15), Graphics (ART 10 or 20), Photography (ART 13), Functional Design (ART 12 or 22) and Art History (ART 25) should be supplemented by studies in humanities, communicative arts, social science and electives to make up an average semester class load of 17 credit hours. It should be noted that at least 24 credit hours of Art courses are recommended, and that at least three semester hours of mathematics or science should be included in the two-year program.

Arts and Crafts

Graduates of the Arts and Crafts program will be artistically proficient in at least one medium, with some background in several media – such as print making, painting, sculpture, ceramics, silversmithing, fabrics and leather.

Students should complete a total of 34 credit hours in Art courses, including Perception (ART 1), Crafts Workshop (ART 9), Graphics (ART 10), Photography (ART 13), Art and Culture (ART 15) and Functional Design (ART 12 or 22).

Related courses in communicative arts, social



sciences and humanities, for a total of at least 14 credit hours, are recommended.

Automotive Mechanics

Automotive Mechanics/Technology programs are designed to meet a wide range of student needs with the primary objective being to prepare the student for job entry at whatever level of study he has completed. The student may complete additional study units at any time to advance his knowledge, and to qualify himself for a more highly skilled job in his chosen field.

Programs include those designed to qualify an individual as an automobile mechanic (two years of study leading to a diploma) and for automotive technology (two years of study leading to an Associate of Science degree).

The two-year Automotive Mechanic program, which consists of a total of 50 semester hours, includes courses in Automatic Transmissions (AUT 50-51), Chassis (AUT 58-59), Tune-Up (AUT 56), Drive Line (AUT 57), Human Relations (MAN 58), Engines II (AUT 54), and Electricity (AUT 68-69).

The degree program in Automotive Technology would further add studies in Management (MAN 63), Technical Physics (PHY 50), Business Math (BUS 51), Air Conditioning (AUT 63) and an elective. A total of 66 credit hours is required for the Associate of Science degree in this area.

Aviation

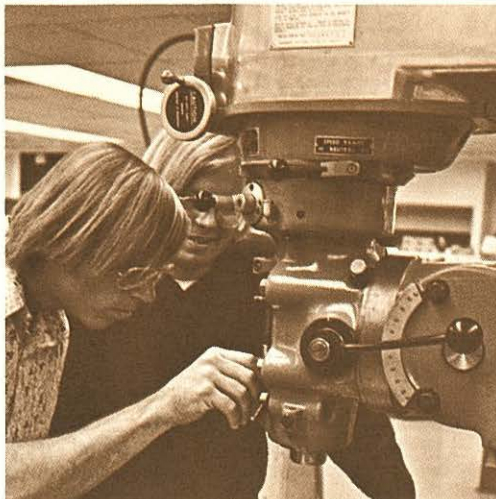
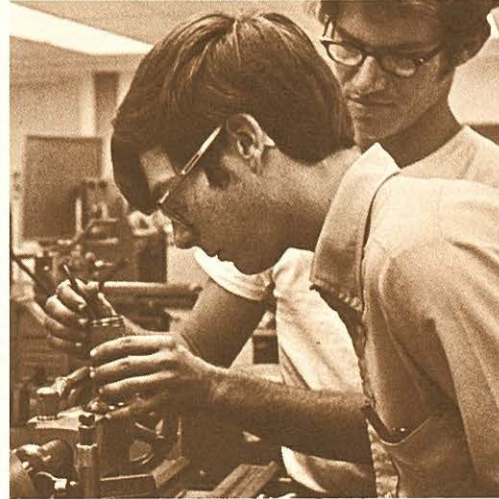
A two-year aviation maintenance program is being explored by the college faculty with the assistance of an advisory committee. Until a full determination is made regarding the program, the college plans during the 1972-73 academic year to repeat a program being held in conjunction with the Air National Guard and Davis-Monthan Air Force Base in Tucson, Arizona.

Bilingual – Bilingüe

The college offers a variety of subjects on a bilingual-bicultural education basis for all persons fluent in Spanish.

This is not a remedial program, but is aimed at developing competency in Spanish for literary, vocational, professional and cultural purposes.

Some 20 courses are being offered in the Bilingual program in areas of art, drama, business, home economics, physical education, humanities, history,



reading, literature and Spanish. The courses are listed in the individual program sections of the catalog. Courses in the Bilingual program offer students the advantage of receiving credit for the course, plus additional credit in Spanish at no extra charge.

Credit in Spanish is at the 100 level as it is assumed that if a student can pursue a bilingual course taught totally in Spanish, he has knowledge of the language. The student may, therefore, obtain from 2 to 8 units additional Spanish credit. The actual number of units will be determined by the instructor teaching the course in cooperation with a Spanish instructor.

Credits are divided as follows: 2 credits each for 101a and 101b. Credits for 101a and 101b may be considered separately or together, totaling 2 or 4 units respectively. The same applies to 102a and 102b.

If a bilingual course consists of 1 unit, the Spanish credit is 1 unit of elective credit.

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

Unos 20 (veinte) cursos se ofrecen en el programa Bilingüe, tales como arte, drama, negocio, economía doméstica, educación física, humanidades, historia, lectura, literatura y español. Los cursos se encuentran en el catálogo bajo las secciones de programas respectivos.

Es un programa en el que se ha señalado el propósito de obtener mayor dominio en el idioma, con fines profesionales, culturales y técnicos. Hay la ventaja de obtener crédito adicional en español en estos cursos.

El crédito en español es otorgado al nivel 100, pues se considera que si el estudiante puede cursar una materia del programa bilingüe impartida en español en su totalidad, este estudiante ya tiene conocimiento de dicho idioma. Por consiguiente, este estudiante puede obtener de 2 a 8 unidades de crédito adicional en español. El número exacto será determinado por el instructor del curso en colaboración con un instructor de español.

Las unidades se dividen así: dos (2) para el curso 101a y dos (2) para 101b. Las unidades de los cursos 101a y 101b pueden ser consideradas separadas o conjuntamente para un total de 2 o 4 unidades respectivamente. Este mismo concepto se aplicará a materias 102a y 102b.

Si el curso bilingüe consiste de una unidad de crédito, el crédito en español será una unidad elegible.



Business Transfer Program

A student may, generally, duplicate the first two years of a four-year degree program in Business.

Chemical Technology

Students taking the two-year career program in Chemical Technology can specialize in mining technology, pollution control, radio chemistry, organic chemistry, chemical process controls or as instrumental analysis technicians.

Training is in the area of professional technologists who will work with chemists.

The two-year program, which leads to an Associate of Science degree, provides a background in chemistry and chemistry laboratory techniques. Experience in both wet chemical and instrumental techniques also is offered.

First year courses give students enough of a basic chemical background so that they can successfully work in a laboratory situation.

Recommended courses include Writing (COM 1 and 2), Human Ecology (ESC 54), Television Repair (ETR 72), Physics (PHY 2), Mathematics (MTH 11, 20 or 80, 81) and Chemistry (CHM 5, 61, 70 and 85). These should be supplemented with electives in communications, humanities and philosophy or the social sciences for a total of 64-68 semester hours.

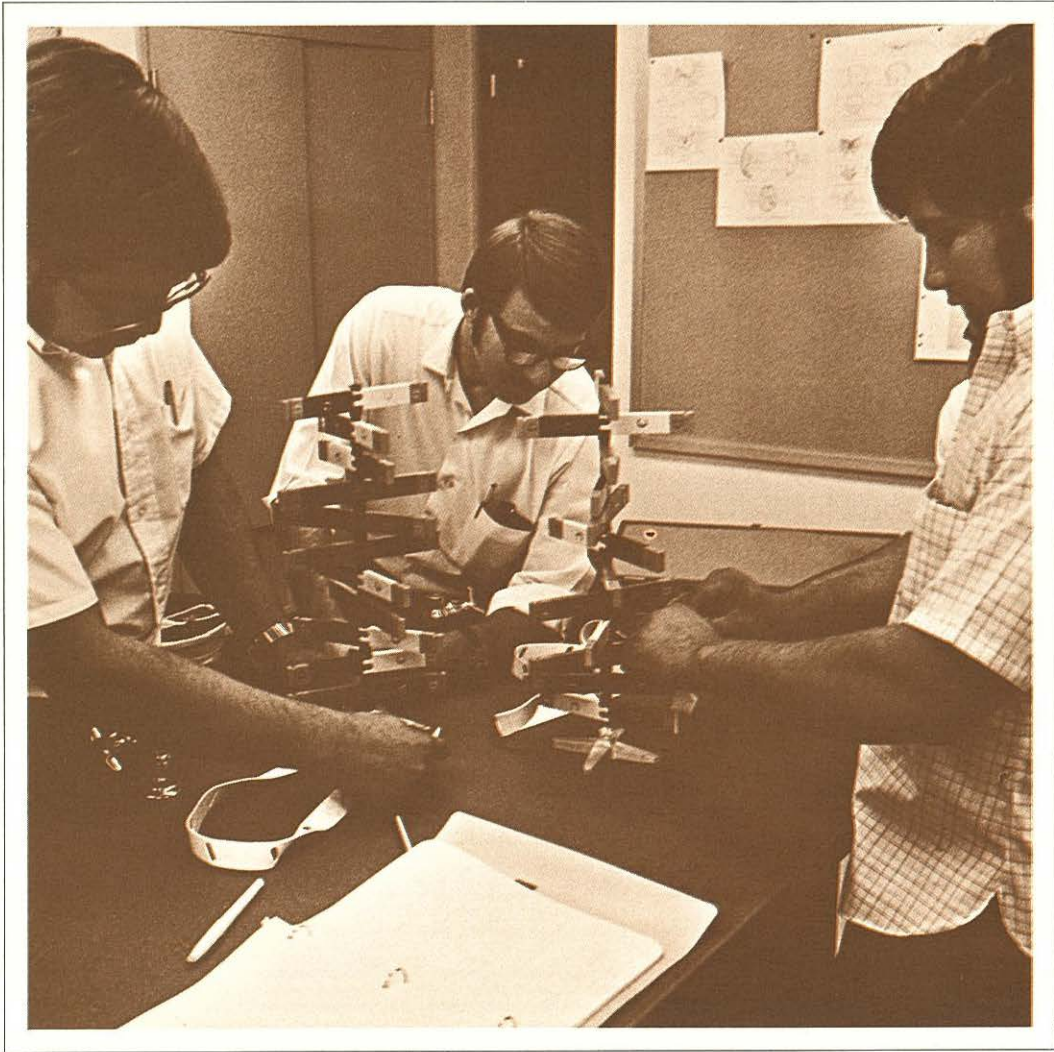
Community Planning

The Community Planning program is designed primarily to qualify students for employment as assistants to professional planners. Graduates, upon completing the curriculum and requirements, can work in public, private, city and regional planning offices; redevelopment agencies; and other organizations responsible for urban planning and its administration. Introduction to Cities and Community Planning (SSC 59) is the core course in this program.

Community Services Technician

The Community Services Technician program is designed to prepare students for job entry into various agencies which provide community and social services.

Upon completing the program, which leads to an Associate of Arts degree, the graduate is prepared either for further education or employment in welfare agencies, youth programs and other private or public enterprises.



The two-year course of study, which totals 60 semester hours, includes 30 to 32 semester hours in liberal arts and social science courses, 12 to 15 semester hours in supportive social science electives, and 15 semester hours in technical skill courses including two semesters of supervised field experience in a social service agency.

It is possible for students to pursue individual courses of study through consultation with an adviser. A complete listing of required and recommended courses is available through the Admissions office.

Computer Science

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

Certificates and diplomas are awarded upon completion of the shorter programs, indicating that the student is qualified as a computer operator, a key-punch operator or a control technician.

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

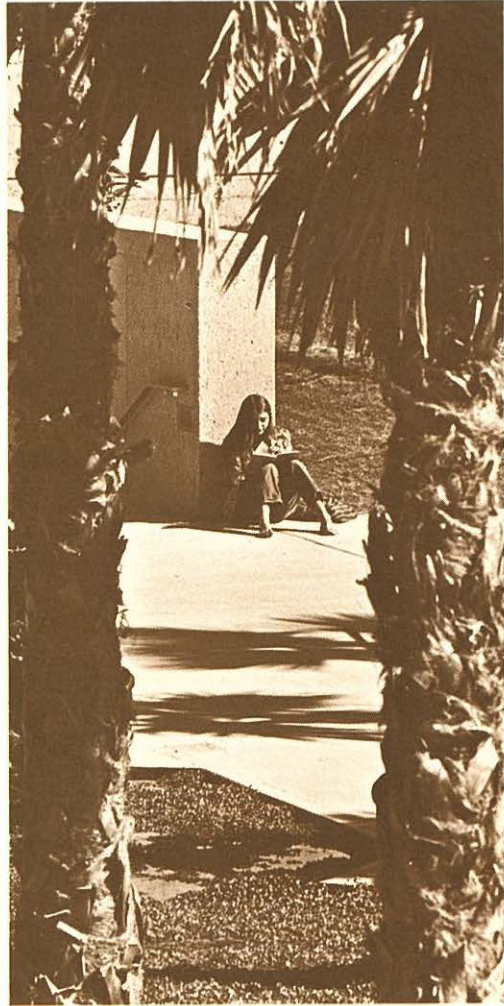
The continuing education program is designed for those who hold an Associate of Science degree in Computer Science and have at least two years of programming experience.

A student, in a one-semester program, can train to work as a key-punch operator. Necessary courses for this career program include Key Punch (CSC 52), Introduction to Business (BUS 50), Human Relations (MAN 58), Writing (COM 1), Reading Improvement (REA 60), Calculating Machines (OED 21) and Data Processing Projects (CSC 68). (18 semester hours.)

The one-year control technician program adds to the above curriculum Accounting (BUS 1 and 2), Typing (OED 11), Business Mathematics (BUS 51) and related courses for a total of 34 semester hours of credit.

Some of the necessary courses under the one-year computer operator program include Introduction to Computers (CSC 47), Computer Operations (CSC 56), Algebra (MTH 11 or 20) and Job Stream (CSC 58). (35 semester hours.)

The two-year computer programmer/analyst program includes 20 credit hours of Computer Science



(Introduction, CSC 47; Programming, CSC 60, or 62 or 63, 70 and 74); Systems Analysis (CSC 80-81) and Data Processing Projects (CSC 98). These are supplemented by Accounting (BUS 1 and 2), Economics (ECO 2 and 3), Writing (COM 1, 2), Cost Accounting (BUS 56) or social science, Business Statistics (BUS 5 and 6), reading, humanities, Math through Business Calculus (MTH 26), philosophy or science electives. Associate of Science degrees are awarded upon successful completion of the program, made up of at least 67 semester hours of course work.

Additional credits beyond the degree, in a three semester continuing education program, may be taken by an experienced programmer wishing to become a computer systems programmer.

These credits should be distributed among Computer Science (CSC 40), Systems Programming (CSC 90), Operating Systems (CSC 76), Teleprocessing (CSC 94), Advanced Computer Science (MTH 43), Data Processing Projects (CSC 98), Analytic Geometry and Calculus (MTH 30-31). (30 semester hours.)

Dental Assisting Technology

Students in this two-semester program are trained to work as dental assistants for private dentists, in government hospitals, public health departments, private clinics or in the Armed Forces.

In addition to campus classes, a portion of studies consists of externship practicum in an approved affiliated dentist's office.

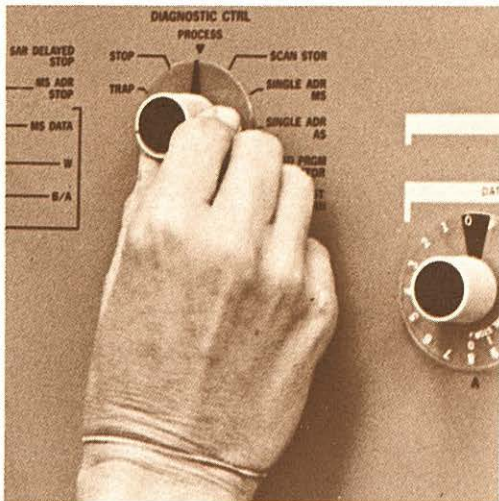
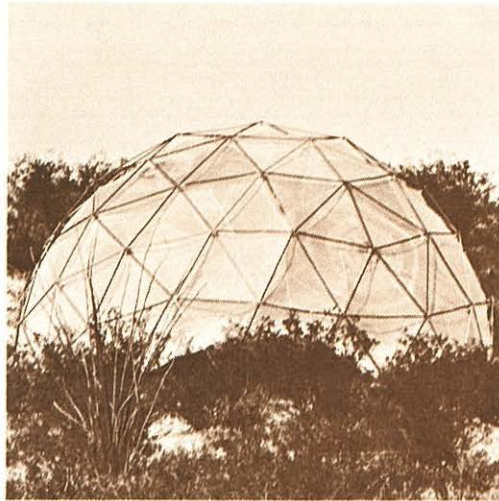
Graduates of the program, which provides both theoretical and practical preparation in dental assisting, will qualify for a diploma from Pima College and for examination by the certifying board of the American Dental Assistants Association.

Pre-entrance requirements include a high school diploma or equivalency certificate, occupational dexterity examinations and an evaluation by the program coordinator.

Among recommended courses are Writing (COM 1 and 2), Introduction to Health Care (HCA 50), Dental Assisting (DAT 51, 53, 56, 57 and 58), Dental Materials (DAT 54) and Dental Science (DAT 52).

Drafting Technology

ARCHITECTURAL DRAFTING: This two-year program, which leads to an Associate of Science degree, is designed to provide experiences in drafting techniques



and practices for employment in construction-oriented fields. A certificate program also is offered. MECHANICAL and ELECTRO-MECHANICAL DRAFTING: Both two-year and certificate programs are provided. The two-year program leads to an Associate of Science degree, and opportunity for employment in drafting departments of several types of industry.

Drama

Students completing the two-year Drama program will have received experience both in performing and working with others on various theatrical production tasks. They should qualify for transfer to a four-year college or university to work toward a Bachelor of Arts degree in Drama if they complete a two-year foreign language requirement, or for a Bachelor of Fine Arts in Drama if they elect courses in art, music, social sciences or industrial technologies in the first year and Group Discussion (SPE 30) and Oral Interpretation (SPE 36) in the second year.

A typical Drama program should include Acting (DRA 5, 6, 48, 49), Stagecraft (DRA 20 and 21), Make-Up (DRA 15), Writing (COM 1 and 2), History (DRA 40 and 41), four semesters of humanities, and electives in leisure-time education and science for a total of 62 to 66 semester hours of credit.

Electronics Technology

The two-year Electronics Technology program provides a sufficient, basic background to prepare graduates for employment in many areas of the electronics field. Specialized areas within the field require additional part-time study or on-the-job training.

All electronics courses at Pima College offer actual as well as theoretical experience.

A typical program should include at least 27 semester hours of Electronics (ETR 53, 55, 57 and 80) plus special studies in areas of interest. These might include Communications (ETR 63), Industrial Electronics (ETR 67) and Computer/Digital Communication (ETR 82). Electronics courses should be supplemented by studies in drafting, mathematics, writing, chemistry, physics, humanities, management and social sciences. At least one semester of leisure-time education is encouraged.

A minimum of 60 semester hours of credit is required for graduation.

Students with high school math deficiencies should



enroll in ETR 72 and MTH 82 before entering the program.

Some specific courses offered under Electronics are Television Repair and Technician Upgrade Training for F.C.C. License. Independent study projects can be arranged for special situations and needs under ETR 90. Cooperative Education also is offered in the Electronics program.

Students should plan their schedules to allow sufficient time for study—1-2 hours outside study for each hour of class time.

Emergency Medical Technology

This certificate program, which currently consists of one course but is expected to be expanded in the future, prepares students to work as emergency medical technicians in hospitals and for civil or private agencies such as ambulance firms.

Graduates of this program will receive certification from the State of Arizona Health Department and can apply for certification with the National Registry for Emergency Medical Technicians.

A high school diploma or equivalency certificate is required to enter the program. High school subjects helpful in preparing the student for the program are biology and first aid.

Engineering

Students completing the two-year program should be able to transfer to a four-year college or university for further studies in Engineering. Before entering the program, each individual should consult the catalog of the institution to which he plans to transfer to make certain what courses are required there. Similar planning is necessary to qualify for specialist degrees in civil engineering, electrical engineering and other areas within the general field.

A typical program in Engineering at Pima College might include two semesters of Analytic Geometry and Calculus (MTH 30, 31), Differential Equations (MTH 36), Chemistry (CHM 3, 4), Engineering Graphics (ENG 2), Computer Science (CSC 40), Mechanics (PHY 10), Electricity (PHY 16), Waves and Heat (PHY 21), Engineering Analysis (MTH 45), and Engineering courses in the major field of interest such as Surveying (ENG 21), Engineering Mechanics (ENG 14) and Materials (ENG 17), as well as electives in the social sciences and humanities for a total of 68 semester hours.



Exploratory

Exploratory programs, meeting individual interests, may be arranged through conferences with Exploratory faculty members or members of the Student Development Faculty.

Programa de Exploración

Estudiantes que quieran cursos de diversos programas pueden inscribirse en el Programa Exploratorio. Para esto, es necesario hablar con algún profesor del Programa Exploratorio ó con algún profesor de Student Development Faculty.

Fire Science

The Fire Science program is designed to assist students in two different ways: as a two-year job-entry program for pre-service students; and as a two-year program designed to assist in-service students up-grade their skills.

At least half of the 60 semester hours required for an Associate of Science degree in Fire Science should be in courses directly related to the field. These courses prepare the graduate for service or additional responsibility in a governmental, rural, industrial or private fire department, and other agencies in the fire protection field.

The other half of the program, selected after consultation with a faculty adviser, should include study in mathematics, chemistry, physics, life sciences, humanities, basic psychology, sociology and American government.

Specialized courses include Basic Training (FSC 50), Fire Prevention (FSC 52 and 54), Hazardous Materials (FSC 53 and 61), Fire Suppression (FSC 66), Rescue Practices (FSC 67) and Public Safety Laws (FSC 71).

Recommended electives are community relations, ethics for public service, ethnic studies, engines, supervision, management and physical fitness.

Health Careers

Four new Health Career programs now are available at Pima College.

These are Dental Assisting Technology, Operating Room Technology, Ophthalmic (Optical) Dispensing Technology and Emergency Medical Technology.

The new programs are in addition to those in Nursing, Radiologic (X-ray) Technology and Respiratory Therapy. Students interested in entering any of the Health



Career programs must confer with the respective program adviser in arranging their studies. All Health Career students, except those in Nursing, are required to take the core course, Introduction to Health Care (HCA 50).

Home Economics

The Home Economics program offers three opportunities to the student:

To complete the first two years for transfer to four-year institutions

Career preparation in four major areas

Personal development

TRANSFER PROGRAMS: *The transfer program permits specialization in the areas of food and nutrition, management and economics, general home economics, clothing, textiles and related arts.*

Programs are determined according to the entrance requirements of four-year institutions and should be arranged with an adviser. An Associate of Arts degree is granted in these areas.

OCCUPATIONAL PREPARATION: *Career preparation is designed around four major areas to give students the opportunity to prepare themselves for employment in: child development and human relations; food service; clothing, textiles and related arts; and management.*

Early Childhood Education currently offers certificates and/or the Associate of Arts degree in:

Day Care Center/Nursery Aid

Day Care Center/Nursery Assistant

Day Care Center/Nursery Supervision

Careers in Clothing/Textiles and Related Arts leading to an Associate of Arts degree, are:

Professional Seamstress

Alteration Specialist

Interior Design Assistant

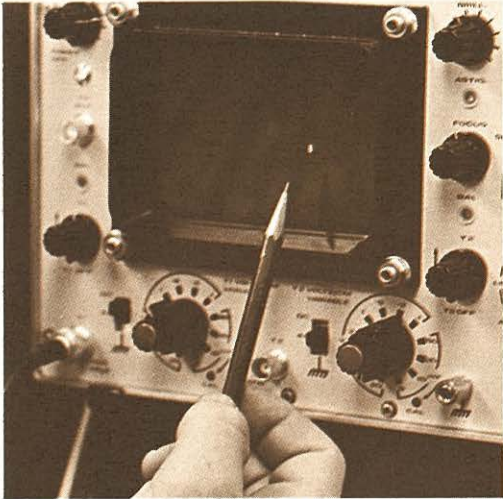
Fashion Design

These programs have a specified curriculum and should be planned with an adviser.

Other careers in Food Service and Management are in the developmental stages and should be planned with an adviser.

Careers in Fashion Merchandising and other areas also are in developmental stages.

Personal development in education for home and



family living includes 60 semester hours, 30 in Home Economics, for an Associate of Arts degree. Programs should be planned with an adviser.

Journalism

A two-year program preparing students to enter Journalism is being developed at Pima College with the aid of advisory committees. Journalism courses currently are being offered through the Communicative Arts area.

Law Enforcement

The Law Enforcement program is designed to assist students in three different ways: as a two-year job-entry program for pre-service students; as a two-year program aimed at assisting in-service students to up-grade their skills; and as a two-year transfer program for students planning to continue their studies at a four-year institution.

Job-entry students should take approximately half their work in general education courses including Writing (COM 1 and 2), Government (POL 10 and 11), Sociology (SSC 30), Psychology (SSC 20), Humanities (HUM 10 and 11), Speech (SPE 20) and Ethics for Public Service (LEN 3).

The remainder of their studies should be in technical Law Enforcement classes: Introduction to Law Enforcement; Criminal Law; Criminal Investigation and Report Writing; Crime Scene Technology; Criminalistics; and other Law Enforcement electives. These will round out the job entry program requirements of 64-66 semester hours.

Transfer students should follow the program outlined in the catalog of the university they plan to attend, but take not more than 15 hours of technical Law Enforcement courses.

Leisure-Time Education

The Leisure-Time Education Center, formerly known as Physical Activities (PAC), is an area within the Public Services Occupations Division. Currently, it is made up of four balanced programs:

Health Education (LTH)

Physical Education (LTP)

Recreation Education (LTR)

Special Education (LTS)

Each of these programs offers students flexibility in selecting courses in (1) exploratory and liberal arts (2) associate arts or careers, and (3) transfers.



Students planning to enroll in Leisure-Time Education courses should consult with a faculty member for specific information. Options available to students are: service classes; special interest classes; two-year career classes; and teaching majors and minors. Those considering transfer should check the catalog of the four-year institution they plan to attend for required courses.

Prior to enrolling in Leisure-Time Education courses, students must file with the college's health service office a record of a current, valid medical examination showing acceptable health standards. Some courses also may require special fees and/or special styles of dress for safety precautions.

Liberal Arts and Sciences

Included in the transfer program for Liberal Arts or Science majors are Social Sciences, Biology, Chemistry, Communicative Arts, Economics, Geography, Geology, History, Humanities, Languages, Literature, Mathematics, Philosophy, Political Science, Physics, Comparative Religions and Speech.

Requirements differ slightly in the various areas and students are urged to confer with a faculty member in their proposed major area to determine specific recommendations for that field. Students, after successful completion of the program, will be eligible to transfer to upper class levels at a four-year university.

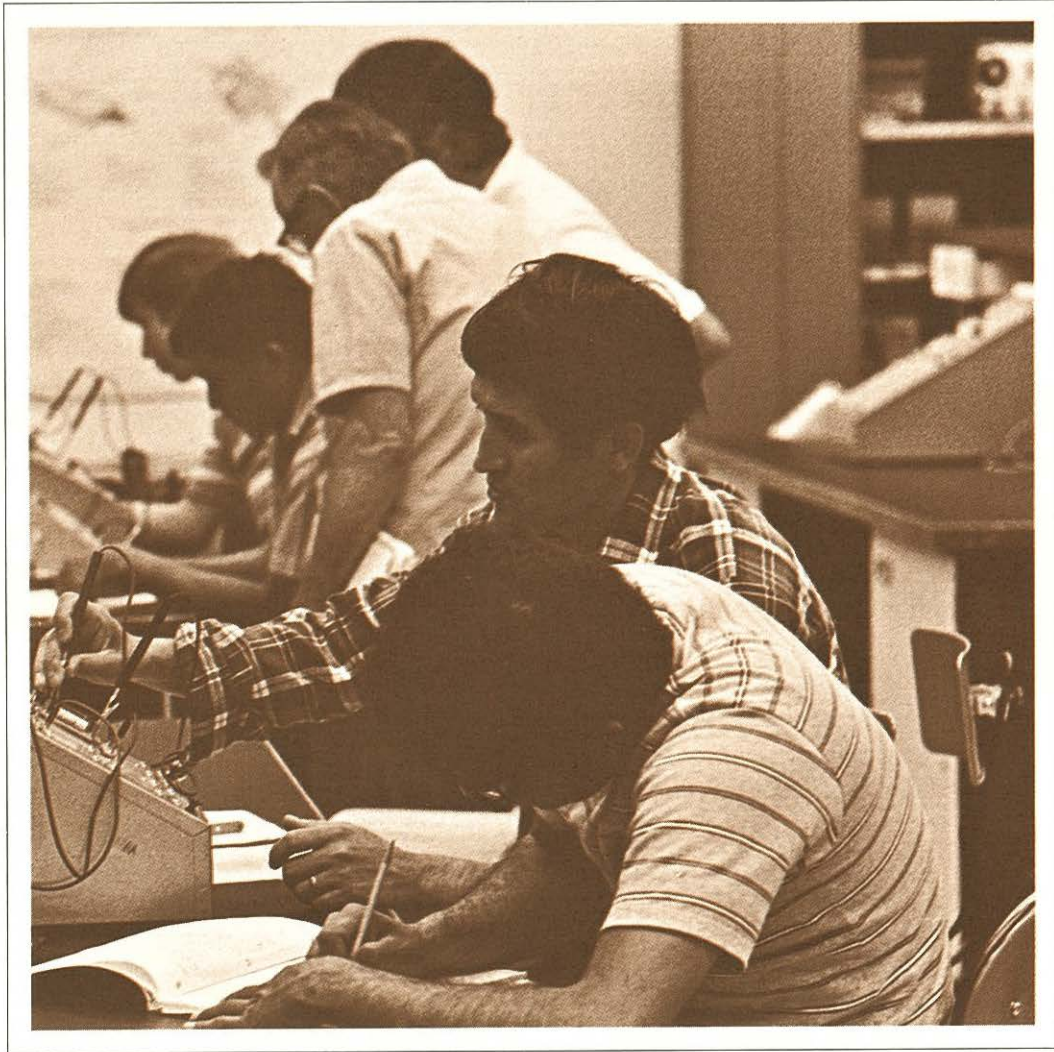
The typical program should include 16 hours of foreign language, six hours of writing, eight hours of humanities, 9-12 hours of social science and eight hours of mathematics or science, plus electives.

The basic foreign language requirement is 16 units, or proficiency in one language at the 16 unit level. Students can fulfill the latter by completing a foreign language course for which attainment at the 16 unit level is a prerequisite or by passing a proficiency examination at the 16 unit level.

The following courses also fulfill the language requirement: Spanish 1, 2, 3, 4 – totaling 16 units – or Spanish 101 and 102 which total eight units and are accelerated courses for native speakers of Spanish (satisfying the language requirement in place of having to take 1, 2, 3 and 4 for a total of 16 units).

Library Technician

Students in the Library Technician program are



prepared to work in semi-professional positions needed in library facilities. Graduates of the two-year program can find employment opportunities in school and public libraries and in business library facilities.

Courses should include Media Terminology (MET 80), Library Resources (LMT 50), Library Public Services (LMT 52), Library Technical Services (LMT 51), Media Technology (MET 84) and electives in humanities, social or physical sciences for a total of 64 units.

Media Technician

The instructional Media Technology program provides knowledge and skills in the areas of communigraphics, reprographics, telecommunications, and repair and maintenance of audio-visual equipment. Students, under the two-year program, may either specialize in one of the areas or select courses from each of the areas for general preparation.

Students are prepared to work in educational or public institutions, business and industry.

Courses which should be taken include Writing (COM 1 and 2), Media Terminology (MET 80), Media Technology (MET 81, 82 and 84) and electives in Media Technology, humanities, social and physical science for a total of 64 units.

Mid-Management

Mid-Management, an area of Distributive Education, is an occupation-oriented training program for students who plan to qualify for junior executive positions in the marketing field. Class instruction can be combined with on-the-job training.

Recommended courses include Accounting (BUS 1 and 2), Salesmanship (MAN 50), Retailing (MAN 51), Marketing (MAN 59), Micro and Macroeconomics (ECO 2 and 3), Business Management (MAN 52), Management Trends (MAN 63 and 64) and Mid-Management (MAN 60 and 61). A complete program, which requires approval by a business adviser, is made up of 66 semester hours of credit.

Options are available allowing the student to pursue a variety of areas of interest.

Students specializing in Advertising should have Advertising Design (MAN 56), Advertising Principles (MAN 53), and Advanced Advertising (MAN 57), as well as Accounting (BUS 1 and 2), Marketing (MAN 59), Salesmanship (MAN 50), Business Management (MAN 52), Retailing (MAN 51), Management Trends



(MAN 63 and 64), Mid-Management (MAN 60 and 61) and Microeconomics (ECO 2). Sixty-six semester hours would be typical of a program in this area.

Students specializing in Fashion Merchandising will be working in both the Home Economics and Mid-Management areas.

Military Science

The general objective of the Military Science (R.O.T.C.) program is to furnish leaders suitable for commissioning as Reserve Officers. Intermediate objectives are to develop self discipline, integrity, a sense of responsibility, and capacities for thoughtful and decisive leadership.

Only the two-year basic program is offered at Pima College. Information about this special program, the eligibility criteria and reduction of the four-year program for veterans of active service can be obtained from a Military Science instructor.

Uniforms, insignia of rank and instructional materials used in Military Science are furnished by the Department of Army without cost to the student.

Upper division R.O.T.C. courses, which lead to commissioning, must be taken at a four-year institution.

Students completing the two-year program at Pima College and continuing training at a four-year institution will receive a subsistence pay of \$100 per month, plus some \$265 per month for prescribed summer training between the junior and senior years.

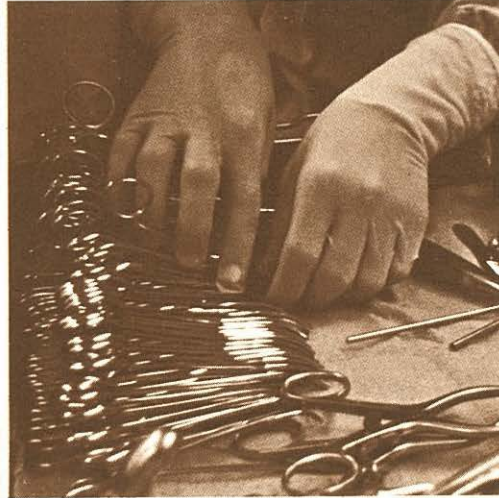
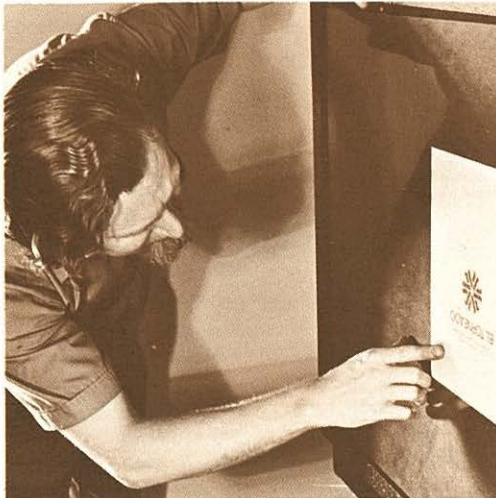
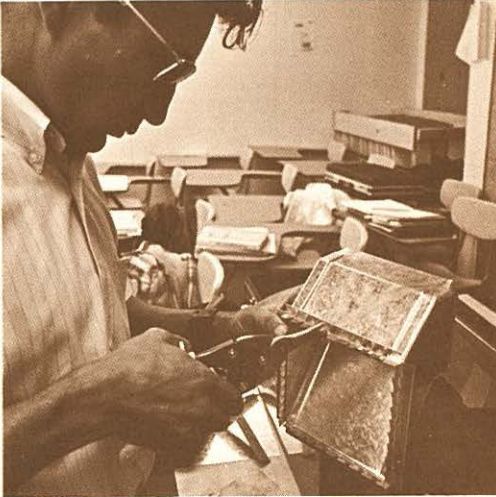
Music

The suggested Music program provides the first two years of music experiences generally required by higher institutions of learning. Arizona's three universities also require an examination of all students who transfer applied work. All courses listed are merely suggestions. Because of different or specific degree requirements, it is necessary that each student consult with the music faculty for advice on specific programs.

Among suggested courses are History and Literature of Music (MUS 1), Music Theory (MUS 3-6), Conducting (MUS 7), Private Instruction (MUS 42), Piano and Voice. A music program typically includes 22 hours of required courses in writing, mathematics, social sciences, humanities or a foreign language.

Nursing

Health problems significant to the local community



are stressed during the two-year program which combines general education with a firm foundation in patient care.

Students entering the program must have a high school diploma or an equivalency certificate. They also must make arrangements for an evaluation of their math and reading abilities, plus a personal interview with the nursing faculty to determine individual programs of study.

A required prerequisite to entering the nursing program is high school chemistry or an equivalent to Pima College's Chemistry 5 course.

In addition to being prepared to take the state licensing examination for Registered Nurse, the new graduate will be capable of giving quality nursing care, with some degree of independence, under the supervision of an experienced professional nurse.

Recommended courses are Nursing I through IV (NRS 70, 72, 80, 82), Anatomy (LSC 20 and 21), Psychology I (SSC 20), Child Development (HEC 17), Sociology (SSC 30) and Microbiology (LSC 7). (66-68 semester hours.)

All nursing courses must be taken at Pima College.

Office Occupations

A wide variety of courses are available in the secretarial and clerical fields. Two-year programs, leading to an Associate of Science degree, are available in the areas of general secretary, legal secretary, medical secretary, executive secretary and administrative assistant.

One-year programs include clerk-typist, receptionist and service representative.

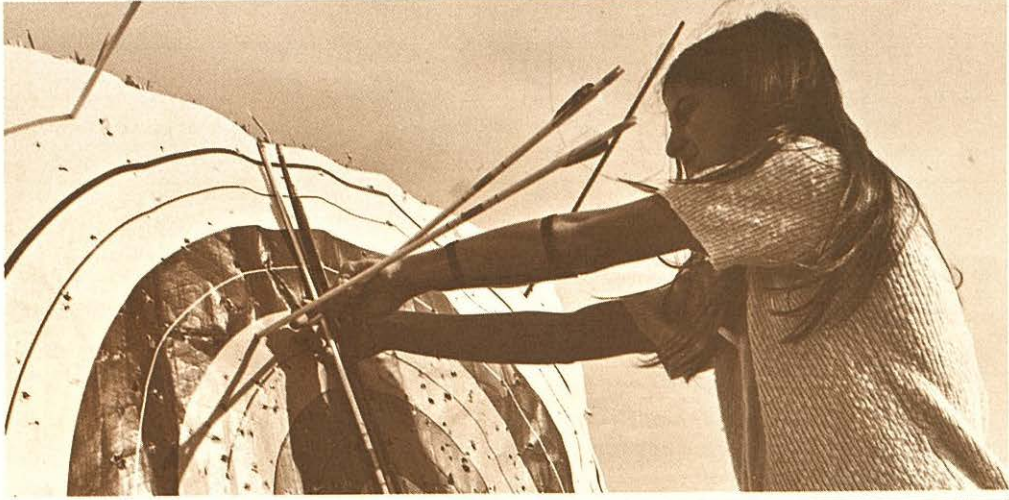
Courses required in all Office Occupation programs are Business English (OED 54), Typing (OED 11, 12 and 52), Calculating Machines (OED 21), Word Processing (OED 22), Records Management (OED 3), Accounting (BUS 1), Business Math (BUS 51), Business Communications (BUS 59), Human Relations (MAN 58) and Business Law (BUS 10).

Cooperative work experience, in which students receive practical office training, and an office education seminar are available to qualified second-year students.

For complete information on program course requirements, consult an office education adviser.

Operating Room Technology

Graduates of this three-semester program, which



includes academic study and clinical experience, are qualified to receive a diploma in Operating Room Technology from Pima College and to apply for national certification by examination from the Association of Operating Room Technicians.

A high school diploma or equivalency certificate is required for entrance into the program. Students also must submit a certificate of health examination, and arrange for a personal interview with the ORT adviser before admission.

A background of high school biology and chemistry is strongly recommended, and algebra and physics are considered desirable.

First semester courses include Anatomy (LSC 20), Writing (COM 1), Psychology (SSC 20) and Introduction to Health Care (HCA 50), or their equivalents. Among special courses in the program are Surgical Technology (ORT 52), Surgical Biology (ORT 53), Surgical Procedures (ORT 54), Hospital Lab (ORT 121) and Surgical Anatomy (ORT 55).

All Operating Room Technology courses must be taken at Pima College.

Ophthalmic Dispensing Technology

This two-year program, which leads to an Associate of Science degree, qualifies graduates for employment as ophthalmic dispensers and/or contact lens technicians in private offices and clinics. Other opportunities include private practice, optical laboratory managers, ophthalmic sales representatives and ophthalmic research technicians.

Students successfully completing the first two semesters of this Health Careers program can qualify as optical laboratory technicians.

Requirements for entering Ophthalmic Dispensing studies include a high school diploma or equivalency certificate; a pre-entrance examination, consisting of a series of general aptitude tests; an occupational dexterity examination; and an evaluation by program advisers. High school preparation in algebra, geometry and general business is helpful.

Theoretical and practical preparation are provided.

Pre-Environmental Design

Graduates of the two-year Pre-Environmental Design transfer program will have enough background to work in an architectural office or in related work while completing their education in architecture or



environmental design at a university. Courses also provide a humanist background.

For transfer, students should take Humanities (HUM 10 and 11), Mathematics (MTH 11, 20, 24, 30, 31 or 40), Art and Culture (ART 15), Functional Design (ART 12 and 22), Graphics II (ART 20), Introductory Physics (PHY 2 and 3) or Introductory Physics with Calculus (PHY 4 and 5) and Photography (ART 13) or Crafts (ART 9), along with electives for a total of 64-67 semester hours of credit.

Radiologic (X-ray) Technology

The total program consists of four semesters on campus and at least 2,200 hours of externship practicum in an affiliated hospital x-ray department. Qualified students will be selected to enter the hospital portion of their practicum beginning with the third semester of studies.

Graduates will qualify for an Associate of Science degree in Radiologic Technology and for application with the American Registry of Radiologic Technologists.

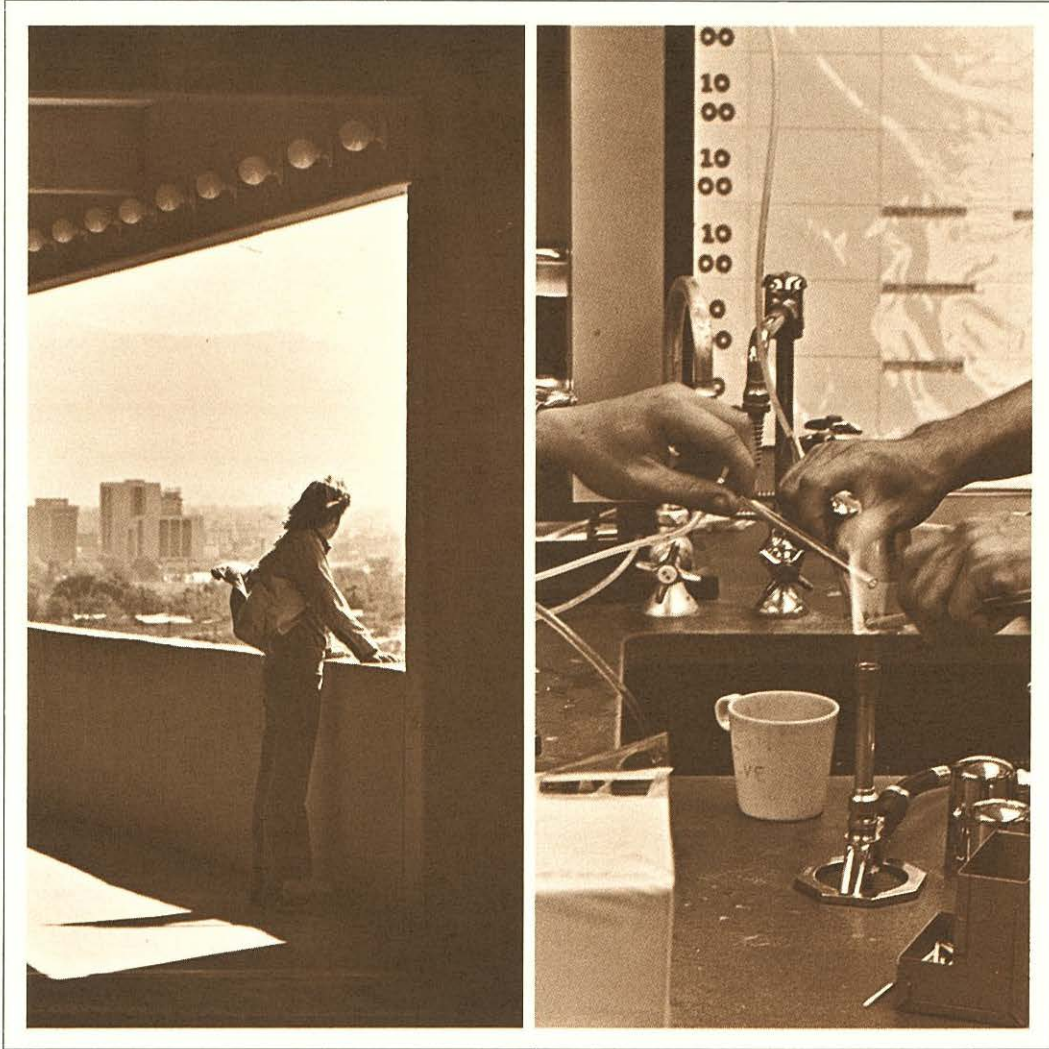
Pre-entrance examinations, evaluations and approval by program advisers are required for admission into the program, in addition to a high school diploma or equivalency certificate. High school subjects helpful in preparing the student for the pre-entrance examination are intermediate algebra, biology, physics and chemistry.

Credit requirements call for 66 semester hours of work with a minimum of 36 semester hours to be completed on campus.

Introduction to Radiography (RAD 71), Positioning (RAD 73, 81 and 84), Radiographic Chemistry and Techniques (RAD 72), Radiographic Physics (RAD 82), Radiation Biology (RAD 87), Therapy (RAD 85), Clinical Procedures (RAD 83 and 86), Anatomy (LSC 20 and 21), Health Care (HCA 50), Writing (COM 1 and 2), Health Math (MTH 65 and 66), Physics (PHY 55) and Typing (OED 11) should be included in this program.

Respiratory Therapy

Courses in Respiratory Therapy, leading to an Associate of Science degree and qualification to take the American Registry of Inhalation Therapists (ARIT) accrediting examination, prepare the student to care for persons having heart and lung associated problems. Both emergency and supportive treatment techniques are taught.



Students, to enter the program, are required to have a high school diploma or equivalency certificate and take a pre-entrance examination. High school and post secondary transcripts, and a certificate of health examination must be submitted at the time of a required admission interview. High school chemistry, physics, algebra and geometry are highly desirable as preparation for admission to the program.

Special courses in the program include Equipment (RTH 71, 80, 81, 87 and 90), Clinical Medicine (RTH 73), Physiology (RTH 82) and Diseases (RTH 86 and 89). In addition, the student should take related courses in Writing (COM 1 and 2), Mathematics (MTH 65), Anatomy (LSC 20 and 21), Chemistry (CHM 5 and 6), Psychology (SSC 20) and Supervision of Personnel (MAN 54).

Completion of the required course work, plus 600 hours of clinical practice, normally necessitates summer work or an additional semester of study beyond the two academic years.

Tool and Machine Technology

Basic career courses are being offered in Tool and Machine Technology.

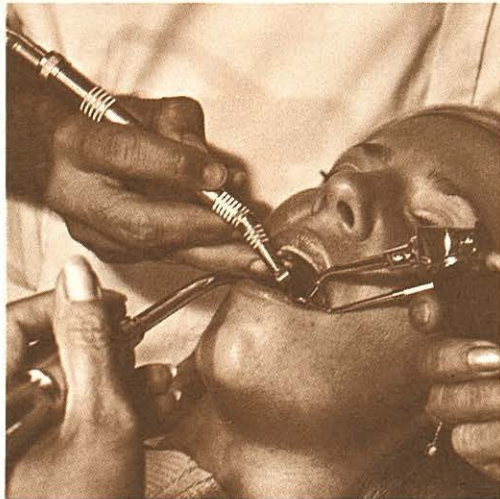
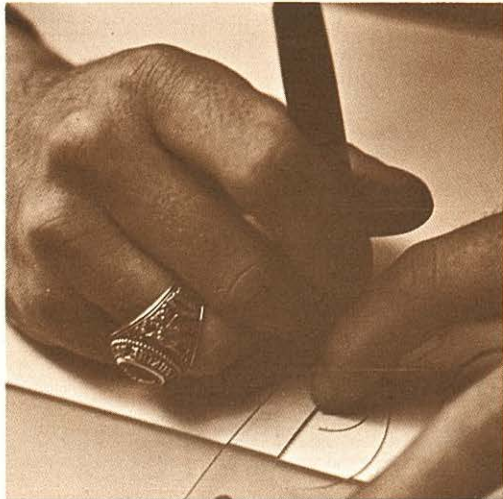
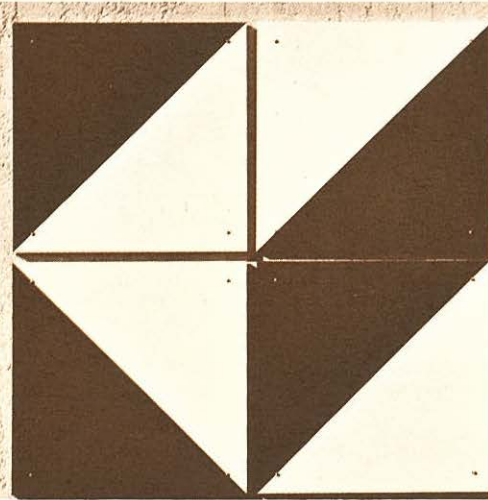
The two-year program, which requires 63 credit hours for an Associate degree, qualifies the individual in fields of production management, production engineering and design engineering. The program offers a broad coverage of techniques used in metals manufacturing including machine shop, welding, sheet metal, and is accompanied by supporting courses in manufacturing processes, quality control, time study and drafting.

A one-year program, which leads to a diploma and requires 33 credit hours, also is available.

Welding

Welding courses and equipment are being expanded in preparation of offering both a one and two-year program. Plans are to have the programs underway during the spring semester of the 1972-73 academic year.

Among courses being offered during the fall semester are arc welding, heli-arc welding, oxy-acetylene welding, metal-inert-gas welding, automotive welding, and blueprint reading for welders.



courses

Course Numbering System

Pima College courses numbered 1 through 49 correspond with those generally offered during the first two years at four-year colleges and universities. Credit for these courses, in most cases, will be transferable for students planning to continue their studies.

Courses numbered 50 through 99 carry Pima College credit. In some instances, these, too, may be transferable to four-year colleges and universities for credit. Students planning a transfer after completing two years at Pima College should check the catalog of the institution they wish to attend.

Courses numbered 100 through 120 are equivalent to those offered in the junior or senior years at Arizona universities and credit for these upper division courses may be transferable. Each case should be checked individually by the student seeking transfer credit.

Non-credit and workshop type courses are numbered 121 through 199.

AIR CONDITIONING

ACD 60 Air Conditioning Fundamentals I / 4 sem. hrs.

Emphasis is on detail and specific treatment of air conditioning and problem solving techniques. Areas covered are psychrometry, ventilation, heating and cooling load calculations. Laboratory work consists of refrigeration tube bending, flaring, soldering and brazing; cooling load calculations, dew point determination; and precision measurement of air temperatures, quantities and velocities.

ACD 61 Air Conditioning Fundamentals II / 4 sem. hrs.

Continuing detailed study of air conditioning fundamentals and problem solving methods. Areas covered are compression and absorption, refrigeration cycles, fans and blowers, and duct design. Laboratory work consists of refrigeration compressor and disassembly, and expansion valve performance check.

Prerequisite: ACD 60.

ACD 65 Air Conditioning Phase I / 4 sem. hrs.

Emphasis is on cooling and heating components and application; basic electricity; tools in heating and cooling maintenance; service and maintenance of electronic air cleaners and electronic humidifiers.

ACD 66 Air Conditioning Phase II / 4 sem. hrs.

Course covers the control of electrical circuits, use of electrical test instruments, troubleshooting of gas and electric cooling.

Prerequisite: ACD 65.

ACD 67 Air Conditioning Phase III / 4 sem. hrs.

Concentration is on light commercial equipment, including gas-electric packages, heat pumps and three-phase power. Live equipment is used to teach service and repair work.

Prerequisite: ACD 66.

ACD 68 Air Conditioning Phase IV / 4 sem. hrs.

Stress is on the more complicated larger units, including multi-zone and single-zone rooftop pieces of equipment, and controls on these units. Also included is an introduction to pneumatic controls as used on some models of equipment.

Prerequisite: ACD 67.

ACD 70 Air Movement and Design / 4 sem. hrs.

Residential area includes load calculation, duct sizing and equipment selection. Commercial area includes specialized types of equipment such as make-up air units and exhaust air.

ACD 85 Estimating I / 3 sem. hrs.

The basic concepts of computing material costs from actual construction drawings, through use of handbooks and formulas; pricing of all items associated with sheet metal products and air conditioning units.

ART AND DESIGN

ART 1 Perception / 4 sem. hrs.

A pursuit of environmental awareness and processes of communication. Rediscovery of light, color, sound, pattern, space, and the operation of sensory receptors. Students work with cameras, models, construction and graphics. Presentations by faculty members, followed by small group studio sessions.

ART 9 Crafts Workshop / 2 to 4 sem. hrs.

Students with various levels of experience work alongside one another and a craftsman in pursuing the disciplines of a craft. Separate sections explore leather craft, metalsmithing, fabrics, weaving, ceramics or a combination of these.

Prerequisite: Concurrent with ART 1 recommended.

ART 9 Ceramica Mexicana / 3 sem. hrs.

Este curso consistirá en modelar objetos con barro negro traído de Guadalajara. Se dará importancia al espíritu creativo del alumno evitando la imitación de modelos ya formados.

ART 10 Graphics I / 3 sem. hrs.

An exploration of sensory experience and visual communication. Introduction to drawing, lettering and/or conceptual problems of design in extensive studio practice and experimentation.

First Year Level

Prerequisite: ART 1 or concurrent with ART 1.

ART 12 Functional Design I / 3 sem. hrs.

Application of perceptual experience to our physical and technological environments. Participants, individually and in teams, develop models for exploring simple problems of function. Studio activity is as directly involved with the actual environment as possible.

Prerequisite: ART 1 recommended.

ART 13 Introduction to Photography / 3 sem. hrs.

A general inquiry into the nature of "making pictures." The camera is used as a tool allowing investigation into, and subsequently revealing, a visible and invisible universe including one's self. Individual and group work.

Prerequisite: ART 1 or equivalent.

ART 15 Art and Culture / 3 sem. hrs.

Presentation and discussion of art forms from various traditional and contemporary cultures. Some studio experience included.

First Year Level

Prerequisite: Art 1 or equivalent.

ART 20 Graphics II / 3 to 6 sem. hrs.

Experience with the special problems of the graphics industry

and commercial design. Students, on an individual basis, pursue solutions to problems of a meaningful graphic environment.
Prerequisite: ART 10.

ART 21 Visual and Spacial Arts / 2 to 6 sem. hrs.

Intensive studio experience in one or more media. Separate sections pursue different media or processes such as painting, print making, three-dimensional design, metal sculpture and drawing.
Prerequisite: ART 10.

ART 22 Functional Design II / 3 to 6 sem. hrs.

Introduction to architectural, landscape, interior and industrial design problems. Individual and small teams pursue problems in designing environmental solutions as well as participating in studio exercises.

Second Year Level
Prerequisite: ART 10, 12, 20.

ART 23 Audio Visual Communication / 2 to 4 sem. hrs.

An expansion into still photography and/or film experience. Sections in photo journalism, visionary photography and 8 mm film production. Individual and group projects explore communication through visual and/or audio combinations, editing, and light control in film production.
Prerequisite: ART 13.

ART 25 History, Philosophy and Psychology of Design / 2 to 4 sem. hrs.

Study of particular movements, periods, ideas and problems in art and design arranged each semester by separate sections or for individual study, according to need.
Prerequisite: ART 1 or 15.

ART 26 Early African Art / 3 sem. hrs.

Traditional forms of African art are covered through visual and audio presentations. Discussion will be aimed at understanding the relationship of African art to the Western world. Student projects and field trips.
First or Second Year Level

ART 27 Pre-Columbian Art / 3 sem. hrs.

A visual survey of the art styles of ancient Mexico. Students become involved in reproducing some of the materials studied. Movies and field trips are included.
First or Second Year Level

ART 121 Handwriting, Calligraphy and Lettering

An introduction to italic handwriting through demonstrations and practice with the pen. Extension of this basis to sign writing, sign painting and other uses in individual cases.
Non-Credit

AUTO MECHANICS

AUT 50 Automatic Transmissions I / 3 sem. hrs.

First semester of automatic transmissions covering theory, construction and operation.

AUT 51 Automatic Transmissions II / 3 sem. hrs.

Second semester of automatic transmissions covering maintenance and overhaul.
Prerequisite: AUT 50.

AUT 53 Engines I / 2 sem. hrs.

A basic automotive course preparing students for entry

into the more technical courses. Lectures and demonstrations cover safety, tools, and basic functions of gasoline and diesel engines.

AUT 54 Engines II / 3 sem. hrs.

Offers the student practical experience in engine maintenance and service. Theory, design, construction and service procedures are studied.
Prerequisite: AUT 53 or equivalent.

AUT 55 Engine Overhaul, Automotive / 3 sem. hrs.

Development of work skills and proficiency in engine rebuilding is emphasized.

Prerequisite: Fourth semester status in an accepted automotive program.

AUT 56 Engine Tune-Up, Automotive / 3 sem. hrs.

This course deals with the diagnostic instruments, tools and methods of engine tune-up.

Second Year Level
Prerequisite: AUT 54, 68.

AUT 57 Drive Line, Automotive / 3 sem. hrs.

Included in the course are manual shift transmissions, clutches, universal joints, propellershaft and differential, and drive axle assembly.

Second Year Level

AUT 58 Automotive Chassis I / 3 sem. hrs.

The first part of a two-semester course covering brakes, steering, suspension and exhaust.

AUT 59 Automotive Chassis II / 3 sem. hrs.

A continuation of Automotive Chassis I for a complete chassis study.

Second Year Level
Prerequisite: AUT 58.

AUT 63 Air Conditioning Basics, Automotive / 3 sem. hrs.

Fundamentals of refrigeration; principles of automotive air conditioning design; related mathematics and drawings; specification charts and tables; and safety practices.

AUT 68 Automotive Electricity I / 3 sem. hrs.

The first semester of a two-semester study, in class and lab, of electric fundamentals and circuits as applicable to automotive systems, with construction, operation, testing and repair of batteries and starting systems emphasized.

Prerequisite: MTH 84 or equivalent.

AUT 69 Automotive Electricity II / 3 sem. hrs.

A continuation of AUT 68 with emphasis on charging systems, instruments lighting circuits and accessory units.

Prerequisite: AUT 68.

AUT 99 Independent Study / 1 to 5 sem. hrs.

Designed to provide the student with an opportunity to study specific topics concerning the automotive field.

Second Year Level

AUT 121 Know Your Car

This course is designed to help laymen (and women) understand, basically, how a car is supposed to function, what is expected from the car and how to recognize trouble signs. Safety and how to deal with repairmen also are included. (A six-week course offered twice each year.)

Non Credit

COMMUNICATIVE ARTS

COM 1 Writing I / 3 sem. hrs.

An introduction to the excitement of good writing with emphasis on the technique and practice of description, explanation and argument. Students also review language fundamentals when necessary, analyze collateral readings and keep individual journals.

COM 2 Writing II / 3 sem. hrs.

This course continues practice in writing with emphasis on longer and more analytical compositions, including a research paper. Readings range from various forms of modern fiction and poetry to non-fiction.
Prerequisite: COM 1.

COM 4 Technical Communications / 3 sem. hrs.

Basic techniques of writing long and short reports, abstracts and other forms required in scientific and technical occupations. The course is structured to allow students to work on writings required in courses and in future occupations.
Prerequisite: COM 1, 2 or consent of instructor.

COM 5 Imaginative Writing—Poetry / 1 to 4 sem. hrs.

An introduction to the techniques used in contemporary poetry; a study of selected poems as examples; practice in applying techniques by writing and discussing original poetry. For University of Arizona transfer, students must have completed COM 2. This course may be taken as COM 55 for Pima College credit.

COM 6 Imaginative Writing—Short Story / 1 to 4 sem. hrs.

Introduction to the techniques used in contemporary short fiction; study of selected short fiction with emphasis on why a story works or not; practice in the separate elements of technique through short written exercises; completion of at least one manuscript. For University of Arizona transfer, students must have completed COM 2. This course may be taken as COM 66 for Pima College credit.

COM 7–8 Reporting / 3-3 sem. hrs.

The gathering, selecting, evaluating and writing of news.

COM 10 Exploring Mass Media / 3 sem. hrs.

What is happening to us with TV in our homes and newspapers on our doorsteps? An evaluation of information and its sources.

COM 15 Intensive English I / 3 sem. hrs.

Students are helped in improving their skills in speaking and writing English. Foreign students may receive transfer credit in ENG 5a at the University of Arizona. Must be taken concurrently with Reading 50. (Offered in the Fall.)

COM 16 Intensive English II / 3 sem. hrs.

A continuation of COM 15 with more emphasis on composition skills. Foreign students may receive transfer credit in ENG 5b at the University of Arizona. Must be taken concurrently with Reading 51. (Offered in the Spring.)

COM 20 Advanced Composition / 3 sem. hrs.

Extensive practice in writing a variety of forms such as essays, reports, journals and interviews.
Prerequisite: COM 2.

COM 50-51 Plain Writing / 3-3 sem. hrs.

Practical experience in solving individual everyday writing

problems. For students with specific or limited writing objectives that differ from the aims of COM 1 and 2. Individual career needs also are met.

COM 55 Imaginative Writing—Poetry / 1 to 4 sem. hrs.
Same as COM 5, but non-transferable. Open to all Pima College students.

COM 66 Imaginative Writing—Short Story / 1 to 4 sem. hrs.

Course is the same as COM 6, but is non-transferable. It is open to all Pima College students.

COMPUTER SCIENCE

CSC 40 Computer Science I-Fortran / 1 to 3 sem. hrs.

A study of programming in the Fortran IV language. Application of programming to the numerical solution of problems. Includes flowcharting, block diagramming, documentation, and writing of programs. Problems are suited to business, engineering or math, depending upon students' objectives. First half of course satisfies the one unit transfer credit. (Same as Mathematics and Machine Technology 40).
First Year Level

CSC 43 Advanced Computer Science—Mathematics / 3 sem. hrs.

(Same as Mathematics 43.)

CSC 45 Engineering Analysis—Modeling and Simulation / 3 sem. hrs.

(Same as Mathematics 45.)

CSC 47 Introduction to Computers / 3 sem. hrs.

Establishes the relationship of computer to manual processing systems, relating through unit record systems. Introduces stored program concepts, management information systems, machine configuration and storage, flowcharting and block diagramming, documentation and the Report Program Generator language. Business problems will be programmed by students in Report Program Generator.
First Year Level

CSC 50 Man in the Computer Age / 3 sem. hrs.

(Same as Social Sciences 50.)

CSC 51 Introduction to Numerical Control / 2 sem. hrs.

(Same as Machine Technology 51.)

CSC 52 Key Punch, Data Entry and Procedures / 3 sem. hrs.

Student learns creation and use of program drum cards, to punch numeric and alphameric data, and computer program formats. Both the keypunch and verifier are learned, with stress on high volume/low error rates. Other methods of data entry are presented with controls and procedures in a keypunch department.
First Year Level
Prerequisite: Typing speed 40 wpm or consent of instructor.

CSC 53 Advanced Key Punch / 3 sem. hrs.

Course provides further practice to increase skills for job placement. Includes punching of specialized and unusual data, other data entry machines, estimating job costs for customers, ordering of materials and supplies, and supervision activities.
First Year Level
Prerequisite: CSC 52 or consent of instructor.

CSC 56 Computer Operations / 3 sem. hrs.

Instruction and lab experience in operations of a computer covering tape, disk, printer, reader-punch, console and in-house role of the operations section including scheduling of jobs. Hands on training in at least one operating system is required.

First Year Level

CSC 58 Job Stream Concepts and Operations / 3 sem. hrs.

A study of control statements and functions needed for computer operation. Multi-programming considerations, system flow, device assignment, labels on tape and disk, utility programs, and linkage editing are covered. Hands-on operation required.

First Year Level

Prerequisite: CSC 47, 56.

CSC 59 Programming I / 3 sem. hrs.

Intensive study and writing of programs in the Report Program Generator language. Topics include files, file organization and processing; programming for disk and tape file applications; tables, arrays and subroutines; and special RPG programming techniques.

First Year Level

Prerequisite: CSC 47 or consent of instructor.

CSC 60 Programming II / 3 sem. hrs.

Comprehensive study and practice of writing programs in COBOL, standard business language. Proper documentation and programming standards are included, as are programming techniques to utilize auxiliary storage devices.

First Year Level

Prerequisite: CSC 47 or consent of instructor.

CSC 62 Programming III / 3 sem. hrs.

Comprehensive study and practice of writing programs in a high level language such as PL/1. Proper documentation and programming standards are included, as are programming techniques to utilize auxiliary storage devices.

First Year Level

Prerequisite: CSC 40 or 47 or consent of instructor.

CSC 64 Numerical Controlled Machines I / 3 sem. hrs.

(Same as Machine Technology 64.)

CSC 68 Data Processing Projects I / 1 to 5 sem. hrs.

Topics covered include applying for employment, resumé writing, interviewing, work standards and job attitudes. (1 sem. hr.) Additional credit is given for practical work experience on assigned data processing projects.

First Year Level

Prerequisite: Consent of instructor.

CSC 70 Programming IV / 3 sem. hrs.

A study of an Assembly Level language and its relationship to machine language. Emphasis on Standard and Decimal instruction sets, sub-routine control and linkage. Debugging techniques and basic input/output control system applications are covered. Lab experience is provided.

Second Year Level

Prerequisite: CSC 47 or consent of instructor.

CSC 74 File Management and IOCS / 3 sem. hrs.

Data organization and file management techniques with IOCS applications are thoroughly explored. Interaction of the operating system and multiprogramming considerations are covered.

Second Year Level

Prerequisite: CSC 70 or consent of instructor.

CSC 76 Operating Systems / 3 sem. hrs.

A study of functions and design of a computer's operating system. Emphasizes system generation as affected by computer size, configuration, needed library routines and macros. The class will work through an actual generation of an operating system.

Second Year Level

Prerequisite: CSC 70 or consent of instructor.

CSC 77 Numerical Controlled Machines II / 3 sem. hrs.

(Same as Machine Technology 77.)

CSC 80 Systems Analysis and Design I / 3 sem. hrs.

A case study using the tools of systems analysis: card design, printer layouts, specifications for auxiliary storage devices, levels of system design, a system/program narrative, interviewing techniques, documentation and control. A project is required of each student.

Second Year Level

Prerequisite: CSC 60 or 62 or 63 or 70 or consent of instructor.

CSC 81 Systems Analysis and Design II / 3 sem. hrs.

Emphasis is on the need of management information for decision making and control, and an understanding of the place of electronic data processing in this environment. Selected topics from the field are presented by students as their projects.

Second Year Level

Prerequisite: CSC 80.

CSC 90 Systems Programming Theory / 3 sem. hrs.

The writing of compilers, operating systems and utility programs. Sorting and timing techniques included.

Second Year Level

Prerequisite: CSC 76 or consent of instructor.

CSC 94 Teleprocessing Concepts / 3 sem. hrs.

Topics covered are terminology of teleprocessing systems, hardware characteristics, considerations of direct access, backup and recovery procedures, buffering and queuing techniques.

Second Year Level

Prerequisite: CSC 74, 81 or consent of instructor.

CSC 96-97 Cooperative Training I, II / 3-3 sem. hrs.

Practical work experience on assigned projects in a data processing installation, under the supervision of the installation's management and the instructor.

Second Year Level

Prerequisite: Consent of instructor.

CSC 98 Data Processing Projects II / 1 to 5 sem. hrs.

Topics covered include applying for employment, resumé writing, interviewing, work standards and job attitudes. (1 sem. hr.) Additional credit is given for practical work experience on assigned data processing projects.

Second Year Level

Prerequisite: Consent of instructor.

DENTAL ASSISTING**DAT 51 Orientation to Dental Assisting / 1 sem. hr.**

This course reviews the history of the profession and the

variety of areas of dental practice. Also included are health and grooming, dental hygiene and job opportunities.

DAT 52 Related Dental Science / 4 sem. hrs.

Students learn a basic science relating to dentistry; about the formation and structure of body tissues, with emphasis on tooth development; and microbiology, with emphasis on the prevention of transmitting disease producing bacteria and virus.

Prerequisite: DAT 51.

DAT 53 Fundamentals of Dental Assisting / 3 sem. hrs.

Covered are personal health and grooming; manual dexterity and coordination; medical and dental terminology; the structure of the skull, face and tissues of the oral cavity; morphology of the human dentition; how to expose and process radiograms and safety factors involved.

Prerequisite: DAT 52.

DAT 54 Dental Materials / 3 sem. hrs.

Includes chemical and physical properties of dental materials, the use of materials in specific operative procedures, units of measure, measuring devices, use and maintenance of all related equipment.

Prerequisite: DAT 53.

DAT 55 Dental Assisting Theory-Basic / 3 sem. hrs.

The student learns laws governing the practice of dentistry, first aid, the classification of drugs and methods of administration, normal effects of drugs and anesthetics used in dentistry, etiology and control of dental caries, anomalies of the human dentition, chemical and physical properties of dental materials.

Prerequisite: DAT 54.

DAT 56 Dental Assisting Techniques-Basic / 4 sem. hrs.

Methods of sterilizing instruments and equipment; how to expose, process, mount, label and file radiographs; how to recognize radiographs acceptable for diagnosis; sharpening hand instruments; preparing patients for operative procedures and selecting proper instruments; and charting the patient's dental record.

Prerequisite: DAT 55.

DAT 57 Dental Assisting Theory-Advanced / 3 sem. hrs.

Dental service provided in specialty practices; use of the armamentaria for routine and special procedures; ordering and keeping an inventory of supplies; maintaining dental records; and managing the appointment schedule.

Prerequisite: DAT 56.

DAT 58 Dental Assisting Techniques-Advanced / 4 sem. hrs.

Laboratory procedures and proper care of laboratory equipment; how to apply assisting skills to the concept of 4-handed sit-down dentistry; completing and exposing radiographic surveys using extension cone paralleling techniques; and clinical experience in selected private dental offices.

Prerequisite: DAT 57.

DRAFTING

DFT 55 Technical Drafting I / 3 sem. hrs.

This is the first of a series of four courses designed to develop drafting skills and proficiency. The student proceeds through problems he will meet in his association with engineers and designers and becomes familiar with drafting tools, sketching, lettering, geometric construction,

orthographic projection, dimensioning, isometrics, sections and auxiliary views using military standards and specifications as a guide.

First Year Level

DFT 56 Technical Drafting II / 3 sem. hrs.

A continuation of Drafting 55, furthering the skills of the student. First course procedures are reviewed with the following topics occurring for problem solution: dimensioning, tolerancing, detail and assembly drawings, and hardware selection with Mil Standards and Specifications as the guide.

First Year Level

Prerequisite: DFT 55.

DFT 57 Technical Drafting III / 3 sem. hrs.

This course follows Drafting 56 and covers additional problems in mechanical drafting. The student is given more advanced problems, typical of industry, to develop skill, accuracy and speed.

Second Year Level

Prerequisite: DFT 56.

DFT 58 Tool Design / 4 sem. hrs.

Introduction to the problems of tool design, drill jigs, radius dies, fixtures, welding jigs and assembly jigs. Drawings are prepared concurrently with the study of related shop practices, mathematics, geometry, materials and basic tools of jig and fixture fabrications.

Second Year Level

Prerequisite: ENG 2 or DFT 55.

DFT 61 Construction Drafting I / 2 sem. hrs.

Introduction to drafting and blueprint reading. Plot plans, floor plans, elevations, sections, details, structural, plumbing, heating and ventilating, and electrical plans are used to develop a basic understanding of construction drawings and drafting techniques.

DFT 62 Construction Drafting II / 3 sem. hrs.

Introduces development of a set of residential and wood frame construction working drawings from a given sketch.

Prerequisite: DFT 61.

DFT 63 Construction Drafting III / 3 sem. hrs.

A continuation of DFT 62, developing construction drawings for a masonry and wood frame residence from house sketches selected by students.

Prerequisite: DFT 62.

DFT 64 Construction Drafting IV / 3 sem. hrs.

A continuation of DFT 63, developing construction drawings for a medium size steel or concrete building.

Prerequisite: DFT 63.

DFT 65 Building Utilities and Site Work / 3 sem. hrs.

The basic concepts for building service support systems and site development.

Prerequisite: DFT 62.

DFT 71 Technical Illustration / 2 sem. hrs.

Course provides skills in producing drawings for technical publications, advertising art studios and production illustrations. Freehand sketching of mechanical parts and assemblies and isometric, oblique and perspective drawings, including air brush experience, are covered.

Second Year Level

Prerequisite: DFT 55, ENG 2, 25.

DFT 73 Electronic Drafting / 3 sem. hrs.

Offered primarily for the drafting technician student. Instruction stresses schematics, logic diagrams, printed circuit and integrated circuit layout, including taping.
First Year Level
Prerequisite: DFT 55.

DFT 76 Drafting for Machine Technology I / 3 sem. hrs.

Course provides the information and skill needed for an understanding of the tooling trade related to numerical control. The student will demonstrate his knowledge by preparing reports and drawings pertaining to basic tools (fixtures and jigs) for machine operator's documents. (Same as Machine Technology 76.)
First Year Level
Prerequisite: DFT 55, MTH 80 or consent of instructor.

DFT 77 Electro-Mechanical Design / 4 sem. hrs.

Practical packaging problems, common to the electronics industry, are studied. Includes electrical, mechanical, environmental, functional and manufacturing involvement in the design of electro-mechanical gear.
Second Year Level
Prerequisite: DFT 73.

DRAMA**DRA 1 Independent Studies / 1 to 4 sem. hrs.**

Students pursue independent study under guidance of an instructor.

DRA 5-6 Introduction to Acting / 3-3 sem. hrs.

Introduction to performance techniques and the development of physical skills for effective performance; techniques of acting and characterization, and the actor's relationship to all aspects of theatrical production.
First Year Level
Prerequisite: DRA 5 for DRA 6.

DRA 9 Ethnic Theatre / 1 to 4 sem. hrs.

Experience in and study of theater as a social communication, including Mexican-American, Black and American Indian forms of dramatic presentation.
First or Second Year Level

DRA 9 Teatro del Pueblo / 3 sem. hrs.

Este curso mostrará al estudiante la técnica y las diversas faces que ha tenido el teatro históricamente. Se pondrá gran empeño en poner en marcha la práctica junto a la teoría para que los estudiantes desarrollen sus facultades artísticas y para que el teatro con elementos de actualidad revista la enorme importancia social que con su influencia ha tenido tradicionalmente. Para quienes participen como actores se otorgarán de una a dos unidades como crédito adicional si se presenta la obra al público. Este curso se ofrece en colaboración con El Teatro de Pueblo, Inc. de Tucson, Arizona.

DRA 15 Make-Up / 2 sem. hrs.

The study and practice of straight and character make-up under various conditions. Also, the history of make-up and masks in various cultures. (Fall semester only.)
First or Second Year Level

DRA 20-21 Stagecraft and Production / 2-2 sem. hrs.

Study of and experience in the technical organization of the theater, stage management, scenery construction and painting, basic drafting, special effects, and lighting mounting and

operations. (DRA 20-21 need not be taken in sequence.)
First Year Level

DRA 22 Advanced Stagecraft / 2 sem. hrs.

Study and application of graphic skills and design elements of theatrical production. May be taken concurrently with DRA 21. (Spring Semester only.)
Second Year Level
Prerequisite: DRA 20.

DRA 40-41 History of the Theater / 3-3 sem. hrs.

A study of theater and drama from primitive rituals to the present, including European, Oriental, African and American cultural influences on the development of various dramatic levels. (Offered every other year, next in 1973-74.)

DRA 48-49 Intermediate Acting / 3-3 sem. hrs.

The theories of and experiences in creating sustained and logical character portrayals, using all types of dramatic literature from various cultures.
Second Year Level

ECONOMICS**ECO 1 Economic History / 3 sem. hrs.**

The ideas of historic theorists such as Smith, Ricardo, Marx, J. S. Mill, Veblen and Keynes are surveyed as a basis of understanding modern economics.

ECO 2 Introduction to Microeconomics / 3 sem. hrs.

The role of prices in the allocation of economic resources; market structures and the distribution of income are analyzed with specific emphasis given to the individual and the firm in their economic environment.
First Year Level

ECO 3 Introduction to Macroeconomics / 3 sem. hrs.

The relationship between national income, the level of employment, the monetary system and the foreign trade sector are analyzed from a policy maker's viewpoint.
First Year Level

ECO 4 Topics in Contemporary Economics / 3 sem. hrs.

Independent studies on specific economic topics based on student interest.
Second Year Level

ELECTRONICS**ETR 53 Introduction to Electronic Fundamentals DC-AC / 6 sem. hrs.**

An introductory course for students with no previous knowledge of electronics but planning to major in the program. Covers basic physical laws on electricity, direct current, concepts and circuits, power, Kirchhoff's and Thevenin's Laws, inductance, capacitance, alternating current fundamentals and circuits using algebra, vectors and trigonometry through solution of the right triangle.
First Year Level
Prerequisite: Concurrent with MTH 82 or equivalent.

ETR 55 Transistors and Vacuum Tubes / 3 sem. hrs.

An extensive examination and analysis of the principles and application of semiconductors, theory of solids and valance rings, and electron and hole theory as it pertains to all solid state devices. Vacuum tubes are examined in the same

manner consistent with the state of the art techniques.
First Year Level
Prerequisite: ETR 53, MTH 82 (or concurrent with both),
or equivalent.

ETR 57 Electronic Circuits and Systems / 6 sem. hrs.

This course provides an extensive examination of electronic circuits and systems, basic and advanced network analysis, alternating current, resonance and power transfer. Most of the course is in lab sessions.

First Year Level

Prerequisite: ETR 53, 55, MTH 83 (or concurrent with 83),
or equivalent.

ETR 61 Advanced Circuits and Systems / 6 sem. hrs.

Advanced techniques which will be weighed toward the student's chosen specialized course.

Second Year Level

Prerequisite: ETR 57, MTH 83 and 86 (or concurrent
with 86).

ETR 63 Specialized Course – Communications / 6 sem. hrs.

Course covers most forms of communications systems from direct wire to microwave frequencies. Included are different circuits used in broadcasting and receiving, and measuring equipment used to troubleshoot and align the circuits into a complete system. Specialized equipment such as radar, telemetry, microwave, RDF, Loran, PCM, FDM and antenna systems are studied for their problems and applications.

Second Year Level

Prerequisite: ETR 61, 80, MTH 86 and 87 (or concurrent with 87).

ETR 66 Specialized Course – Pulse-Circuits / 4 sem. hrs.

Study of wave-shaping, linear and non-linear amplifiers, pulse amplifiers, transit-time analysis. Application of pulse circuits will be weighed toward the major specialized course.

Second Year Level

Prerequisite: ETR 61, MTH 86 and 87 (or concurrent with 87).

ETR 67 Specialized Course – Industrial Electronics and Instrumentation / 6 sem. hrs.

Covered are measurement techniques and contemporary devices for sensing, processing and use of signals in control systems and instrumentation. Principles of electronics, pneumatics and hydraulics are explored from the various transducers, through the systems, to the control devices and feedback loops that are part of the latest industrial systems.

Second Year Level

Prerequisite: ETR 61, 80, MTH 86 and 87 (or concurrent with 87).

ETR 71 Cooperative Electronic Training / 3 sem. hrs.

Practical experience through a supervised cooperative work program. Students are employed in an approved occupation for a minimum of 15 hours a week.

Prerequisite: A student's written application to enter course
and selection by instructor.

ETR 72 Television Repair I / 3 sem. hrs.

Electronic fundamentals for exploratory students, using a television receiver as the vehicle of instruction. Students in the two-semester TV repair certificate program receive the necessary theory to understand their jobs. No electronics experience is required and a minimum of math is used.

ETR 73 Television Repair II / 3 sem. hrs.

A continuation of ETR 72, using the latest test equipment

to troubleshoot and align television receivers. Trainers, black and white and color sets are used for actual experience. Most of course is practical training.
Prerequisite: ETR 72 or equivalent.

**ETR 74 Technician Upgrade Training
for F.C.C. License / 3 sem. hrs.**

A one-semester course to prepare present electronic technicians (radio, radar, television repair, etc.) for the second class radio telephone license examination administered by the Federal Communications Commission. Electronics training and experience is required as the course only reviews circuit analysis, laws and regulations concerning the transmission of radio energy.

Prerequisite: Must have completed Electronic Fundamentals
training including transistor and circuit theory.

ETR 80 Digital Electronics / 3 sem. hrs.

An introduction to digital electronics, computer math and Boolean algebra, and to discrete and integrated circuits. Also a survey of digital applications including interfacing, computers and calculators, digital displays and peripheral equipment.

Prerequisite: ETR 53, 55, MTH 83 (or concurrent with 83).

ETR 81 Digital Devices / 3 sem. hrs.

A continuation of ETR 80. Course covers the application of discrete and integrated digital and linear circuits as applied to digital devices. Also an introduction to real time computer applications and computer programming.
Prerequisite: ETR 80, MTH 86 (or concurrent with 86).

ETR 82 Digital Systems / 6 sem. hrs.

Covers computer and digital communication systems, applications and maintenance.

Prerequisite: ETR 81, MTH 87 (or concurrent with 87).

ETR 90 Independent Study in Electronics / 1 to 4 sem. hrs.

Students undertake a special project or study program not included in the regular courses. The proposed project must be submitted in writing for approval and must include objectives, methods of procedures and method of evaluation. A final technical report is required.

Prerequisite: Submission of proposal, obtaining a sponsoring instructor, and consent of the electronics faculty.

EMERGENCY MEDICAL TECHNOLOGY

EMT 51 Emergency Medical Technology / 5 sem. hrs.

An 80-hour course covering all techniques of emergency medical care currently considered as responsibilities of the emergency medical technician. Skills are developed in recognizing symptoms of illness and injuries and proper procedures of emergency care.

ENGINEERING

ENG 2 Engineering Graphics / 3 sem. hrs.

Freehand technical sketching and instrument working drawings. Principles of projection are reviewed, and basic descriptive geometry is studied in its application to solving engineering space problems.

Prerequisite: DFT 55 or equivalent.

ENG 14 Engineering Mechanics / 3 sem. hrs.

Vector algebra, calculus, equilibrium, kinematics, momentum,

energy concepts and equivalent force systems.
Second Year Level
Prerequisite: PHY 10, MTH 31 (May be taken concurrently.)

ENG 17 Mechanics of Materials / 3 sem. hrs.

Materials behavior, relationships between external forces acting on inelastic and elastic bodies and the resulting behavior, stress and strain, and combined stresses.
Second Year Level
Prerequisite: ENG 14.

ENG 21 Elementary Surveying / 3 sem. hrs.

Course includes measurement of horizontal distances, use of surveying instruments, angle measurements, traverse surveys and computations, topographics, government land, and construction surveys.
Prerequisite: MTH 20, 24 or 29.

ENG 25 Engineering Drawing / 3 sem. hrs.

Preparation of detail and assembly drawings using standard shop and drafting room practices. Fundamental principles of orthographic projection, sectional views, auxiliary views, graphs, intersection and developments, dimensioning and tolerances are reviewed.
First Year Level

EXPLORATORY

EXP 50 Potpourri / 3 sem. hrs.

From auto mechanics to Zen meditation. An exploration with area experts of seven subjects selected by the class.

EXP 51 Social Science Survey / 1 to 4 sem. hrs.

Includes units from the Social Sciences selected by the student. (Continuous enrollment)

EXP 60 Exploratory Workshop / 1 sem. hr.

Learning teams give members a chance to explore ideas and experiences in many different areas of study, work, cultural awareness and community involvement. (A student may receive up to four units of credit, with one per semester.)

EXP 60 Tallerenshop / 1 sem. hr.

Grupos de aprendizaje ayudarán a los estudiantes a explorar nuevas ideas y experiencias en diferentes áreas de estudio, trabajo, culturales y participación en la comunidad. Se puede repetir este curso hasta un máximo de cuatro unidades.

FIRE SCIENCE

FSC 50 Basic Training / 3 sem. hrs.

At least 12 weeks of classroom and field practice is spent at the Tucson Fire Department Training Center under the direction of instructors and in close liaison with the college's Fire Science coordinator.

FSC 51 Introduction to Fire Science / 3 sem. hrs.

A historical and scientific background of the fire protection field; its development and future in America; governmental, industrial and private fire protection organizations and agencies; employment and promotional opportunities.

FSC 52 Fundamentals of Fire Prevention / 3 sem. hrs.

Fire prevention surveys; "selling" the service to

businessmen; helping the businessman to stay in business; public relations; and the application of fire prevention codes.

FSC 53 Hazardous Materials I / 3 sem. hrs.

A study of the impact of the chemical population explosion upon the human explosion and particularly the fireman; how to identify, classify and handle the most common flammable, explosive, reactive and toxic materials; where they are likely to be found and how to cope with the various problems they present.
Prerequisite: FSC 51, 52, MTH 70, CHM 1 or consent of instructor.

FSC 54 Advanced Fire Prevention / 3 sem. hrs.

Fire prevention in high risk and industrial occupancies; application of codes in the installation, operation, storage and transportation of dangerous materials; investigation and determination of fire causes; legal aspects of fire prevention and prosecution of violations.
Prerequisite: FSC 51, 52, MTH 70, CHM 1 or consent of instructor.

FSC 61 Hazardous Materials II / 3 sem. hrs.

A continuation of FSC 53, covering the less common, newer and least known materials that appear in our environment from time to time.
Prerequisite: FSC 53, PHY 2 or consent of instructor.

FSC 62 Hydraulics and Fire Suppression / 3 sem. hrs.

Physical laws affecting the movement of water through pipes, hydrants, pumps, hoses, etc.; functions and limitations of mechanical equipment to overcome these restrictions; effect of friction loss, head and pressure, water systems; fire flow requirements and organization for fire suppression.
Prerequisite: FSC 51, 52, PHY 2 or consent of instructor.

FSC 63 Fire Apparatus and Equipment / 3 sem. hrs.

Automotive apparatus; pumps, aerial ladders, lift platforms, water towers, hose wagons, transports and utility vehicles; auxiliary heavy mechanical equipment and appliances; generators, compressors, rescue and forcible entry tools and cutting torches.
Prerequisite: FSC 51, 52, PHY 2 or consent of instructor.

FSC 64 Fire Protection Systems / 3 sem. hrs.

Portable and fixed fire extinguishing equipment, automatic sprinkler and deluge systems; rate of temperature rise and smoke detecting devices and alarm systems.
Prerequisite: FSC 62, 63 or consent of instructor.

FSC 65 Building Construction for Fire Protection / 3 sem. hrs.

How building design affects fire travel; relation of fire load to propagation of flame; non-conforming structures; application of building codes.
Prerequisite: FSC 62, 63, HUM 10 or consent of instructor.

FSC 66 Fire Suppression, Strategy and Tactics / 3 sem. hrs.

Planning an attack to fit the problem; revising the plan of attack to meet changing situations.
Prerequisite: FSC 62, 63 or consent of instructor.

FSC 67 Rescue Practices and First Aid / 3 sem. hrs.

Basic training in handling emergency situations.

FSC 70 Topics in Fire Science / 1 to 4 sem. hrs.

Special topics are selected according to the needs of students requiring material not covered in regular listings.

FSC 71 Public Safety Laws / 3 sem. hrs.

Laws relating to the public safety profession; legal duties and responsibilities of public safety employees.

FRENCH**FRE 1-2 Elementary French / 4-4 sem. hrs.**

An oral approach to French taught primarily through conversation. Reading and writing are introduced only after listening and speaking skills have been acquired. Only French is used.

First Year Level

FRE 3-4 Intermediate French / 4-4 sem. hrs.

A review of basic French skills is supplemented by regular assignment of compositions, in French, and a variety of readings. As in the introductory course, only French is used.

Second Year Level

Prerequisite: FRE 1-2.

FRE 3R Intensive Review and Intermediate French / 3 sem. hrs.

Students who previously studied French and wish a refresher will find this course an intensive review of basic skills with new materials suitable to their needs.

Meets five days weekly.

Second Year Level

Prerequisite: FRE 1-2 or consent of instructor.

FRE 25-26 Composition and Conversation / 3-3 sem. hrs.

Students with some fluency in French have an opportunity to develop conversational skills and writing ability. Both creative and analytical papers will be written to illustrate different styles.

Second Year Level

Prerequisite: FRE 4.

FRE 40 Independent Study / 1 to 4 sem. hrs.

Students pursue an independent course of study under the supervision of an instructor.

Prerequisite: Consent of instructor.

FRE 48-49 Intensive French / 4-4 sem. hrs.

Planned for students having a background in any Romance language, this course permits completion of the equivalent of two years of college French in one year. Literature is emphasized along with intensive practice in conversation, composition and reading.

Second Year Level

Prerequisite: Consent of instructor.

FRE 50 Contemporary France and Its Relation to the World / 3 sem. hrs.

France in the world today, its influence, and the influences on it by other countries are examined through studies in politics, economics, literature, arts, religion and philosophy. Class in English.

First Year Level

FRE 121 Conversational French

Practice in speaking French, emphasizing current usage and promoting facility in the expression of ideas.

Non-Credit

GENERAL BUSINESS**BUS 1 Principles of Accounting I / 3 sem. hrs.**

This course provides business administration students with the basic concepts and uses of accounting, and accounting majors with a broad foundation for advanced study. Topics include basic concepts and methods, income measurement and valuation problems.

First Year Level

BUS 1 Principio de Contabilidad I / 3 sem. hrs.

Este curso le dará a los estudiantes de administración de negocios el concepto básico y uso de la contabilidad, también ayudará a los estudiantes de contabilidad dándoles una base sólida para estudios avanzados. Es tópicos incluye conceptos básicos y métodos de valuaciones. Nivel de Primer Año.

BUS 2 Principles of Accounting II / 3 sem. hrs.

Continuation of Principles of Accounting I. Topics include income measurement and valuation problems, financial reporting, cost accumulation, cost control and financial planning.

First Year Level

BUS 5-6 Statistical Methods in Economics and Business / 3-3 sem. hrs.

Students develop an understanding of statistical techniques and their applications for use in economic and business decision making.

Second Year Level

Prerequisite: MTH 20, BUS 5 for BUS 6.

BUS 10 Business Law I / 3 sem. hrs.

The nature and sources of business law are studied, such as judicial system, contracts, sales and agency law.

Second Year Level

BUS 50 Introduction to Business / 3 sem. hrs.

A survey of fundamental characteristics and functions of modern business involving business principles, marketing, record keeping and risks, as well as a historical review of business development, including the viewpoint of various ethnic groups. (Offered both semesters.)

First Year Level

BUS 51 Mathematics of Business / 3 sem. hrs.

Designed to develop skills by solving problems involving the application of basic mathematical procedures to business situations. Includes percentage formula application, mark-up, statement analysis, and simple and compound interest. (Offered both semesters.)

First Year Level

BUS 52 Analyzing Financial Statements / 3 sem. hrs.

Characteristics of financial statements and their analysis are covered in the course. There will be a review of basic accounting principles for those who have studied accounting. For those who have not, there will be a minimum accounting background provided for financial statement analysis.

BUS 53 Installment Credit / 3 sem. hrs.

Presented are techniques of installment lending. Emphasis is on credit, obtaining and checking information, servicing the loan and collecting amounts due. Other topics covered are inventory financing, special loan programs, business

development and advertising, and the public relations aspect of installment lending.

BUS 54 Intermediate Accounting I / 3 sem. hrs.

Study of accounting theory and practice applicable to current assets, fixed assets, liabilities, sources and application of funds. This course is for those who plan to specialize in accounting.

Second Year Level
Prerequisite: BUS 2.

BUS 55 Intermediate Accounting II / 3 sem. hrs.

Accounting theory and practice applicable to corporate net worth accounts, investments, reserves and income. This course is for those who plan to specialize in accounting.

Second Year Level
Prerequisite: BUS 54.

BUS 56 Cost Accounting / 3 sem. hrs.

Interpretation, use, and analysis of cost data for management planning, coordination and control. The application of theories and concepts which underlie cost accounting and budgeting.

Second Year Level
Prerequisite: BUS 1, 2.

BUS 57 Tax Accounting / 3 sem. hrs.

Course includes all aspects of federal income tax in business operations.

Second Year Level
Prerequisite: BUS 1, 2.

BUS 58 Business Finance / 3 sem. hrs.

A basic course dealing with the methods of securing and managing fixed and working capital funds of individual business units. Special problems encountered by minority enterprises in obtaining funds are highlighted.

Second Year Level

BUS 59 Business Communications / 3 sem. hrs.

A study is made of various means of communications, such as letters, business reports, dictation techniques and telephone conferences. (Offered both semesters.)

First or Second Year Level

BUS 60 Business Law II / 3 sem. hrs.

This course emphasizes general principles followed in business, and provides training in applying these principles to typical business situations. Subjects include contracts, agency and employment, commercial papers and personal property. (Offered in the Spring.)

Second Year Level

BUS 64 Accounting for Government Agencies / 3 sem. hrs.

Concepts and procedures of fund accounting, budgeting and financial control.

Second Year Level
Prerequisite: BUS 1, 2.

BUS 65 Personal Finance / 3 sem. hrs.

(Same as Home Economics 65.)

BUS 66 Cooperative Accounting Training / 3 sem. hrs.

A supervised cooperative work program is provided students in an accounting occupation for an average of 15 hours per week.

Second Year Level
Prerequisite: Accounting core and consent of instructor.

BUS 67 Public Administration / 3 sem. hrs.

A study of management and administration principles and practices found in public agencies.

Second Year Level
Prerequisite: BUS 1, 2.

GERMAN

GER 1-2 Beginning German / 4-4 sem. hrs.

Simple conversations, reading, and writing short compositions introduce the beginner to the German language. Readings and audio-visual materials are selected on the basis of revealing the life and culture of German speaking countries. Qualified students may register for GER 2. A language laboratory is used.

First Year Level
Prerequisite: GER 1 or one year high school German for GER 2.

GER 3-4 Intermediate German / 4-4 sem. hrs.

Intensive reading, small group discussions, frequent writing assignments, and language laboratory assignments are combined with individualized instruction to develop a deeper understanding of the German language and culture.

First or Second Year Level
Prerequisite: GER 2 or equivalent for GER 3. GER 3 or equivalent for GER 4.

GER 5-6 Conversational German / 2-2 sem. hrs.

Extensive and intensive oral use of German, to develop a rich vocabulary and fluency. Audio-visual materials, plays, songs, short stories and situational dialogues are used.

Second Year Level
Prerequisite: Two years college level German, four years high school German or equivalent. GER 5 is not a prerequisite for GER 6.

GER 40 Independent Study / 1 to 4 sem. hrs.

Students pursue independent study in literature and grammar under guidance of a faculty member.

GRAPHICS

GRC 70 Offset Printing / 3 sem. hrs.

Practical experiences in offset layout, camera work, stripping, platemaking, press work and bindery work.

GRC 80 Commercial Photography / 3 sem. hrs.

Designed for the advanced student, the course includes camera techniques, film characteristics and printing techniques. Students, after completing the basic part, may select an in depth study of any phase of the photographic process such as flash, filters, composition, advanced printing techniques, toning, hyperfocal distance, supplementary lenses and portraits.

HEALTH CAREERS

HCA 50 Introduction to Health Care / 3 sem. hrs.

An exploratory and investigative health course, representing the nucleus of the Health Careers programs, which spans the entire pattern of the health care delivery system and how it relates to the patient as a person. Students, in this introductory course, are taught fundamentals common to any individual engaged in health care.

First Year Level

HISTORY

HIS 1-2 Introduction to Western Civilization / 3-3 sem. hrs.

Surveys the historic development of Western man, going through the prehistoric age, ancient Greece, Rome, early Middle Ages, Renaissance to the 20th century.
First or Second Year Level

HIS 3-4 History of the United States / 3-3 sem. hrs.

Review of history from Jamestown to the present, including the founding and development of American democracy, minority participation in making of the country, and the role of the U.S. in world affairs. (Continuous enrollment.)
First Year Level

HIS 5-6 American Civilization / 3-3 sem. hrs.

A broad look, through many units, at the American experience—with an emphasis on the cultural aspects. (Continuous enrollment.)

HIS 7 Papago History and Culture / 3 sem. hrs.

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 Social Sciences 7.)
First or Second Year Level

HIS 8 Independent Studies in History / 2 to 4 sem. hrs.

Independent history studies or projects arranged by the instructor.
Second Year Level
Prerequisite: Consent of instructor.

HIS 9 History and Culture of the Mexican-American in the Southwest / 3 sem. hrs.

Who is the Mexican-American? What is his cultural heritage, and what has happened to it in the United States? (Same as Social Sciences 9.)
First Year Level

HIS 10 History of Arizona / 3 sem. hrs.

This course looks at Arizona history as a part of the Arizona-Sonoran Desert area, moving from the pre-Columbian period and through the Spanish conquest, Mexican Republic, U.S. territory and statehood.

HIS 12 Afro-American History and Peoples / 3 sem. hrs.

What does the Afro-American have to face because he is a Black in American society? His past, present and future are examined. (Same as Social Sciences 12.)
First or Second Year Level

HIS 13 History and Peoples of Africa / 3 sem. hrs.

A survey of the political and cultural history of Africa, south of the Sahara. (Same as Social Sciences 13.)

HIS 14 History and Peoples of Latin America / 3 sem. hrs.

The history of Latin America from the pre-Columbian period to the present with emphasis on the evolution of nationalism through the struggles for economic, cultural, political and social freedoms. (Same as Social Sciences 14.)
First or Second Year Level

HIS 16-17 History of Mexico / 3-3 sem. hrs.

The student moves from the pre-Columbian era, through the Spanish conquest, a century of political and social upheaval,

to the nation of social and economic stability.
First or Second Year Level

HIS 16-17 Historia de México / 3-3 sem. hrs.

Historia de México. Se estudia una panorámica de la época precolonial, colonial y contemporánea.

HIS 49 Mexican-American Culture and Thought / 3 sem. hrs.

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." (Same as Spanish 49.)
First or Second Year Level

HOME ECONOMICS

Clothing / Textiles / Related Arts

HEC 5 Clothing Construction / 3 sem. hrs.

Basic construction of simple garments using commercial patterns and fundamental principles of dressmaking; textile study; selection and care of fabrics.

HEC 5 Costura Construcción de Ropa / 3 sem. hrs.

Construcción básica de ropa sencilla usando patrones comerciales y las bases fundamentales para construir ropa, estudio de textiles selección y cuidado de telas.

HEC 15 Advanced Clothing Construction / 3 sem. hrs.

This course is a continuation of HEC 5 with emphasis on advanced construction techniques, select fabrics, pattern alterations and fitting.
Prerequisite: HEC 5 or proficiency exam.

HEC 19 Applied Dress Design / 3 sem. hrs.

Experiences in flat pattern drafting; the application of principles of design and color; student design applied to completed construction. Emphasis is on engineering, not designing. (Offered in the Spring.)

HEC 25 Home Furnishings / 3 sem. hrs.

Study of interior design both as a functional environment and a setting which exerts social, aesthetic, economic and psychological effects on people.

HEC 35 Costume Selection / 2 sem. hrs.

The principles of color and design in relationship to clothing selection, trends in fashion, personal appearance, consumer problems in buying, and cultural and social influences.

HEC 45 Textiles / 3 sem. hrs.

The study of fibers, yarn, fabric construction and finishes—with emphasis on the relationship of these to the selection, use and care of fabrics. (Offered in the Spring.)

HEC 50 Cooperative Education I / 6 to 9 sem. hrs.

Internships in selected career areas. An in-depth development of on-the-job training. Must be taken concurrently with HEC 60.
Prerequisite: Consent of instructor.

HEC 51 Financial Management in Occupational HEC / 3 sem. hrs.

Information leading to an understanding of financial management in occupational HEC fields.

HEC 54 Tailoring / 3 sem. hrs.

Techniques and methods in designing and fitting custom garments.
Prerequisite: HEC 5, 15.

HEC 55 Alterations and Designing / 3 sem. hrs.

Application of the basic principles of alterations and dress designing, using commercial patterns.

HEC 60 Cooperative Seminar I / 3 sem. hrs.

A discussion and questioning of theory in relationship to the internship experience. To be taken concurrently with HEC 50.
Prerequisite: Consent of instructor.

HEC 64 Interior Design I / 3 sem. hrs.

The theory and evolution of function and design in interiors, and the study of various cultures and their influence on contemporary society's modes of living.

HEC 69 Communications for Occupational Home Economics / 3 sem. hrs.

Oral and written communications for careers in occupational Home Economics.

HEC 70 Cooperative Education II / 3 to 6 sem. hrs.

A continuation of HEC 50.
Prerequisite: HEC 50 and consent of instructor.

HEC 74 Interior Design II / 3 sem. hrs.

Practical application of principles in Interior Design I based on coordinated planning of interiors.
Prerequisite: HEC 64.

HEC 75 Psychology of Dress / 3 sem. hrs.

Formal and informal aspects of dress, purposes, forces of society relative to dress.

HEC 80 Cooperative Seminar II / 3 sem. hrs.

A continuation of HEC 60.
Prerequisite: HEC 60 and consent of instructor.

HEC 84 History of Fashion / 3 sem. hrs.

A study of the evolution of fashion, its adaptation to contemporary design, and its communication through illustration.

HEC 85 Fashion Design I / 3 sem. hrs.

The student designs, selects fabrics and constructs garments. Emphasis is on designing, not pattern drafting.

HEC 90 Today's World / 3 sem. hrs.

Discussions of current issues in relationship to the selected career area.

HEC 95 Fashion Design II / 3 sem. hrs.

Students design patterns, select materials, and construct original garments.
Prerequisite: HEC 5, 19, 85.

Early Childhood Education**HEC 6 Home Management / 2 sem. hrs.**

Management of family and individual resources, with special emphasis on decision making.

HEC 17 Child Growth and Development / 3 sem. hrs.

Study of the growth, development and acculturation of the child from conception through early childhood.

HEC 17 El Desarrollo del Niño / 3 sem. hrs.

Estudio del crecimiento, desarrollo y aculturación del ser humano desde la concepción hasta la niñez.

HEC 42 Nutrition in Growth and Development / 2 sem. hrs.

Nutrition in the prenatal, infant, preschool and early childhood, later childhood and adolescence stages.
Prerequisite: HEC 12.

HEC 50 Cooperative Education I / 6 to 9 sem. hrs.

(Course description under Clothing / Textiles / Related Arts.)

HEC 51 Financial Management in Occupational HEC / 3 sem. hrs.

(Course description under Clothing / Textiles / Related Arts.)

HEC 52 Foods and Nutrition for Children / 3 sem. hrs.

Basic nutrition principles related to the needs of children; principles of serving and introducing new foods in children's diets. Applicable to child care agencies emphasizing a multicultural child involvement approach.

HEC 56 Technical Administration in Child Care Agencies / 3 sem. hrs.

A study of the administrative duties and responsibilities in child care agencies.

HEC 60 Cooperative Seminar I / 3 sem. hrs.

(Course description under Clothing / Textiles / Related Arts.)

HEC 67 Creative Activities for Children / 3 sem. hrs.

Creative activities for children in music, art, crafts, science, games and dance.

HEC 68 Supervision in Child Care Agencies / 3 sem. hrs.

Study of responsibilities and duties of management and supervision of personnel within all areas of early childhood education.

HEC 69 Communications for Occupational Home Economics / 3 sem. hrs.

(Course description under Clothing / Textiles / Related Arts.)

HEC 70 Cooperative Education II / 3 to 6 sem. hrs.

(Course description under Clothing / Textiles / Related Arts.)

HEC 77 Preschool Education / 3 sem. hrs.

Preschool education with supervised field experience.

HEC 78 Technical Administration in Preschool Education / 3 sem. hrs.

A study of all administrative duties and responsibilities in child care agencies.
Prerequisite: HEC 77.

HEC 79 Community Resources / Agencies / 3 sem. hrs.

A study of the community resources and agencies related to careers in child care.

HEC 80 Cooperative Seminar II / 3 sem. hrs.

(Course description under Clothing / Textiles / Related Arts.)

HEC 90 Today's World / 3 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

Food / Nutrition

HEC 2 Foods Study I / 3 sem. hrs.
Basic principles related to the selection, care and preparation of foods.

HEC 3 Foods Study II / 3 sem. hrs.
Continuation of HEC 2. Basic principles related to the selection, care and preparation of foods.
Prerequisite: HEC 2.

HEC 6 Home Management / 2 sem. hrs.
(Course description under Early Childhood Education.)

HEC 12 Nutrition / 2 or 3 sem. hrs.
The principles of human nutrition; its relationship to diet and health in various cultural groups. (Offered in the Spring.)

HEC 22 Family Meal Management / 3 sem. hrs.
Planning, preparing and serving family meals with special emphasis on cultural patterns and the management of resources.
Prerequisite: HEC 3.

HEC 32 Institutional Meal Management / 3 sem. hrs.
Quality food preparation, quantity food service, and institutional equipment, with special emphasis on management of time and labor.
Prerequisite: HEC 3.

HEC 42 Nutrition in Growth and Development / 2 sem. hrs.
(Course description under Early Childhood Education.)

HEC 50 Cooperative Education I / 6 to 9 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

HEC 51 Financial Management in Occupational HEC / 3 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

HEC 52 Foods and Nutrition for Children / 3 sem. hrs.
(Course description under Early Childhood Education.)

HEC 60 Cooperative Seminar I / 3 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

HEC 69 Communications for Occupational Home Economics / 3 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

HEC 70 Cooperative Education II / 3 to 6 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

HEC 80 Cooperative Seminar II / 3 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

HEC 90 Today's World / 3 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

Home Economics Education

HEC 2 Foods Study I / 3 sem. hrs.
(Course description under Food / Nutrition.)

HEC 3 Foods Study II / 3 sem. hrs.
(Course description under Food / Nutrition.)

HEC 5 Clothing Construction / 3 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

HEC 6 Home Management / 2 sem. hrs.
(Course description under Early Childhood Education.)

HEC 7 Human Development and Relations / 3 sem. hrs.
An interdisciplinary and intercultural approach to human development and interpersonal relationships throughout life.

HEC 9 The Home Economics Profession / 3 sem. hrs.
A history of the home economics profession, its purposes, problems and trends. Professional opportunities in the field are explored. (Offered in the Fall.)

HEC 12 Nutrition / 2 or 3 sem. hrs.
(Course description under Food / Nutrition.)

HEC 15 Advanced Clothing Construction / 3 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

HEC 17 Child Growth and Development / 3 sem. hrs.
(Course description under Early Childhood Education.)

HEC 22 Family Meal Management / 3 sem. hrs.
(Course description under Food / Nutrition.)

HEC 25 Home Furnishings / 3 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

HEC 27 Education for Marriage / 2 sem. hrs.
A study of the various factors and philosophies involved in the relationships between man and woman before and after marriage.

HEC 32 Institutional Meal Management / 3 sem. hrs.
(Course description under Food / Nutrition.)

HEC 35 Costume Selection / 2 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

HEC 42 Nutrition in Growth and Development / 2 sem. hrs.
(Course description under Early Childhood Education.)

HEC 45 Textiles / 3 sem. hrs.
(Course description under Clothing / Textiles / Related Arts.)

HEC 99 Independent Study / 1 to 9 sem. hrs.
Students pursue independent study under the guidance of an instructor.
Prerequisite: Consent of instructor.

Personal Development

(Students can develop their own program for Personal Development by taking courses from any of the Home Economics areas.)

HEC 65 Personal Finance / 3 sem. hrs.
A study of materials enabling individuals to make wise decisions regarding personal and family affairs. Includes banking, taxes, insurance, home ownership and other

concerns of consumer financial education. (Offered both semesters.) (Same as General Business 65.)

HUMANITIES

(The course previously known as Humanities Workshop has been changed to Exploratory Workshop.)

HUM 10-11 Humanities I, II / 4-4 sem. hrs.

An introductory course which explores man's expressions in art, architecture, drama, music, religion, philosophy, literature, science and technology. The first semester focuses on man's ideas and art from ancient times through the Renaissance in Europe. The second semester explores more recent developments. Included are Oriental, Black, Indian and Mexican cultures. Studies are related to personal and present day interests and issues.

HUM 30 Independent Studies in Humanities / 3 sem. hrs.

Study areas to be arranged with instructor and staff.
First or Second Year Level

HUM 31 Special Studies in Humanities and Literature / 3 sem. hrs.

Course changes each semester according to student demands. Possible areas of study include science fiction, primitive art, divination, Zen meditation, Haiku, Gandhi and non-violence, mysticism, applications of Eastern thought for the Western world.
First or Second Year Level

HUM 54 Music and Art of the Southwest / 1 sem. hr.

Develops an awareness and appreciation of the music and art of Mexican-American and American Indian groups in the Southwest. Material studied includes works typical of such Indian tribes as the Papago, Yaqui, Navajo, Hopi and Pima.
First Year Level or Non-Credit

HUM 60 Early Chinese Views of Social Change / 3 sem. hrs.

This course, through a close study of I Ching and Taoism, attempts to take an unusual approach to social change.

HUM 69 Space Exploration / 2 sem. hrs.

A survey of discoveries in outer space during the last 10 years. Includes lectures and slide presentations by astronomers, geologists, artists, philosophers and others involved with space research. (Offered in the Spring.)

LAW ENFORCEMENT

LEN 3 Ethics for Public Service / 3 sem. hrs.

An examination of professional codes of ethics in the fields of public management, corrections, health services, law enforcement and government. (Same as Political Science 3.)
First Year Level

LEN 60 Introduction to Industrial and Retail Security / 3 sem. hrs.

A general survey of the field of retail and industrial security. Study includes applications of techniques and basic principles.
First Year Level

LEN 62 Introduction to Corrections / 3 sem. hrs.

Course deals with institutional and correctional services available in the community; theories and prison systems designed to correct or prevent criminal and delinquent

behavior. Discussed are police, courts, prisons, parole and probation.

First Year Level

LEN 64 Police Administration / 3 sem. hrs.

An introduction to the principles of police organization, administration and service. All phases of police matters are discussed including recruitment, training, promotion, complaints, records and communications.

Second Year Level

Prerequisite: LEN 100 or consent of instructor.

LEN 71 Patrol Procedures / 2 sem. hrs.

Patrol as one of the primary police operations; conspicuous presence as a means of suppressing crime and preserving peace; organization and functions of police patrol; methods, techniques and responsibility in patrol operations; use of special equipment; application of laws on arrest, search and seizure.

Second Year Level

Prerequisite: LEN 100, 101 or 104, or consent of instructor.

LEN 72-73 Crime Scene Technology / 3-3 sem. hrs.

Basic and advanced procedures in the scientific identification of evidence, crime scene recording, collecting and preserving evidence. Also fingerprinting, photography, casting and analysis of physical evidence.
Prerequisite: LEN 100, 104 or consent of instructor.

LEN 76 Basic Criminalistics / 3 sem. hrs.

A study and examination of the criminalistics field, concentrating on the crime lab. Also a study of documents, ballistics, polygraphic techniques and comparative micrography.

Prerequisite: LEN 72-73 or consent of instructor.

LEN 77 Advanced Criminalistics / 3 sem. hrs.

Examined are the fields of firearms identification, pathology, toxicology, related matters and courtroom procedures.
Prerequisite: LEN 76 or consent of instructor.

LEN 100 Introduction to Law Enforcement—Its Organization / 3 sem. hrs.

The role of the law enforcement officer in his community; the history of law enforcement agencies; police functions and practices. Career opportunities, especially as related to local law enforcement departments, are considered.

(Offered both semesters.)

First Year Level

LEN 101-102 Criminal Law and Administration of Justice / 3-3 sem. hrs.

The first semester covers organization and history. Also arrest, search and seizure, crimes of a common law nature and case studies. The second semester continues the law contents of the course and stresses the enforcement of criminal laws.

LEN 103 Criminal Evidence and Court Procedures / 3 sem. hrs.

A study of evidence in criminal prosecutions; rules governing admissibility of evidence as related to the law enforcement officer; federal exclusionary rule and its application to illegal evidence; practical application of Constitutional guarantees on confessions and search and seizure; criminal court

procedures; the law enforcement officer as a court witness.
Second Year Level
Prerequisite: LEN 102.

LEN 104 Criminal Investigation and Report Preparation / 3 sem. hrs.

Introduction to the fundamentals of modern criminal investigation; procedures and skills in search and investigation; conduct at crime scene; collection and preservation of evidence; developing sources of information; preparation of cases for court prosecution; report writing requirements for administration and court use.

First Year Level

Prerequisite: LEN 100 or consent of instructor.

LEN 106 Police Traffic Functions – Vehicle Code / 3 sem. hrs.

Traffic law enforcement and the policeman's role in overseeing the movement of vehicles and pedestrians. An introduction to the fundamentals of accident investigation and reporting, traffic court procedures and public education for traffic safety against a background of Arizona law.

First Year Level

LEN 108 Police Community and Human Relations / 3 sem. hrs.

The police officer's role in getting and maintaining public support is reviewed. Also the recognition and understanding of community problems; community action programs; methods of coping with crisis situations; ethnic and minority cultures, backgrounds and neighborhoods; and analysis of police operations in relation to minority environments and cultures.

Second Year Level

LEN 109 Juvenile Procedures / 3 sem. hrs.

A study of the organization, functions and jurisdiction of juvenile agencies and courts; Arizona juvenile statutes, detention, court procedures and case disposition; custody and treatment of the offender; crime prevention methods and reporting procedures applicable to juvenile offenders.

Second Year Level

LEN 112 Defensive Tactics / 2 sem. hrs.

The theory of rough and tumble fighting; fundamentals and precautions; close-in defense and attack; control over an adversary; the armed and unarmed opponent; club maneuvers; prisoner handling and control; physical fitness.

LEN 114 Firearms / 2 sem. hrs.

Use of firearms—the moral aspects, legal provisions, safety precautions and restrictions. Combat procedures for police, target analysis and range drill procedures.

This course is taught on the range. Students furnish their own pistols and ammunition.

LEISURE-TIME EDUCATION

Health Education

LTH 1-4 Practicum I-IV / 1 sem. hr. per sem.

Students experience on-the-job supervised training as aids. Assignments are in health education classes, the intramural program, athletic training room, and other related posts.

LTH 5-6 Field Work I, II / 1-1 sem. hr.

This is a cooperative educational experience involving the student in working with federal, state, county, municipal and private agencies under supervision.

LTH 7 First Aid / 1 sem. hr.

Instruction in first-aid techniques leading to a Standard Red Cross Certificate.

Physical Education

LTP 1-4 Practicum I-IV / 1 sem. hr. per sem.

The student experiences on-the-job supervised training as an aid. Assignments are in the service activity program, intramural program, or other related professional posts.

LTP 5-6 Field Work I, II / 1-1 sem. hr.

Provides a cooperative educational experience involving the student in working with federal, state, county, municipal and private agencies under supervision.

LTP 9-12 Service Activity Classes / 1 sem. hr. per sem.

Activities offered each semester are subject to faculty availability and demand. All activities are co-ed whenever possible. (*May be cross-listed with Performing Arts; **Suggested for Law Enforcement majors.)

Archery	Jogging
Badminton	LaCross
Bailes Folkloricos*	Life Saving
Baseball	Marksmanship-Firearms**
Basketball	Physical Fitness**
Bowling	Recreational Games
Dance*	Rugby
Fencing	Scuba
Field Hockey	Self Defense**
Fly Fishing & Tying	Soccer
Folklore Dances*	Softball
Football, Flag	Swimming
Golf	Tennis
Gymnastics & Tumbling	Track & Field
Handball	Volleyball
Ice Hockey	Water Safety
Ice Skating	Water Safety Instructor
Independent Activity	Weight Training**
Judo**	Wrestling

LTP 30 Elementary and Junior High Games / 3 sem. hrs.

This course is for recreation, physical education and education transfer students. Students experience teaching games, using evaluation techniques and field trips for grades K through 9.

LTP 39 Introduction to Leisure Education / 3 sem. hrs.

For prospective professionals in the fields of health, physical education and recreation—a survey of opportunities and qualifications as well as a general orientation on these fields.

LTP 40-43 Professional Activities / 1 to 3 sem. hrs. per sem.

A two-year professional preparation for majors and minors with emphasis on developing skills to reach at least the beginners level of competency in a variety of sports. (LTP 40 Swimming, Soccer-Speedball, Basketball (W), Flag Football (M); LTP 41 Basketball (M), Tennis, Softball, Field Hockey (W); LTP 42 Golf, Volleyball, Developmental Activities; LTP 43 Badminton, Track and Field, Gymnastics and Tumbling.)

LTP 44 Dance / 2 sem. hrs.

Introduction to folk, square, modern and social dances for majors and minors.

LTP 45 Sports Officiating / 2 sem. hrs.

Students are acquainted with the rules of various sports from the standpoint of an official. Current methods and materials are included to develop competency in executing official rules. Actual experience is required, by service, in the intramural program and other agencies.

LTP 49 Cultural History of Sports / 2 sem. hrs.

A study of the past, present and future of sports as a cultural phenomenon of man.

LTP 74 Basic Physiology of Physical Activity / 1 to 3 sem. hrs.

A unitized approach to materials relating to muscular physiology using a work-study and/or tutorial system. The course is designed to aid majors and minors in Human Anatomy (LSC 20-21) or research projects.

Recreation Education**LTR 1-4 Practicum I-IV / 1 sem. hr. per sem.**

Students experience on-the-job supervised training as an aid. Assignments are in the service activity program, intramural program, or other related professional posts.

LTR 5-6 Field Work I, II / 1-1 sem. hr.

A cooperative educational experience involving the student in working with federal, state, county, municipal and private agencies under supervision.

LTR 10 Community Resources in Recreation / 2 sem. hrs.

Students are introduced to the wide range of related activities available in the community. Community resources and facilities are visited as part of class field trips.

LTR 11 Group Leadership / 2 sem. hrs.

Provides a knowledge of human dynamics, leadership ability, and principles of effective leadership. Students experience these characteristics by observation, demonstration, participation and field trips. (Carries unit credit in Social Sciences.)

LTR 12 Methods of Recreational Skills and Techniques / 3 sem. hrs.

Group instruction and practical experience in recreative leisure time activities. Emphasis is on planning and organizing leisure sports in a recreational setting.

LTR 15 Wilderness Recreation / 2 sem. hrs.

An over-view of the scope and extent of outdoor education including hiking and camping skills. Field trips in mountain climbing, orientation, caving, hiking and general camping are a large part of this course.

LTR 16 Recreational Gerontology / 3 sem. hrs.

Students are introduced to various recreation programs for the aged. Special consideration is given to organizing and planning recreational opportunities for the retiree.

LTR 17 Survival Education / 2 sem. hrs.

Principles and techniques of survival. Students have an

opportunity to enhance their ability to survive with the environment. Field trips are a large part of this course.

LTR 18 Recreation History and Sociology / 2 sem. hrs.

A study of sociological concepts developed from, and in, the cultural pursuit of leisure education. A historical review of literature and persons who developed recreation. Behavioral concepts in groups, mobs, crowds and teams related to recreation. (Carries unit credit in Social Sciences.)

LTR 20 Recreation Equipment and Facilities / 1 to 3 sem. hrs.

A survey of available equipment and facilities in Pima County. Students learn order procedures, inventory, stocking and repair of equipment. Also includes size, space, design, construction materials and techniques, costs, competitive bids and other facility problems. Field trips are a large part of this course. (Carries unit credit in Community Planning.)

LTR 21 Methods of Recreation Arts and Crafts / 1 to 3 sem. hrs.

Provides skill and understanding of art and crafts in the total recreation program. Drama, dance, painting, music, and other creative media and materials are experienced. (Carries unit credit in Art and Drama.)

Special Education**LTS 1-4 Practicum I-IV / 1 sem. hr. per sem.**

Students experience on-the-job supervised training as aids.

LTS 9-12 Restricted Sports and Games / 1 sem. hr. per sem.

Students select, under advisement of Leisure-Time Education faculty members, sports and games of a low motor level.

LTS 14 Adaptive and Corrective Programs / 2 sem. hrs.

A study of various programs and routines of physical rehabilitation in recreation and physical education. Different techniques of instruction and the recovery from disabilities are surveyed.

LIBRARY TECHNICIAN**LMT 50 Library Resources / 3 sem. hrs.**

An introduction to the basic library resources: catalogs, bibliographies, indexes and reference materials. Also an introduction to periodicals and microforms. Prerequisite: MET 80, 81.

LMT 51 Library Technical Services / 4 sem. hrs.

Ordering and processing procedures; cataloging and classification; records maintenance (shelf list, card catalog, order files); simple book repair; bindery records and procedures. Prerequisite: LMT 50.

LMT 52 Library Public Services / 3 sem. hrs.

This course provides an introduction to public services. It includes circulation procedures and problems; charging systems and hardware; physical maintenance of library shelves; information services and reference assistance; public service ethics and relations. Prerequisite: LMT 50.

LMT 59 Lab / 6 sem. hrs.

Experience in local college, public, school or special libraries

or media centers. Monthly seminar sessions for discussion and evaluation of activities.
Prerequisite: Completion of 14 hours in program.

LIFE AND PHYSICAL SCIENCES

Astronomy

AST 1-2 Introduction to Astronomy / 4-4 sem. hrs.

An introduction to the basic principles and methods of astronomy. (Includes laboratory.)

Chemistry

CHM 1-2 Introductory Chemistry / 4-4 sem. hrs.

Classification and structure of matter along with basic principles of chemical reactions and their relevancy to common environments. Designed to meet the needs and interests of non-science majors.

First Year Level

Prerequisite: MTH 70 or equivalent background.

CHM 3-4 General Chemistry / 4-4 sem. hrs.

Essential concepts, models and problem solving techniques. Emphasis is on chemical bonding, periodicity, chemical properties, stoichiometry, kinetics and descriptive inorganic chemistry.

First Year Level

Prerequisite: High School chemistry, concurrent enrollment in MTH 20, or equivalent background.

CHM 5-6 Introduction to Chemistry / 4-4 sem. hrs.

The classification, structure and general chemical behavior of matter as a basis for the study of the chemistry of some life processes.

First Year Level

CHM 40-41 Organic Chemistry / 4-4 sem. hrs.

An integrated course in the fundamentals of organic chemistry covering the occurrence, uses, syntheses, analyses and typical reactions of important classes of organic compounds.

Second Year Level

Prerequisite: CHM 3-4, equivalent or consent of instructor.

CHM 50 Topics in Physical Science / 1 to 4 sem. hrs.

Special topics selected according to needs of students requiring material not covered in regular listings.

Variable Level

Prerequisite: Consent of instructor.

CHM 61 Applied Chemistry I / 4 sem. hrs.

A continuation of CHM 5 with additional mathematics and greater depth in instrumentation uses.

First Year Level

Prerequisite: CHM 5.

CHM 65 Qualitative and Quantitative Analysis / 4 sem. hrs.

The modern methods of qualitative and quantitative analysis of materials involved in current technology. Mathematical solutions are stressed.

Second Year Level

Prerequisite: CHM 61, MTH 81, 60 or 20.

CHM 70 Special Organic Techniques / 4 sem. hrs.

A study of advanced preparative and analytical techniques

particularly applicable to organic chemistry.

Second Year Level

Prerequisite: CHM 61.

CHM 71 Industrial Processes / 4 sem. hrs.

The practical aspects of some of the general processes used in various industries.

Second Year Level

Prerequisite: CHM 61.

CHM 72 Industrial Hygiene / 4 sem. hrs.

The course is concerned primarily with analytical methods employed in hygiene chemistry. Industrial safety procedures also are considered.

Second Year Level

Prerequisite: CHM 71.

CHM 73 Mining Chemistry / 4 sem. hrs.

Studied are descriptive chemistry of mined materials, assay methods, milling and smelting procedures.

Second Year Level

Prerequisite: CHM 61.

CHM 74 Pollution Control / 4 sem. hrs.

A review of pollution problems, pollution control systems, pollution detection, and pollution research from current literature.

Second Year Level

Prerequisite: CHM 61, 72 recommended.

CHM 75 Biochemical Techniques I / 4 sem. hrs.

An introduction to basic organic chemistry and the biochemistry applied to medical laboratories. The laboratory section covers basic techniques used in medical laboratories.

Second Year Level

Prerequisite: CHM 61, CHM 72 recommended.

CHM 77 Radiochemical Techniques / 4 sem. hrs.

Analytical methods are studied, employing micro Curie levels of radioisotopes.

Second Year Level

Prerequisite: CHM 61 and concurrent enrollment in CHM 65.

CHM 78 Advanced Instrumentation / 4 sem. hrs.

The use of instrumental techniques not studied in previous courses is reviewed, also instrument maintenance and basic theory of operation.

Second Year Level

Prerequisite: CHM 65.

CHM 80 Slide Rule and Calculators / 1 sem. hr.

Practical aspects of slide rule use are studied. Also, short cuts in calculations and experience with various calculating devices.

First Year Level

Prerequisite: MTH 11 or 60.

CHM 85 Basic Employment Information / 1 sem. hr.

This course is intended to inform students of local, regional and national job market conditions. Practical aspects of how to get a job, how to keep a job, and how to advance on a job are reviewed.

Second Year Level

Earth Sciences

ESC 1 Physical Geography / 4 sem. hrs.

The physical elements— weather, climate, vegetation, landforms and soils— are interrelated, forming patterns of great importance to man. This course is about those elements, their interrelationships, the resulting patterns and why they are important. (3 hours lecture and 2 hours lab.)
First or Second Year Level

ESC 2 Cultural Geography / 4 sem. hrs.

This is a course about people, where and how they live and some of the reasons why they live as they do. Race, language, religion and the physical environment are interwoven and changed by time to produce many economic and settlement patterns. (3 hours lecture, 2 hours lab.)
First or Second Year Level

ESC 12 Geology for Education Majors / 3 sem. hrs.

The processes, characteristics, origin and evolution of the earth; development of life; and man's dependence upon the earth. Applicability to education majors is stressed. Credit is not allowed for ESC 12 if a student has credit for either ESC 20 or 21. (2 hours lecture, 3 hours lab.) (Offered in the Spring.)
Prerequisite: CHM 1.

ESC 20 Introductory Geology I / 4 sem. hrs.

An introduction to the physical aspects of the earth's crust; rock and minerals, their relationship to one another, and the surface and subsurface processes that operate on and in the earth. (3 hours lecture, 3 hours lab.)

ESC 21 Introductory Geology II / 4 sem. hrs.

The chronological sequence of the earth's history based on the relationships of rock layers, surface sediments, morphology; the history of life on earth, including both evolutionary development and the relationship of organisms to their environment as expressed in the sedimentary record; and ancient geographic relationships. (3 hours lecture, 3 hours lab.)
Prerequisite: ESC 20.

ESC 54 Human Ecology / 3 sem. hrs.

Focuses on the question of survival for mankind and other life forms on this planet. (Same as Social and Life Sciences 54.)
First or Second Year Level

Life Sciences

LSC 1-2 Ecology / 3 or 4 sem. hrs. per sem.

The relationships of living things, plant and animal, are the key to a productive, healthy and attractive environment. This course is concerned with those relationships as they are affected by the numbers and kinds of living things. Stresses the life forms of the Southwest, using them as examples of more universal concepts. Three-hour lecture with three-hour lab (1 unit) optional. (Transfer ability based on workshop credit.)
First or Second Year Level
Prerequisite: A year of biology or consent of instructor.

LSC 5-6 Organismal Biology / 4-4 sem. hrs.

Biology and science majors study plants and animals at the organism level of organization.
Prerequisite: CHM 3 and concurrent enrollment in CHM 4.

LSC 7-8 Microbiology / 4-4 sem. hrs.

Emphasis, during the first semester, is on characteristics of microbes, and the influences both of microbes on man and his environment and of man on the microbial environment. Emphasis in the second semester is toward a medical orientation dealing with infection and immunity by a variety of microbial agents on a variety of hosts.

LSC 10 General Genetics / 4 sem. hrs.

This course introduces the student planning to major in biology to the basic principles and concepts of genetics. Laboratory sections meet three hours each week.
Second Year Level
Prerequisite: LSC 5-6, CHM 3-4, 40 and concurrent enrollment in CHM 41.

LSC 12 Biology / 4 sem. hrs.

General biological principles are stressed as to their applicability to education majors and general interest students.
Prerequisite: CHM 5 or concurrent enrollment.

LSC 20-21 Human Anatomy and Physiology / 4-4 sem. hrs.

Designed for health occupations and anyone interested in the structure and function of the human body. Cellular and biochemical emphasis on all body systems.
First or Second Year Level
Prerequisite: REA 61 or equivalent ability.

LSC 52 Special Problems in Biology / 2 sem. hrs.

A different biological topic, of interest to the general public, is offered each semester. Topics include human genetics, desert ecology, desert plants, desert animals, and the biology of gardening. (Offered evenings both semesters.)
General Interest Course

LSC 54 Human Ecology / 3 sem. hrs.

(Same as Earth and Social Sciences 54.)

LSC 56 Independent Studies / 1 to 4 sem. hrs.

Subject matters and approaches vary with student interests and reasons for enrolling. The range is from exploratory students wanting to gain insights into biology to honors biology majors wishing to do advanced work.
First or Second Year Level

LSC 60 General Biology / 4 sem. hrs.

This course is for the beginning student who expresses an interest in biology either as a vocation or special interest. General biological principles are stressed.
(May be offered in the Fall.)

LSC 121 Desert Natural History

This course is designed to show the exciting relationships among living things of the Arizona-Sonoran desert. Studies cover past events which influenced the development of the present desert environment, and explore future possibilities should important balances in nature be disturbed.
(Six to ten week course.)
Non-Credit

LSC 122 Modern Concepts of Ecology

Basic ideas involving the operation of dynamic relationships between groups of organisms and their physical environment are discussed. This course illustrates the need to understand how our ecological systems function and the

symptoms of our failure to maintain their integrity.
(Six to ten week course.)
Non-credit

Physics

PHY 2-3 Introductory Physics / 4-4 sem. hrs.

An introduction to physics through a study of the principles of mechanics, heat, sound, light, electricity and magnetism. Calculus is not required. Laboratory is required.
First Year Level
Prerequisite: High School algebra.

PHY 4-5 Introductory Physics with Calculus / 4-4 sem. hrs.

An introduction to physics for mathematics and science majors covering the basic principles of mechanics, heat, sound, light, electricity and magnetism, atomic and nuclear physics. Calculus may be taken concurrently. Laboratory is required.
First Year Level
Prerequisite: Concurrent with MTH 30.

PHY 10 Introductory Mechanics / 4 sem. hrs.

An introduction to mechanics. Recommended for physics majors and those wishing a strong mechanics background. Laboratory required.
First Year Level
Prerequisite: MTH 30.

PHY 16 Introductory Electricity and Magnetism / 4 sem. hrs.

Basic principles of electricity and magnetism. This course is planned for prospective physics majors and those wishing a strong background in electricity and magnetism. Laboratory required.
First Year Level
Prerequisite: PHY 10 or 4-5, MTH 30, 31.

PHY 21 Introduction to Waves and Heat / 3 sem. hrs.

Studies in heat, sound and light, including optics and optical instruments. Recommended for physics majors. Laboratory required.
First Year Level
Prerequisite: PHY 10 or 4-5, MTH 30, 31.

PHY 30 Introduction to Modern Physics / 3 sem. hrs.

An introduction to atomic and nuclear physics, relativity, radioactivity, quantum physics and elementary particles. Laboratory required.
Second Year Level
Prerequisite: MTH 30-31, PHY 4-5 or PHY 10, 16, 21.

PHY 50 Technical Physics / 3 sem. hrs.

Designed for the automotive technologist providing an understanding of physical principles and their application to the automotive industry. The course includes: precision measurements; properties of solids, liquids and gases; work, energy and power; force and motion; vectors; basic machines, heat and temperature. Course is for technical students and not intended as a college transfer course. Laboratory required.
Prerequisite: 1 year high school algebra or math.

PHY 51 Physics for Electronics / 2 sem. hrs.

An introduction to the basic principles of matter and energy important to the understanding of electronics. Laboratory required.

PHY 55 Fundamental Physics / 1 to 4 sem. hrs.

This course offers a brief introduction to the phenomena occurring in the physical world. Units (topics) are chosen according to special interests of students. Laboratory required.
Prerequisite: High School algebra.

PHY 60 Science and Society / 3 sem. hrs.

What is and what should be the role of science and technology in our contemporary world. This forms the basis of the course. Laboratory required.

PHY 62 How Things Work / 1 to 3 sem. hrs.

How does your iron work? Or a thermometer? Or a telephone? The course reviews over 75 common (or perhaps mysterious) objects that surround us. Laboratory required.

PHY 70 Topics in Physical Science / 1 to 3 sem. hrs.

The course involves independent projects.

LITERATURE

LIT 20 Survey of English Literature I / 3 sem. hrs.

A survey of English literature from the Anglo Saxon period to the 18th Century. Several major authors are studied in depth.
Second Year Level
Prerequisite: COM 2 for transfer credit.

LIT 21 Survey of English Literature II / 3 sem. hrs.

A survey of English literature from the 19th Century to the present. Several major authors are studied in depth.
Second Year Level
Prerequisite: COM 2 for transfer credit.

LIT 25 Survey of American Literature I / 3 sem. hrs.

A survey of American literature from Puritanism to the Civil War period. Some major authors are studied in depth.
Second Year Level
Prerequisite: COM 2 for transfer credit.

LIT 26 Survey of American Literature II / 3 sem. hrs.

A survey of American literature from the Civil War period to the present. Some major authors are studied in depth.
Second Year Level
Prerequisite: COM 2 for transfer credit.

LIT 30 Afro-American Literature / 3 sem. hrs.

A survey of Afro-American literature, its cultural and historical roots, and its relationship to other ethnic literature in America.
First or Second Year Level

LIT 39-40 Introduction to Literature / 3-3 sem. hrs.

An exploration into the worlds of fiction, drama and poetry from the classics to science fiction. Much of the class time is spent on what is happening in literature today.
First or Second Year Level
Prerequisite: COM 2 for transfer credit.

LIT 41-42 Introduction to World Literature / 3-3 sem. hrs.

Works of literature from ancient to modern times are read and discussed. Several works, to be selected by students, will be examined in detail.
First or Second Year Level
Prerequisite: COM 2 for transfer credit.

LIT 104 Introduction to Spanish Literature I / 3 sem. hrs.
(Same in Spanish 104.)

LIT 105 Introduction to Spanish Literature II / 3 sem. hrs.
(Same as Spanish 105.)

LIT 118 Mexican-American Literature / 3 sem. hrs.
(In translation.) (Same as Spanish 118.)

LIT 120 Novel of the Mexican Revolution / 2 sem. hrs.
(Same as Spanish 120.)

MANAGEMENT

MAN 50 Salesmanship / 3 sem. hrs.

A study of basic principles and techniques of selling, and their practical application; types of customers, products, information and its presentation, determination of customer's wants and needs, meeting customer objections, and the opportunities in selling. (Offered both semesters.)
First Year Level

MAN 51 Retailing / 3 sem. hrs.

The organization and operation of a retail store; trends in the field; problems involved in the retailing of goods and services.
Second Year Level

MAN 52 Small Business Management / 3 sem. hrs.

A study of the different types of business organization, and advantages and disadvantages of each; business operations including record keeping, employe and community relations. Special attention is given to minority group concerns.
First Year Level

MAN 53 Advertising / 3 sem. hrs.

Designed to acquaint the student with all phases of sales promotion.
Second Year Level

MAN 54 Supervision / 3 sem. hrs.

How to hire, teach and supervise employes from all ethnic groups and develop their special skills to form a good business team.
Second Year Level

MAN 55 Business Organization and Management / 3 sem. hrs.

A study of the role of business and management in a multicultural society; different types of organizations; the functions of the executive at all levels and the responsibility of the executive to owners, employes and the community.
Second Year Level
Prerequisite: BUS 50.

MAN 56 Advertising Layout and Design / 3 sem. hrs.

A workshop in present day creative advertising. Practices in all current media. Actual practice, criticism and field trips.
Second Year Level
Prerequisite: MAN 53.

MAN 57 Advanced Advertising / 3 sem. hrs.

Management of the advertising function in marketing. Initial analysis of managerial decisions regarding advertising as a

problem solving variable in marketing operations.
Second Year Level
Prerequisite: MAN 53, 56.

MAN 58 Human Relations in Business and Industry / 3 sem. hrs.

Human factors in the field of business, getting along with colleagues and customers. Emphasis is on improving behavioral patterns with special attention paid to minority group attitudes and customs.
(Same as Social Sciences 58.)
First Year Level

MAN 59 Marketing / 3 sem. hrs.

The basic principles involved in the movement of goods and services from producer to consumer. The functions of marketing and institutions of manufacturing, wholesaling and retailing. (Offered both semesters.)
Second Year Level

MAN 60 Cooperative Mid-Management Internship I / 3 sem. hrs.

A supervised cooperative work program is provided for second year students in which they are employed in an approved Distributive Education occupation for an average minimum of 15 hours per week.
Second Year Level
Prerequisite: Mid-Management Core, enrollment in MAN 63 and instructor's consent.

MAN 61 Cooperative Mid-Management Internship II / 3 sem. hrs.

A continuation of Cooperative Mid-Management Internship I.
Second Year Level
Prerequisite: MAN 60, enrollment in 64 and consent of instructor.

MAN 63 Management and Leadership Trends I / 3 sem. hrs.

Analysis of current trends in management, marketing, merchandising and sales promotion through case studies, practical student projects and discussions.
Second Year Level
Prerequisite: Mid-Management Core, enrollment in MAN 60, and instructor's consent.

MAN 64 Management and Leadership Trends II / 3 sem. hrs.

A continuation of Management and Leadership Trends I.
Second Year Level
Prerequisite: MAN 60, 63, enrollment in MAN 61 and consent of instructor.

MAN 70 Bank Public Relations and Marketing / 3 sem. hrs.

The basis of public relations, both internal and external, are discussed.

MAN 71 Business Administration / 3 sem. hrs.

Emphasis is on the managerial responsibility of coordinating the many facets of a business enterprise. The background of administration, financial management, production, labor-management relations, marketing, and public relations problems also are stressed.

MAN 72 Conference Planning and Leadership / 1 sem. hr.

This course is designed to help management communicate and coordinate ideas in the most effective way possible. Essentials of parliamentary procedure are stressed.

MATHEMATICS

(For student placement in mathematics, those with at least two years recent high school algebra and one year recent high school geometry should take MTH 20 and/or MTH 24. If the student had some analysis, he might take MTH 29. If he had some elementary calculus, he might take MTH 30. If the two years of high school algebra were taken more than a year ago, the student should take MTH 11. If the background is weak, or if the student never had algebra or only one year, he should take MTH 70.)

MTH 11 Intermediate Algebra / 3 sem. hrs.

A thorough grounding in the basic concepts of elementary algebra which includes coordinate systems, polynomials, quadratics, real and complex numbers, relations of numbers, slide rule and systems of equations. Valuable to biology, physical and social sciences. A technology and computer related course.

First Year Level

Prerequisite: MTH 70 or equivalent.

MTH 12-13 Basic Concepts in Math / 3-3 sem. hrs.

This course covers the math usually required for elementary education majors. It is the beginning math course, and one that is required of all elementary education majors.

First Year Level

MTH 20 College Algebra / 3 sem. hrs.

A review of intermediate algebra. Covers binomial theorem, combinations, complex numbers, conics (De Moivre theorem), determinants, exponential functions, inequalities, logarithmic functions, mathematical induction, matrices, permutations, probability progressions, quadratic and higher degree equations, and theory of equations.

First Year Level

Prerequisite: MTH 11.

MTH 24 Trigonometry / 2 sem. hrs.

Applications of trigonometry to physics, drawing and analytic geometry-calculus, and the use of logarithms in trigonometry. Should be taken concurrently with or after College Algebra (MTH 20).

First Year Level

Prerequisite: MTH 11, 71.

MTH 25 Finite Mathematics / 3 sem. hrs.

Topics from set theory, matrices, logic and probability.

First or Second Year Level

Prerequisite: MTH 20.

MTH 26 Topics in Calculus / 3 sem. hrs.

Elementary topics in differential and integral calculus with applications in business and the social sciences.

First or Second Year Level

Prerequisite: MTH 20.

MTH 29 Pre-Calculus Mathematics / 5 sem. hrs.

Students are given a stronger base in college algebra and trigonometry before attempting calculus.

Prerequisite: MTH 20, 24 or consent of instructor.

MTH 30-31 Analytical Geometry—Calculus / 5-5 sem. hrs.

Calculus is offered as a combination course with analytic geometry or separately according to student needs, and may be designed for specific programs such as engineering, electronics, mathematics or social sciences. It should be

taken concurrently with or before Physics 4-5, if that course is to be taken.

First or Second Year Level

Prerequisite: MTH 20, 24 or MTH 29.

MTH 35 Introductory Statistics / 3 sem. hrs.

A study of statistical methods as applied to collecting, tabulating, analyzing, presenting and interpreting data. Includes averages and means, central limit theorem, confidence intervals, correlations, dispersions, frequency distributions, graphs, linear regression, normal curve, probability, standard deviation and tests of hypothesis.

First Year Level

Prerequisite: MTH 20.

MTH 36 Ordinary Differential Equations / 3 sem. hrs.

A study of ordinary differential equations, boundary problems, La Place transforms, numerical methods and their applications— with special attention to their use in physics and engineering programs.

Second Year Level

Prerequisite: MTH 31.

MTH 40 Computer Science I—Fortran / 1 to 3 sem. hrs.

(Same as Computer Science and Machine Technology 40.)

MTH 43 Advanced Computer Science—Mathematics / 3 sem. hrs.

Fundamentals of digital computer programming in Fortran language in an advanced form, with applications to problems in such areas as numerical analysis and computer solutions of polynomial equations, transcendental equations, ordinary differential equations and problems in linear algebra.

(Same as Computer Science 43.)

Second Year Level

Prerequisite: MTH 31.

MTH 45 Engineering Analysis-Modeling and Simulation / 3 sem. hrs.

Construction and analysis of models of engineering systems. Manipulation of these models by digital computers.

(Same as Computer Science 45.)

Second Year Level

Prerequisite: MTH 30, 31, PHY 16, 21.

MTH 60 Introductory Math / 3 sem. hrs.

For students having little or no mathematical background, providing skills and practice for use in daily work or living situations.

High School Level

MTH 65-66 Health Careers Math / 3-3 sem. hrs.

This course provides the necessary mathematical skills for chemistry. It includes the metric system, ratio and proportion, solving equations, slide rule and logarithms, as well as further basic concepts in algebra, geometry and trigonometry.

Prerequisite: Consent of Health Careers faculty.

MTH 70 Elementary Algebra I / 3 sem. hrs.

This course includes material found in a high school algebra course.

High School Level

MTH 71 Elementary Geometry / 3 sem. hrs.

Course includes material found in a high school geometry

course. Elementary algebra should be taken before this course.
High School Level

MTH 74-75 Air Conditioning and Sheet Metal Math / 3-3 sem. hrs.

Covers the necessary algebra and geometry required of students in Air Conditioning and Sheet Metal.
Prerequisite: Consent of Air Conditioning and Sheet Metal instructors.

MTH 80-81 Technical Mathematics I, II / 3-3 sem. hrs.

Practical mathematics for work in the industrial-technical field; geometry, algebra, measuring instruments, trigonometry through the solution of the oblique triangle, slide rule with application to shop problems.
First Year Level

MTH 82 Electronics Mathematics I / 3 sem. hrs.

Practical mathematics for work in the industrial-technical field; geometry, algebra, measuring instruments, trigonometry through the solution of the oblique triangle, slide rule with application to shop problems, Kirchoff's laws, vectors and analysis of AC circuits.
First Year Level

MTH 83 Electronics Mathematics II / 3 sem. hrs.

Course closely parallels mathematics generally taken in the first year college level. Analytic geometry includes study of both plane and solid figures and calculus. A good background in mathematics, particularly in algebra and trigonometry is needed.
First Year Level
Prerequisite: MTH 82.

MTH 84 Automotive Technology Math I / 3 sem. hrs.

This course covers the math required by the automotive technologist.
First Year Level

MTH 85 Automotive Technology Math II / 3 sem. hrs.

For students who have taken MTH 84 and need further practice in the necessary mathematical skills for Automotive Technology.

MTH 86 Electronics Math III / 3 sem. hrs.

A continuation of MTH 83.
Prerequisite: MTH 83.

MTH 87 Electronics Math IV / 3 sem. hrs.

A continuation of Electronics Math.
Prerequisite: MTH 86.

MEDIA TECHNICIAN

MET 50 Communigraphics I / 3 sem. hrs.

Course covers the fundamentals of basic design in relationship to space, line and layout of elements. Color relationships and typography are dealt with, as well as techniques in the use of equipment designed for commercial graphics. Various methods of printing reproduction are studied in relationship to the design process. (2 hour lecture, 4 hour lab.)

MET 53 Photography Technology for Media Production / 3 sem. hrs.

The technique of presenting visual material on transparencies

and movie film. Includes still copy technique and simple animation.

MET 59 Field Work / 6 sem. hrs.

Field work in Instructional Media Technology is at specific locations either on or off campus. (Seminar sessions for discussion and evaluation of activities.)
Prerequisite: 14 hours in program with a minimum of 9 hours in optional area or equivalent in general and technology courses, or consent of instructor.

MET 70 Equipment Repair and Maintenance / 3 sem. hrs.

Electrical and mechanical repair and maintenance of Instructional Media Technology equipment including tape recorders, projectors, mechanical graphics arts devices. (1 hour lecture, 6 hours lab.)

MET 80 Media Terminology / 1 sem. hr.

An introduction to the language of the media field. Application of the terminology in verbal and written communications to provide an understanding of these terms for working in the media field as technicians.

MET 81 Instructional Media Technology I / 3 sem. hrs.

Areas covered are still projection, motion picture projection, graphic arts, record players, tape recorders, broadcast sound systems, educational TV, programmed instruction, supporting equipment for instructional media, non-projected instructional media materials.

MET 82 Instructional Media Technology II / 3 sem. hrs.

The functions and responsibilities of the media specialist in an industrial or educational audio-visual department. Various procedures in ordering, inventory, maintenance and budgeting for media operation. The responsibilities and opportunities for media specialists are surveyed. Media facilities are designed, and equipment evaluated. Discussed are legal aspects of media production involving copyright.

MET 84 Implications of Media Technology / 3 sem. hrs.

The effects of media technology on the individual and his society covering multi-media, computer-managed instruction, computer assisted instruction, audio-tutorial systems, television, radio, film, programmed instruction, dial-access systems, man-machine relationships in systems approaches to solving teaching-learning problems.

MET 90 Telecommunications – Television Production / 3 sem. hrs.

Students learn to function as part of television production crews. They learn to operate and work with all the basic tools, equipment and techniques used in television production.

MET 91 Telecommunications – Television Workshop / 4 sem. hrs.

Experience in the production of various types of television programs. Emphasis is on the production of special programs for educational, community and industrial use. The utilization of television equipment in remote and on-location sites as well as in studio operation. (2 hours lecture, 4 hours lab.)
Prerequisite: MET 90.

MILITARY SCIENCE

MSC 1 Introduction to ROTC / 2 sem. hrs.

Reviews the history, organization and mission of ROTC, the military and civilian obligation of the citizen. There also is

an introduction to weapons and the leadership laboratory.
First Year Level

MSC 2 Defense Establishment in National Security / 2 sem. hrs.

The history, mission and organization of the defense establishment. The role of the military in cold, limited and general warfare. Leadership laboratory included. (Second Semester Course.)
First Year Level

MSC 3 American Military History / 2 sem. hrs.

Principles of war and a survey of American military history are studied from Colonial times to 1966. Leadership laboratory included.
Second Year Level

MSC 4 Military Map Reading and Tactics / 2 sem. hrs.

An introduction to maps, map reading and the Lensatic compass. Also an introduction to small unit tactics. Leadership laboratory included. (Second semester course.)
Second Year Level

MUSIC

MUS 1 History and Literature of Music I / 2 sem. hrs.

A study of music literature with emphasis on structure, period and style. This course is required of all music majors.
First or Second Year Level

MUS 2 History and Literature of Music II / 2 sem. hrs.

A continuation of Music 1.

MUS 3 Music Theory I / 4 sem. hrs.

An integrated study of the rhythmic, melodic and harmonic aspects of music with emphasis on writing, singing and keyboard playing. Required of all music major students and open to any student who demonstrates ability to work with all major/minor scales, key-signatures, various triad-structures and fundamental rhythms.

MUS 4 Music Theory II / 4 sem. hrs.

A continuation of Music 3.

MUS 5 Music Theory III / 4 sem. hrs.

A continuation of Music Theory with a study of secondary sevenths, altered chords, modulation and additional singing, and keyboard playing. Course includes clefs, transposition and formal analysis.
Second Year Level
Prerequisite: MUS 3, 4.

MUS 6 Music Theory IV / 4 sem. hrs.

A continuation of Music 5. Offered during the second semester.

MUS 7 Basic Conducting Techniques I / 2 sem. hrs.

Course develops fundamental conducting skills with emphasis on choral techniques.
First or Second Year Level
Prerequisite: MUS 4.

MUS 20 Band / 1 sem. hr.

Participation in regular band rehearsals and performances with membership determined by auditions with the director. Continued development of musical and technical skills through interpretation is stressed for both credit

and non-credit band members.
First or Second Year Level or Non-Credit

MUS 21 Jazz Band / 1 sem. hr.

A rehearsal and performance of many styles of music in the jazz idiom. Open to all students and offered both semesters. Membership is determined by audition with the director.

MUS 23 Instrumental Ensemble / 1 sem. hr.

Course offers an opportunity for supervised rehearsal and performance of literature for various instrumental combinations. It is open to all students through a conference and audition with the instructor.

MUS 30 Chorale (SATB) / 1 sem. hr.

A selected group of mixed voices, chosen by audition, for interpretation of a wide variety of styles of music in concerts throughout the academic year. May be taken for credit or as a non-credit elective.
First or Second Year Level or Non-Credit

MUS 31 College Singers (SATB) / 1 sem. hr.

A small choral ensemble chosen by audition. Repertory and performance includes best literature from all styles and periods. There will be various performances throughout the academic year. Open to all qualified students in the college.
First or Second Year Level or Non-Credit

MUS 32 Women's Chorus / 1 sem. hr.

The chorus is chosen from those who wish to participate in choral music but for various reasons are not in chorale. A short audition is necessary for voice placement. Minimum of one performance per semester. Open to all qualified students in the college. (Offered if enough demand.)
First or Second Year Level or Non-Credit

MUS 33 Concert Choir (SATB) / 1 sem. hr.

The concert choir is chosen from those who wish to participate in choral music but for various reasons are not in chorale. A short audition is necessary for voice placement. Minimum of one performance per semester. Open to all qualified students. (Offered if enough demand.)
First or Second Year Level or Non-Credit

MUS 34 Vocal Ensemble / 1 sem. hr.

Course offers an opportunity for supervised rehearsal and performance of literature for various vocal combinations. It is open to all students through a conference and audition by the instructor.

MUS 38 Voice Class I / 2 sem. hrs.

Beginning instruction; introduction and development of basic skills, breathing, diction, tone, rhythm and sight singing. Practical training in singing without specialization. Open to all students.
First or Second Year Level

MUS 39 Voice Class II / 2 sem. hrs.

A continuation of Music 38.
Offered during the second semester.
Prerequisite: MUS 38.

MUS 40 Piano Class I / 1 sem. hr.

Beginning instruction, employing group and individual techniques in an electronic lab situation. Introduction and development of elements of basic musicianship and keyboard skills. Open to all students. (Offered both semesters.)

MUS 41 Piano Class II / 1 sem. hr.

A continuation of MUS 40. Previous piano experience required. (Offered both semesters.)

MUS 42 Applied Music—Private Instruction / 1 sem. hr.

Course offers a private weekly lesson with an instructor, and participation in student recitals and jury exams. Maximum of 1 credit each semester.

Section 1—Woodwinds

Section 2—Brass

Section 3—Percussion

Section 4—Voice

Section 5—Piano

Section 6—Strings

MUS 50 Exploring Music / 2 sem. hrs.

Introduces the non-major student to music literature and stresses form and style analysis through listening. The relationship of music to cultural and socio-economic elements throughout various historical periods is reviewed. First or Second Year Level

MUS 52 Introduction to Music Theory / 2 sem. hrs.

The course is designed to develop sufficient literacy to allow the student to begin work in the field of music. It is for students with little or no background in music, and those who wish to prepare for Theory I. Open to all students.

MUS 91 Guitar Class I / 1 sem. hr.

Beginning instruction, introduction and development of basic skills for both hands; tuning, picking and rhythms. Open to all students.

MUS 92 Guitar Class II / 1 sem. hr.

Continuation of MUS 91 with more detailed study of chord structures, scale construction, fingering and chord selection. Open to students who have mastered basic skills.

MUS 142 Applied Music—Private Instruction / 1 sem. hr.

Same as MUS 42, but without requirement for jury exam during each semester. Non-transferable.

Section 1—Woodwinds

Section 2—Brass

Section 3—Percussion

Section 4—Voice

Section 5—Piano

Section 6—Strings

Section 7—Guitar

NURSING**NRS 70 Nursing I / 6 sem. hrs.**

This course presents the role and responsibilities of the Associate degree nurse; develops the basic knowledge and skills needed to give nursing care to an individual; and builds an understanding of health and man's total needs. First Year Level

Prerequisite: Consent of instructor.

NRS 72 Nursing II / 7 sem. hrs.

Nursing skills and knowledge are further developed, with care related to specific age groups. The nurse's role in assisting mothers and beginning families to maintain health is emphasized.

First Year Level

Prerequisite: NRS 70.

NRS 80 Nursing III / 10 sem. hrs.

Changes in overall body functions, which cause specific health problems, are the basis of class discussions and clinical setting assignments. Emphasis is on increasingly complex patient care.

Second Year Level

Prerequisite: NRS 72.

NRS 82 Nursing IV / 10 sem. hrs.

A continued emphasis on complex patient care and on an individual's reaction to illness, covering all age groups. Seminars on the current trends in nursing, and on the legal and ethical responsibilities of the nurse prepare the student for her role after graduation.

Second Year Level

Prerequisite: NRS 80.

NRS 121 R.N. Refresher Course

The inactive registered nurse is prepared to return to practice. Course content reviews the general principles of patient care, current trends in nursing, and responsibilities of the nurse on today's health team. Enrollment is limited.

Non-Credit

OFFICE EDUCATION**OED 1 Beginning Shorthand / 3 sem. hrs.**

A first course in shorthand, using the Gregg method, designed to develop skills in taking simple dictation and transcribing notes. Practice in transcription is introduced early in the course. (Offered both semesters.)

Prerequisite: Typing or concurrent enrollment in OED 11.

OED 2 Intermediate Shorthand / 3 sem. hrs.

A review of Gregg shorthand through dictation practice, with emphasis on speed and accuracy. (Offered both semesters.)

Prerequisite: One year of high school shorthand or 50 wpm, OED 54 or concurrent enrollment in OED 54.

OED 3 Records Management / 2 sem. hrs.

The principles and procedures of filing and actual practice in the basic systems. Course deals with the management of established filing systems, transferring and disposing of records. (Offered in the Spring.)

OED 11 Beginning Typing / 3 sem. hrs.

A beginner's course in the theory and practice of touch typing. Emphasis is on the mastery of the keyboard, speed drills and practice. Letters, manuscripts and tabulations are included. Students with two or more semesters of high school typing may not take this course for credit without permission of the instructor. (Offered both semesters.)

OED 12 Intermediate Typing / 3 sem. hrs.

A further development of typing techniques, skills and knowledge. Accurate proofreading and a concept of mailability are stressed. Letters, manuscripts, tabulations, business reports, business forms and some legal documents are included. (Offered both semesters.)

Prerequisite: One year of typing or 30 wpm.

OED 21 Calculating Machines / 2 sem. hrs.

Instruction covers the operation of adding-listing machines, printing calculators and electronic calculators used for mathematical computation in the modern business world. (Offered both semesters.)

Prerequisite: BUS 51 or equivalent.

OED 22 Word Processing / 4 sem. hrs.

Specific procedures, methods and equipment used for transcription of written, verbal or recorded ideas into typewritten or printed form. Includes work on transcription equipment, proportional spacing typewriters, composing machines and magnetic tape typewriters. Instruction in duplicating equipment includes the spirit and stencil duplicators and offset press. (Offered both semesters.) Prerequisite: Knowledge of typing.

OED 50 Legal Shorthand and Secretarial Practice / 3 sem. hrs.

Students develop shorthand speed and accuracy along with transcribing techniques needed by the efficient secretary in a law office. Legal vocabulary and points of law are emphasized. Prerequisite: Shorthand and typing.

OED 51 Legal Typing / 3 sem. hrs.

Provides an understanding of legal terms and procedures for those interested in working as legal secretaries. Legal documents and related materials are included. Also an opportunity to develop high-level typing skills. Prerequisite: Typing.

OED 52 Advanced Typing / 3 sem. hrs.

High level skills in techniques of touch typing are developed, with a standard of mailability for all production work stressed. Office typing problems include manuscripts, correspondence, tables, business forms, executive and legal work. (Offered both semesters.) Prerequisite: Two years of high school typing or 40 wpm.

OED 53 Advanced Shorthand / 3 sem. hrs.

A further development of shorthand skills and transcription techniques. Dictation materials include correspondence, literary materials and reports. Emphasis is on mailable letters, English, spelling and punctuation. (Offered both semesters.) Prerequisite: Two years of shorthand or 70 wpm and OED 54, or concurrent enrollment with OED 54.

OED 54 Business English / 3 sem. hrs.

A basic course in English fundamentals essential for modern business including grammar, punctuation, spelling and word use. (Offered both semesters.)

OED 55 Medical Transcription / 3 sem. hrs.

Course develops skills in typing and transcribing words and phrases occurring in the spoken and written language of medicine. (Offered in the Spring.) Prerequisite: Typing.

OED 56 Medical Terms / 3 sem. hrs.

This course provides an understanding of terminology essential to the medical business office. Emphasis is on understanding and ease in using medical terms. (Offered in the Fall.)

OED 57 Office Procedures / 3 sem. hrs.

A study of the functions and procedures used in a wide range of office activities. Includes analysis of the secretarial profession, techniques to improve office efficiency, and development of a secretarial personality. (Offered both semesters.) Prerequisite: One year typing; knowledge of shorthand desirable.

OED 58 Machine Shorthand I / 3 sem. hrs.

Basic touch shorthand theory with emphasis on reading skills. Speed developed to 80 wpm. (Offered in the Fall.) Prerequisite: One year of typing or concurrent enrollment in OED 11.

OED 59 Machine Shorthand II / 3 sem. hrs.

Intensive speed building with use of abbreviations and development of transcription skills. Speed developed to 120 words a minute. (Offered in the Spring.) Prerequisite: OED 58 and 11 or ability to type 40 wpm.

OED 60 Cooperative Office Internship I / 3 sem. hrs.

A supervised cooperative work program in which students are placed in an approved training station and earn wages for hours worked. (Offered in the Fall.) Prerequisite: Office education core, concurrent enrollment in OED 62 and consent of instructor.

OED 61 Cooperative Office Internship II / 3 sem. hrs.

A continuation of OED 60. (Offered in the Spring.) Prerequisite: Office education core, concurrent enrollment in OED 63 and consent of instructor.

OED 62 Seminar-Cooperative Office Internship I / 2 sem. hrs.

Course is designed to improve the performance of office education students in OED 60. A study of common job-related problems through case studies, projects and discussions. (Offered in the Fall.) Prerequisite: Concurrent enrollment in OED 60 and consent of instructor.

OED 63 Seminar-Cooperative Office Internship II / 2 sem. hrs.

A continuation of OED 62. (Offered in the Spring.) Prerequisite: Concurrent enrollment in OED 61 and consent of instructor.

OED 64 Transcription / 3 sem. hrs.

This fourth semester course in shorthand and transcription stresses high quality techniques and skills. Course content includes shorthand, typing, spelling, punctuation, word usage, proofreading, editing and other related topics. (Offered in the Spring.) Prerequisite: OED 53 or equivalent or concurrent enrollment in OED 53, OED 54.

OPERATING ROOM TECHNOLOGY**ORT 52 Basic Surgical Technology / 4 sem. hrs.**

Explores basic concepts of patient care in surgery, the principles of asepsis and operating room techniques. On-campus laboratory practice is provided in the preparation and care of surgical supplies and equipment, patient positioning and draping, gowning and gloving, instrumentation and sutures.

ORT 53 Surgical Biology / 3 sem. hrs.

Bacteriology, wound healing, hematology, fluid and electrolyte balance, anesthesiology, pharmacology, pathology, diagnostic procedures and lab tests, as related to a surgical patient. Laboratory tours of various hospital departments are included.

ORT 54 Surgical Procedures / 3 sem. hrs.

Series of guest lectures by Tucson surgeons regarding specific surgical procedures, designed to help students better understand various operations. Subject material is

correlated with studies in anatomy and operating room technical skills.

ORT 55 Surgical Anatomy / 4 sem. hrs.

A detailed regional review of human anatomy as encountered during surgery. Includes laboratory study.

ORT 121 Hospital Lab

A minimum of 600 hours of supervised clinical experience, spent in operating rooms of local affiliated hospitals and utilizing acquired skills in actual surgical situations.

Non-Credit

Prerequisite: ORT 52, 53, 54, 55.

OPHTHALMIC DISPENSING

ODT 51 Optical Orientation I / 4 sem. hrs.

Covers the ophthalmic laboratory, lab technician, dispensing optician, ophthalmologist, optometrist, optician, etc. Basic information on lenses, refractive errors, supplies and frames.

First Year Level

Prerequisite: Admission to ophthalmic dispensing program.

ODT 52 Optical Orientation II / 4 sem. hrs.

Ocular anatomy and physiology, introduction to frame adjusting and mounting, ocular measurements, reading prescriptions and frame repair.

First Year Level

Prerequisite: ODT 51.

ODT 53 Optical Laboratory I / 4 sem. hrs.

Lens surfacing, layouts, base curves, thickness, blanks, generating machines, lens hardening, edging and insertion.

First Year Level

Prerequisite: ODT 52.

ODT 54 Optical Dispensing I / 6 sem. hrs.

Facial measurements, adjusting, frame selection, vocational glasses, lens and frame design.

Second Year Level

Prerequisite: ODT 53.

ODT 55 Optical Orientation III / 3 sem. hrs.

Introduction to optical instruments, field charting, orthoptics, common eye diseases, pharmacology.

Second Year Level

Prerequisite: ODT 54.

ODT 56 Optical Finishing Laboratory / 4 sem. hrs.

A review. Also a complete analysis of prescriptions, blanks used, surfacing, edging, adjusting, mounting and type frame used. Includes welding and frame repair.

Second Year Level

Prerequisite: ODT 54.

ODT 57 Contact Lenses / 6 sem. hrs.

Theory and practice, optics, adjusting, corneal measurements, check-outs, types of lenses, bifocal fitting.

Second Year Level

Prerequisite: ODT 55.

ODT 58 Optical Dispensing II / 6 sem. hrs.

Cataract lenses, adjusting, styles, record keeping, problem prescriptions, visits to dispensaries.

Second Year Level

Prerequisite: ODT 54.

ODT 59 Senior Seminar / 2 sem. hrs.

Ethics of the professions, state board examinations, state laws, and a complete review in preparation for the state board.

Second Year Level

Prerequisite: ODT 54.

PAPAGO

PGO 50 Elementary Papago / 4 sem. hrs.

This is a conversation course with emphasis on listening and repetition. Designed for the non-Papago speaking students.

First Year Level

PGO 51 Papago for Native Speakers / 4 sem. hrs.

Class needs will be determined, due to different speaking dialects.

Second Year Level

Prerequisite: Knowledge of Papago.

PHILOSOPHY

PHI 1-2 Introduction to Philosophy / 3-3 sem. hrs.

Course seeks to provide the general student with a sound grasp of the principles of abstract reasoning, and instances of their application to life. For the prospective philosophy specialist, it offers a thorough foundation through some of the main themes and figures in the history of western philosophy.

PHI 20 An Introduction to Logic / 3 sem. hrs.

The objective of this course is to increase the student's awareness of the requirements and processes of valid thinking, decision-making and communication.

First or Second Year Level

Prerequisite: PHI 1.

PHI 30 Introductory Studies in Ethics and Social Philosophy / 3 sem. hrs.

An introduction to the study of such matters as judgments of approval and disapproval, the rightness and wrongness of our acts, and the desirability or wisdom of our actions. Students study classical and contemporary meanings of ethical statements, their truth and falsity, their objectivity and subjectivity.

PHI 40 Philosophy of Religion / 3 sem. hrs.

An introduction to the philosophical study of religion. (Same as Religion, Comparative 40.)

PHI 45 Special Topics in Philosophy / 3 sem. hrs.

Philosophical topics of special interest to students and faculty are treated in depth.

POLITICAL SCIENCE

POL 1 Introduction to Political Science / 3 sem. hrs.

Politics. What is it? What is its significance in daily life? How do political systems change?

First Year Level

POL 3 Ethics for Public Service / 3 sem. hrs.

(Same as Law Enforcement 3.)

POL 10 American National Government and Politics / 3 sem. hrs.

A survey of the institutions of American government and the

evolution of our political system. Included are studies of the Constitution, roles of political parties, interest groups, public opinion and voting behavior. Special attention is given to positions of economic, ethnic and religious minorities in American society.
First Year Level

POL 11 American State and Local Government and Politics / 3 sem. hrs.

Survey of state and local governments and politics with particular emphasis on the political culture of Arizona, the state's politically relevant economic and ethnic groups, and its current political trends.
First or Second Year Level

POL 20 Introduction to Comparative Politics / 3 sem. hrs.

An examination of the basic concepts and methods of comparative political analysis and their application to the political systems of Western Europe, the Soviet Union, Eastern Europe, and the developing areas.
Second Year Level

POL 30 Introduction to International Relations / 3 sem. hrs.

A general examination of international relations including the elements of national power; the economic, social and psychological determinants of international political behavior; formation of foreign policy; international law; and international and regional organizations.
Second Year Level

POL 40 Minority Groups and the Political Process / 3 sem. hrs.

An investigation of the position of various minority groups in the American political system including their general political attitudes and voting behavior, patterns of political organization, party activity, and their role in the formation of public policy.
Second Year Level

POL 49 Independent Study / 2 to 4 sem. hrs.

Independent readings or special projects to be arranged with the instructor.
Second Year Level

POL 50 Immigration Law and Practices / 3 sem. hrs.

The legal and political status of immigrants from Mexico, the process of immigration and counseling for the immigrant.
First Year Level

POL 50 Derecho, Conceptos y Procesos de Imigración / 3 sem. hrs.

Se estudiará el derecho de inmigración a los Estados Unidos, sus procesos y ramificaciones legales.

POL 100 Political Revolution and Violence / 3 sem. hrs.

An examination of the causes of political revolution and violence using historical, psychological and sociological data to explain how violent changes in political power come about.

RADIOLOGIC (X-RAY) TECHNOLOGY

RAD 71 Introduction to Radiography / 3 sem. hrs.

An introduction to x-ray technology and its applications in allied health professions. Included are definitions of professional and legal responsibilities in the field, a history of the technique and its terminology, and demonstration and use of x-ray and film processing equipment.
First Year Level

RAD 72 Radiographic-Photographic Chemistry and Techniques / 4 sem. hrs.

Designed to help students understand the causes of x-ray image formation. An in depth study and application of radiographic techniques, the effects of film processing chemicals, cine film, photographic principles, infra-red photography, radiation chemistry, and biological effects of radiation exposure.
First Year Level
Prerequisite: RAD 71.

RAD 73 Radiographic Positioning I / 4 sem. hrs.

Demonstration and practice of routine and special radiographic positioning for visualization of the bones of the skeleton, exclusive of those of the skull. Radiographic phantoms are used to relate only the principles of exposures. Group process is used to evaluate all films.
First Year Level
Prerequisite: RAD 71.

RAD 81 Radiographic Positioning II / 4 sem. hrs.

Demonstration and practice of routine and special radiographic positioning for visualization of the bones of the skull and routine visceral studies. Radiographic phantoms are used to relate only principles of exposure. Group process is used to evaluate all films.
Second Year Level
Prerequisite: RAD 73.

RAD 82 Radiographic Physics / 4 sem. hrs.

Designed to help students understand the function of all x-ray machine components and special accessory units. Demonstration and application of x-ray equipment. Emphasis is on radiographic principles and on methods of protection against ionizing radiations.
Second Year Level
Prerequisite: RAD 72.

RAD 83 Clinical Procedures I / 3 sem. hrs.

Students apply their acquired skills of routine and emergency positioning in clinical situations under the direct supervision of staff radiologists and/or registered radiologic technologists of affiliated hospitals.
Second Year Level
Prerequisite: Completion of second semester courses.

RAD 84 Radiographic Positioning III / 4 sem. hrs.

Demonstration and practice of special radiographic procedures in such specialties as contrast media studies, pediatrics, and in relationships with nursing and surgical procedures.
Second Year Level
Prerequisites: RAD 81.

RAD 85 Radiation Therapy and Nuclear Medicine / 4 sem. hrs.

Use of radiation in treatment. The theory of radioactivity, nuclear isotope production and their medical applications are introduced. Use of measuring and monitoring instruments is demonstrated and practiced under the supervision of a radiologist or registered radiation therapist in an affiliated radiotherapy clinic.
Second Year Level
Prerequisite: RAD 82.

RAD 86 Clinical Procedures II / 3 sem. hrs.

A continuation of RAD 83. Students apply advanced skills in emergency and specialized radiological procedures in

clinical situations under the direct supervision of staff radiologists and/or registered radiologic technologists of affiliated hospitals.

Second Year Level
Prerequisite: RAD 83.

RAD 87 Radiation Biology / 3 sem. hrs.

Examination of the effects of radiation upon living tissue. Emphasis is given to x-ray and gamma ray effects from diagnostic and therapeutic exposures.

Second Year Level
Prerequisite: RAD 85.

READING

(Reading courses meet four hours a week unless otherwise noted. Special schedules—schedules which can be arranged “around” other courses—may be arranged with reading instructors.)

REA 50 Basic Skills I / 3 sem. hrs.

An intensive course for acquiring or improving basic skills in vocabulary, grammar and comprehension of the English language. It is specially designed for the bilingual student, but open to all who want to improve their basic reading ability. To be taken with COM 15. Transferable credit for foreign students. (Offered in the Fall.)

REA 51 Basic Skills II / 3 sem. hrs.

A continuation of REA 50, increasing the levels of skills. Emphasis is on comprehension. To be taken with COM 16. Transferable credit for foreign students. (Offered in the Spring.)

REA 52 Bilingual Reading, Spanish and English / 3 sem. hrs.

Laboratory methods and techniques are used to improve reading in English and in Spanish. Pima credit is granted in Reading, plus one elective transfer credit in Spanish. There are side by side readings in English and Spanish, independent readings in each, and vocabulary development in both. The corequisite is SPA 35. (Same as Spanish 52.)
Prerequisite: Some reading ability in both languages.

REA 60 Basic Reading Improvement / 3 sem. hrs.

For English speaking students. Individual and group instruction in techniques for improving basic reading skills which include vocabulary development, comprehension, study skills and rate.
First Year Level

REA 61 Developmental Reading / 3 sem. hrs.

For English speaking students. Individual and group instruction in theory and practice of reading skills appropriate to various situations including discovering main ideas, reading for details, skimming, locating information, rate, and reading for pleasure.

Second Year Level
Prerequisite: REA 60 or consent of instructor.

REA 62 Critical Reading / 3 sem. hrs.

For English speaking students. Emphasis is on developing a greater awareness of skills considered critical and including source appraisal, author's authority and purpose, connotation, fact/opinion, argument, propaganda, inference/implication, judgment, figurative language tone, and flexibility of reading rate. (Meets three times a week.)

Prerequisite: REA 61 or consent of instructor.

RELIGION, COMPARATIVE

REL 20 Old Testament / 3 sem. hrs.

The major works of the Old Testament with emphasis given to their religious, moral, historical and literary significance.

REL 21 New Testament / 3 sem. hrs.

The major works of the New Testament with emphasis given to their religious, moral, historical and literary significance.

REL 25 Islam / 3 sem. hrs.

The history and literature of Islam is explored from the Prophet Mohammed to the present. Special emphasis is on the poetry and practices of the Sufis.

REL 30 Comparative Religions: Oriental / 3 sem. hrs.

Hinduism, Buddhism, Zoroastrianism, Confucianism, Taoism, Shintoism and Zen Buddhism are explored through readings, discussions and movies. Christianity is compared through student knowledge and opinion in discussions.

REL 40 Philosophy of Religion / 3 sem. hrs.

(Same as Philosophy 40.)

RESPIRATORY THERAPY

RTH 71 Equipment and Procedures I / 3 sem. hrs.

A brief history of respiratory therapy, handling of medical gases, safety practices, and general equipment used in the administration of gases are covered in this introductory course.
First Year Level
Prerequisite: Admission to Respiratory Therapy program.

RTH 73 Clinical Medicine / 2 sem. hrs.

This course covers the specific principles of the pharmacological classifications of medications, the study of micro-organisms and control of pathogens related to cardiopulmonary disorders.
Prerequisite: RTH 71.

RTH 80 Equipment and Procedures II / 3 sem. hrs.

The student is introduced to the study of humidity-aerosol relationships and methods of medical gas administration. The theory of construction of specific equipment used is studied.
First Year Level
Prerequisite: RTH 71.

RTH 81 Equipment and Procedures III / 2 sem. hrs.

Methods and principles of resuscitation are discussed in depth. Theory and application of resuscitation equipment is studied. (May be offered during the Summer Session.)
First Year Level
Prerequisite: RTH 80.

RTH 82 Respiratory Physiology / 5 sem. hrs.

A study of lung development and pathology and hypoxic states; the principles involved in ventilation and gas transport within the human body.
First Year Level
Prerequisite: LSC 20.

RTH 86 Diseases and Treatments I / 5 sem. hrs.

Cardiopulmonary diagnostic procedures and disorders are discussed.
Second Year Level
Prerequisite: RTH 82.

RTH 87 Equipment and Procedures IV / 5 sem. hrs.

The structural theory of respirators, chest physiotherapy and respiratory therapy procedures is covered.

Second Year Level
Prerequisite: RTH 81.

RTH 89 Diseases and Treatment II / 5 sem. hrs.

A continuation of the study of pathophysiology and treatment of cardiopulmonary disease.

Second Year Level
Prerequisite: RTH 86.

RTH 90 Equipment and Procedures V / 5 sem. hrs.

The construction and use of pulmonary function testing equipment and volume limited ventilators.

Second Year Level
Prerequisite: RTH 87.

RTH 99 Clinical Problems / By Arrangement

This is a special procedures course designed for students to apply their acquired skills of routine and emergency procedures in a clinical situation under the direct supervision of the registered staff therapists.

Prerequisite: Completion of first year courses.

RTH 121 Clinical Procedures I

This course introduces the student to the application of beginning respiratory therapy procedures in a hospital environment.

Non-Credit

RTH 122 Clinical Procedures II

Continuation of RTH 121 with further application of respiratory procedures.

Non-Credit

RTH 123 Clinical Procedures III

Continuation of RTH 122 with application of the most advanced techniques in respiratory therapy.

Non-Credit

SHEET METAL**SML 70 Sheet Metal I / 4 sem. hrs.**

Students learn to fabricate, assemble, modify, repair and install sheet metal articles, and lay out work according to specifications and blueprints.

SML 71 Sheet Metal II / 4 sem. hrs.

Continued detailed study and practice of sheet metal layout, fabrication, assembly and special projects.

Prerequisite: SML 70.

SML 80-81-82 Sheet Metal Pattern Layout / 3-3-3 sem. hrs.

The student is taught all phases of laying out sheet metalwork including pattern cutting, pattern development, ductwork and shop procedure.

Prerequisite: SML 71.

SOCIAL SCIENCES**SSC 1 Introduction to Cultural Anthropology / 3 sem. hrs.**

A study of how our culture influences the way we behave. A look at our culture and other cultures, using the tools of anthropology.

First Year Level

SSC 2 Introduction to Physical Anthropology / 3 sem. hrs.

Man's evolution, including his origin, distribution and variation. Race and racism in the modern world also are explored.

SSC 3 Cultural Anthropology / 3 sem. hrs.

An intensive introduction to the methods by which different cultures are studied and compared. Particular attention is given to anthropological theory, the meaning of culture and cultural change, and the relationships between dominant and minority groups.

Second Year Level
Prerequisite: SSC 1.

SSC 4 Archaeology / 3 sem. hrs.

The history of archaeological research, and a survey of concepts and methods for the study of prehistoric cultures. The student is exposed to how archaeologists reconstruct human history from the past through material they find in the field.

Second Year Level

SSC 5 Archaeology Lab / 2 sem. hrs.

This course is designed to give the student field experience in both site survey and site excavation, and to give him laboratory experience in processing, preparation and analysis of excavated materials. Additional experience in areas of special student interest will be available. Student projects in areas such as display preparation, use of technical equipment are encouraged.

SSC 6 Contemporary Indian Groups of the Southwest / 3 sem. hrs.

Studies on the Federal-Indian relationship system and a comparative descriptive account of the contemporary Indian reservations in the Southwest, with emphasis on Arizona.

SSC 7 Papago History and Culture / 3 sem. hrs.

(Same as History 7.)

SSC 8 History of the Indians of North America / 3 sem. hrs.

Studies on the origin of the American Indian; a survey of the historical developments of Indian reservations in the United States and their relationships to the contemporary problems of American Indians.

SSC 9 History and Culture of the Mexican-American in the Southwest / 3 sem. hrs.

(Same as History 9.)

SSC 10 The Mexican-American in Transition / 3 sem. hrs.

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

First or Second Year Level

SSC 11 Culture and Personality of the Mexican-American / 3 sem. hrs.

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

First or Second Year Level

SSC 12 Afro-American History and Peoples / 3 sem. hrs.

(Same as History 12.)

SSC 13 History and Peoples of Africa / 3 sem. hrs.
(Same as History 13.)

SSC 14 History and Peoples of Latin America / 3 sem. hrs.
(Same as History 14.)

SSC 16 Community Organization and Development / 3 sem. hrs.

A study of the theory of organizing groups to effect change, and of the role of the professional organizer; an examination of institutions and why they change or fail to change; different strategies for effecting change. Students are involved, under direction, in formal and informal groups within the Tucson community for observation purposes.
Second Year Level

SSC 19 Individual Studies in Anthropology / 1 to 3 sem. hrs.

Independent readings or special projects of interest to the student, through arrangement with the instructor.
First Year Level
Prerequisite: Consent of instructor.

SSC 20-21 Introduction to Psychology I, II / 3-3 sem. hrs.

I—Basic principles of learning; physical and physiological factors as related to individual growth. II—Introduction to affect, personality organization and perception.
(Continuous enrollment.)

SSC 22 Introduction to Social Psychology / 3 sem. hrs.

Basic theories and concepts of social psychology; the individual's experience in group situations.

SSC 23 Normal Personality / 3 sem. hrs.

Psychological functioning and coping behaviors for normal personality development. Early adulthood is stressed.
(Continuous enrollment.)

SSC 24 Ghetto Society / 3 sem. hrs.

A study of minority socialization and the life of urban disadvantaged groups.
First or Second Year Level
Prerequisite: SSC 30 for U.A. transfer.

SSC 25 Social Psychology Practicum / 3 to 5 sem. hrs.

Familiarization with some specific area of social psychology through a review of pertinent research, directed observation, and personal participation in relevant experimental or natural settings.
First or Second Year Level
Prerequisite: Consent of instructor.

SSC 26 Explorations in Prejudice / 3 sem. hrs.

Why we hate each other. What we, as participants in this course, do about our own prejudice and prejudice in the community.
First or Second Year Level
Prerequisite: SSC 30 for U.A. transfer.

SSC 30 Introduction to Sociology / 3 sem. hrs.

What this society is, how we live in it, and what we can do with it. (Continuous enrollment.)
First or Second Year Level

SSC 31 Current United States Social Problems / 3 sem. hrs.

How individuals get constructively involved. (Continuous enrollment.)

First or Second Year Level

Prerequisite: SSC 30 for U.A. transfer.

SSC 32 Introduction to Civil Rights Practices / 3 sem. hrs.

An explanation of legal practices and regulations with emphasis on individual rights and problems, the welfare system, financial contracting, health and building codes, and administrative processes in the schools. Applied field work included. (Included in Political Science 49.)
First or Second Year Level

SSC 33 Introduction to Social Welfare / 3 sem. hrs.

An introduction to our social welfare system; what it is, has been, and what it may become nationally and in the local community. Also, an in depth review of community agencies and resources.
First Year Level

SSC 34 Casework Methods / 3 sem. hrs.

The theory and practice of casework within the context of the Southwest; interviewing, case history and review, and how to develop a helping relationship. Case examples from various settings are examined.
First Year Level
Prerequisite: SSC 33.

SSC 35 Group Work / 3 sem. hrs.

An understanding of group dynamics including personal growth, leadership and organization development in different economic and cultural settings. The role of the leader in groups and techniques of work with groups. Case examples are examined and observed.
Second Year Level

SSC 36 Introduction to Health Science / 3 sem. hrs.

Students may select topics such as traumatic injuries, communicable diseases, nutrition, mental health, environmental health problems, or socio-medical problems such as venereal diseases, drug use and abuse, alcoholism, abortion. The focus is on preventive health measures and public health services.

SSC 37 Preparation for Teaching Personal and Public Health / 3 sem. hrs.

Course content may be similar to SSC 36, but the focus is on learning to use methods and materials in teaching health topics to different age groups.
Prerequisite: SSC 36 or consent of instructor.

SSC 41 Analytical Psychology I / 3 sem. hrs.

Introduction to personality theory of analytical psychology and how the theory applies to the individual.

SSC 42 Analytical Psychology II / 3 sem. hrs.

Explorations in dream interpretation and the process of active imagination.
Prerequisite: SSC 41.

SSC 44-45 Supervised Field Internship-Seminar I, II / 3-3 sem. hrs.

Includes eight hours per week of a supervised field experience in a community agency, and a weekly seminar to share experiences, critique field progress and analyze basic concepts and current issues. Two semesters required for casework majors.
Second Year Level

SSC 46 Special Topics in the Social Sciences (or) Meeting with Change / 3 to 6 sem. hrs.

Topics such as alienation, altered states of consciousness, death, parapsychology, Utopian society, man and his symbols, human sexual behavior, and ceremonial behaviors. To be offered dependent on the background and current interests of faculty and students.

First or Second Year Level

Prerequisite: Consent of instructor.

SSC 48 Sociology of Utopia / 3 sem. hrs.

Course includes the study of "Alternative Life Styles" and the history of the communal movement in America with special emphasis on the literature of Utopia and modern communal experimentation.

SSC 49 Individual Studies in Social Sciences / 3 to 6 sem. hrs.

Exploration of special interest areas. Content to be determined by student and facilitator-instructor.

First or Second Year Level

Prerequisite: Consent of instructor.

SSC 50 Man in the Computer Age / 3 sem. hrs.

A view of the world into which we are moving, emphasizing man's relationship to machines, particularly the computer. A cross-curriculum course including units from computer science, social science, economics and technological areas. (Same as Computer Science 50.)

First Year Level

SSC 51 Special Topics in Human Relations in Business and Industry / 3 sem. hrs.

Special aspects of business and industrial psychology developed from the needs of registrants.

First or Second Year Level

SSC 52 Teachers and Children / 3 sem. hrs.

A discussion of pertinent topics developed for practicing teachers and teacher aides evolving from needs of individual participants.

Second Year Level

SSC 54 Human Ecology / 3 sem. hrs.

(Same as Earth and Life Sciences 54.)

SSC 55 Topics in Community Involvement / 1 to 3 sem. hrs.

Direct constructive student involvement in community problems, as individuals or small teams. Specific activities to be determined and guided through periodic consultations with an appropriate faculty adviser. Students employed or working as volunteers with agencies or groups also may get credit for those activities under this course.

First or Second Year Level

Prerequisite: Consent of instructor.

SSC 58 Human Relations in Business and Industry / 3 sem. hrs.

(Same as Management 58.)

SSC 59 Introduction to Cities and Community Planning / 3 sem. hrs.

Designed primarily as an introductory course to help the student understand the urban environment and how it functions. The role that community planning can and should play in adding to the quality of urban living.

SSC 60 Introducción de las Ciencias Sociales / 3 sem. hrs.

En este curso un grupo de profesores presentarán sus puntos de vista profesionales sobre la historia, antropología, economía, sociología y psicología de la region sudoeste con énfasis en los de habla hispana.

SPANISH

SPA 1 Elementary Spanish I / 4 sem. hrs.

Basic communication skills are taught, with emphasis on oral communication and elementary grammar. Students also are exposed to the culture and traditions of the Spanish speaking countries. Class meets four hours; lab, one hour.

First Year Level

SPA 2 Elementary Spanish II / 4 sem. hrs.

A continuation of Spanish I. Class meets four hours; lab is one hour.

First Year Level

Prerequisite: SPA 1 or equivalent.

SPA 3 Intermediate Spanish I / 4 sem. hrs.

An intensive review of grammar fundamentals and a continued practice in speaking. Students will read selected authors and write short compositions. Class, four hours; lab, one hour.

Second Year Level

Prerequisite: SPA 2 or equivalent.

SPA 4 Intermediate Spanish II / 4 sem. hrs.

This is a continuation of Intermediate Spanish I. Class, four hours; lab, one hour.

Second Year Level

Prerequisite: SPA 3 or equivalent.

SPA 5-6 Imaginative Writing / 1 to 4 sem. hrs. per sem.

The course is designed to develop creative writing abilities.

SPA 5-6 Literatura Creativa / 1 to 4 sem. hrs. per sem.

Literatura creativa es un curso que ayudará técnicamente a los estudiantes que tengan vocación de escritores, propiciando el desarrollo de sus facultades creativas. Se tratará de publicar los trabajos más sobresalientes.

SPA 25 Intermediate Spanish Composition and Conversation I / 3 sem. hrs.

This course gives students a firmer command of spoken and written Spanish. Includes preparation of themes and conversations from suggested topics and discussions of current issues and events. Class, three hours; lab, one hour.

Second Year Level

Prerequisite: SPA 4 or equivalent.

SPA 25 Composición y Conversación en Español / 3 sem. hrs.

El curso está diseñado para lograr mayor facilidad en el español hablado y escrito. Se prepararán discusiones sobre tópicos actuales de toda naturaleza para practicar el hablar y para ensanchar el vocabulario. Para la parte escrita se estudiarán trozos de cuento, para análisis de estilo y después para hacer imitaciones en ensayos.

SPA 26 Intermediate Spanish Composition and Conversation II / 3 sem. hrs.

A continuation of Intermediate Spanish Composition and Conversation I. Class, three hours; lab, one hour.

Second Year Level
Prerequisite: SPA 25 or equivalent.

SPA 30-31 Commercial and Technical Spanish / 2-2 sem. hrs.

The Spanish language as a business skill, especially planned for the bilingual secretary or office employee. Emphasis is on business terms and the Spanish language as used in the southwestern United States and in Mexico. Practice in taking dictation and transcribing in both languages.
First or Second Year Level
Prerequisite: Spanish proficiency in speaking and writing.

SPA 30 Español Comercial / 2 sem. hrs.

Se enseña el español especializado del negocio para obtener aptitudes necesarias de secretarías bilingües o trabajadoras (trabajadores) de oficina. El énfasis es sobre términos de negocio y el idioma español como se emplea en el sudoeste de los Estados Unidos y México. Se practicará el dictado y la transcripción en ambos idiomas.

SPA 35 Lectura Bilingüe, Español y Inglés / 3 sem. hrs.

Los métodos y técnica del laboratorio se usan para mejorar la lectura en español y en inglés. Pima College ofrece tres unidades en lectura ofreciendo además de una unidad transferible en español. Habrá lecturas con el texto idéntico en ambos idiomas, lecturas totalmente en español o inglés y estudios para desarrollar ambos vocabularios.
Corequisito es Reading 52.
Requisito: Alguna habilidad para leer en ambos idiomas.

SPA 40 Independent Study / 1 to 4 sem. hrs.

Students pursue an independent course of study under the supervision of an instructor.

SPA 49 Mexican-American Culture and Thought / 3 sem. hrs.

(Same as History 49.)

SPA 49 Cultura y Pensamiento México-Americano / 3 sem. hrs.

Este curso del pensamiento y cultura del México-americano tratará de explorar los estudios e ideas de varios escritores México-americanos. Se tratarán tópicos que conciernen a la raza en general y por lo tanto el curso no será limitado. Se necesitará bastante participación del grupo, puesto que el curso no se dará en forma de conferencia enteramente.

SPA 50 Conversational Spanish I / 4 sem. hrs.

Practice in speaking Spanish, emphasizing current usage and ease in expressing ideas.

SPA 52 Bilingual Reading, Spanish and English / 3 sem. hrs.

(Same as Reading 52.)

SPA 55 Conversational Spanish II / 4 sem. hrs.

A continuation of SPA 50 with study on a more advanced level.
Prerequisite: SPA 1 or 50 or knowledge of Spanish.

SPA 60 Technical Spanish for Public Service Employes / 3 sem. hrs.

An acquisition of basic language skills in Spanish, enabling public service employes to functionally communicate with Spanish speaking people in the discharge of their official duties.

SPA 101 Intensive Spanish for Native Speakers I / 4 sem. hrs.

Grammar instruction is designed to meet the particular needs of native speakers of Spanish; reading and writing in increasing difficulty to prepare for advanced composition; and introductory courses in Spanish literature.
Upper Level

SPA 101 Español Intensivo Para Estudiantes de Habla Hispana I / 4 sem. hrs.

Es un curso planeado especialmente para responder a las necesidades del estudiante de habla hispana. Se empieza con el sistema básico, enseñar a leer y a escribir. Por efecto de conocimientos ya adquiridos previamente los estudiantes asimilan las enseñanzas con extraordinaria rapidez. Para leer se usan particularmente lecturas con fondo cultural mexicano.

SPA 102 Intensive Spanish for Native Speakers II / 4 sem. hrs.

This is a continuation of Intensive Spanish for Native Speakers I.
Upper Level

SPA 102 Español Intensivo Para Estudiantes de Habla Hispana II / 4 sem. hrs.

En Español 102 se continúa el curso 101 del primer semestre con mayor participación en la literatura y en la gramática.

SPA 104 Introduction to Spanish Literature I / 3 sem. hrs.

Students study representative Spanish literature from its beginning to the present. They also acquire a general knowledge of the evaluation of Spanish thought and literary ideas. (Same as Literature 104.)
Upper Level
Prerequisite: SPA 4.

SPA 104 Introducción a la Literatura Española I / 3 sem. hrs.

Este curso 104 consiste en el estudio de la literatura desde el comienzo hasta el presente. Expone el pensamiento e ideas literarias españolas.

SPA 105 Introduction to Spanish Literature II / 3 sem. hrs.

This is a continuation of Introduction to Spanish Literature I. (Same as Literature 105.)
Upper Level

SA 105 Introducción a la Literatura Española II / 3 sem. hrs.

Continuación del curso – Introducción a la Literatura Española I.

SPA 110 Contemporary Theater of Mexico / 3 sem. hrs.

The theater of modern Mexico is studied from the perspective of representative dramatists. The class is conducted in Spanish.
Upper Level
Prerequisite: Proficiency in Spanish.

SPA 115 Chicano Literature I / 3 sem. hrs.

Students will be reading the most outstanding present day Mexican authors such as Juan Rulfo, Carlos Fuentes and Juan Jose Arreola. The course also reviews some poets. (Offered only in Spanish.)
Upper Level

SPA 115 Literatura Chicana I / 3 sem. hrs.

Aquí se leerán los escritores más sobresalientes del México actual como Juan Rulfo, Carlos Fuentes y Juan José Arreola.

No se limitará el estudio de la prosa sino que también se dará un vistazo de algunos poetas.

SPA 116 Chicano Literature II / 3 sem. hrs.

This is a continuation of SPA 115.

SPA 116 Literatura Chicana II / 3 sem. hrs.

Continuación del curso Literatura Chicana I.

SPA 118 Mexican-American Literature (In translation) / 3 sem. hrs.

Contemporary Mexican-American thought is examined through the writings of Mexican-Americans. Other literary works concerning the Mexican-American also are studied. This class is conducted in English. (Same as Literature 118.)
Upper Level

SPA 120 Novel of the Mexican Revolution / 2 sem. hrs.

Students analyze, from a literary perspective, representative novels of the Mexican Revolution. They also gain insights into contemporary Mexican and Mexican-American life as influenced by the Mexican Revolution of 1910. (Same as Literature 120.)
Upper Level
Prerequisite: A firm reading knowledge in Spanish.

SPA 120 Novela de la Revolución Mexicana / 3 sem. hrs.

En la Novela de la Revolución Mexicana se lee a los autores más importantes de la Revolución. Paralelamente se muestra el panorama histórico de la Revolución. Se estudiarán los motivos y hechos más sobresalientes de la época revolucionaria.

SPEECH

SPE 2 Introduction to Oral Communication / 3 sem. hrs.

An introduction to speech, with emphasis on developing confidence and effectiveness in ways people most frequently communicate among and between various cultures.
First Year Level

SPE 5 Voice and Diction / 2 sem. hrs.

The study and practice of articulation, pronunciation and effective voice production.
First or Second Year Level

SPE 10 Public Speaking / 3 sem. hrs.

An introduction to public speaking with emphasis on effective composition and delivery to different audiences with a varied cultural, political and economic orientation.
First Year Level
Prerequisite: SPE 2 or equivalent.

SPE 15 Voice and Articulation for the Stage / 2 sem. hrs.

Voice production is studied with emphasis on the practice of standard American and southern British dialects.
First or Second Year Level

SPE 20 Business and Professional Communication / 3 sem. hrs.

Study of communication problems found in business and organizations, with emphasis on business media and special applications such as interviewing, dictation and telephone use.
First Year Level

SPE 24 Beginning Forensics / 1 sem. hr.

Basic techniques of debate and experience in debating current issues.
First Year Level

SPE 25 Forensics / 1 sem. hr.

The debate of current issues with emphasis on preparation for intercollegiate debate. May be repeated once for a maximum of 2 credit hours.
First or Second Year Level
Prerequisite: SSC 31, SPE 24.

SPE 30 Small Group Discussion / 3 sem. hrs.

An introduction to the theory and practice of small group communications.
First or Second Year Level

SPE 36 Oral Interpretation of Literature / 3 sem. hrs.

Classroom and public readings to different groups providing practice in understanding and evaluating poems, plays, stories and essays. Selections will emphasize cultural variety and dramatic possibilities.
First or Second Year Level

SPE 49 Independent Studies / 1 to 4 sem. hrs.

Students pursue independent study under guidance of an instructor.

SWAHILI

SWA 50-51 Elementary Swahili / 4-4 sem. hrs.

Basic patterns and structures of Swahili and sufficient vocabulary to communicate are taught through conversation, reading and writing. An advanced course in Swahili will be offered if enrollment is sufficient.
First Year Level

TOOL AND MACHINE TECHNOLOGY

MAC 40 Computer Science I-Fortran / 1 to 3 sem. hrs.

(Same as Computer Science and Mathematics 40. A recommended elective under Tool and Machine Technology.)

MAC 51 Introduction to Numerical Control / 2 sem. hrs.

The student is introduced to numerical control and its application to the control of machines, processes and manufacturing operations. Occupational opportunities in the field are reviewed. (Same as Computer Science 51.)
First Year Level
Prerequisite: High School algebra or equivalent.

MAC 52 Machine Shop for Technicians I / 4 sem. hrs.

Covers preliminary machine shop, introduction to machine tools, their range of application and capacity.
First Year Level
Prerequisite: High School or equivalent.

MAC 62 Machine Shop for Technicians II / 4 sem. hrs.

General shop practice including a thorough training in machine tool setup, operation and cutting tool techniques.
First Year Level
Prerequisite: MAC 51, MTH 80 or equivalent.

MAC 64 Numerical Controlled Machines I / 3 sem. hrs.

The course includes basic numerical control hand programming, steps for the execution of a numerical control

job and system components. (Offered in the Spring.) (Same as Computer Science 64.)

First Year Level

Prerequisite: MAC 51, 52, MTH 80, DFT 55.

MAC 72 Manufacturing Processes I / 3 sem. hrs.

Provides a background of knowledge about various manufacturing materials and fundamental types of manufacturing methods. Automation is introduced to acquaint the student with modern practice of numerical control.

Second Year Level

Prerequisite: MAC 62.

MAC 73 Jig and Fixtures Designing I / 4 sem. hrs.

The design and application of tools, jigs and fixtures for basic metal working machine tools.

Second Year Level

Prerequisite: MAC 62, 77, MTH 81 or consent of instructor.

MAC 74 Quality Control I / 1 sem. hr.

Students get a practical working knowledge of quality control methods and an opportunity to become familiar with various types of machine tools, tooling, measuring and inspection procedures.

Second Year Level

Prerequisite: Consent of instructor.

MAC 77 Numerical Controlled Machines II / 3 sem. hrs.

This course starts continuous path programming and computer aided programming. Calculations are made manually and by computer for two and three axis numerical control machines. Numerical control languages are taught. (Same as Computer Science 77.)

Second Year Level

Prerequisite: MAC 62, 64, DFT 55, 56 and concurrent with DFT 58.

MAC 82 Manufacturing Processes II / 3 sem. hrs.

A background in casting and foundry practices. The student becomes familiar with the production of simple molds, core and casting and in basic heat treatment inspection and testing, using both destructive and non-destructive methods.

Second Year Level

Prerequisite: MAC 72.

MAC 83 Jig and Fixture Designing II / 4 sem. hrs.

Course enables the technician to lay out design of machine parts, working with government standards and the preparation of drawings for numerically controlled machines.

Second Year Level

Prerequisite: MAC 73.

MAC 84 Quality Control II / 3 sem. hrs.

Course offers the technician detailed instruction in inspection and quality control methods used by modern industry. Capabilities of numerical control drafting machines used for inspection are studied in depth.

Second Year Level

Prerequisite: MAC 74.

MAC 90 Properties of Materials / 2 sem. hrs.

A study of industrial and construction materials, their uses, properties, machining and fabrication methods, strengths, durability and testing methods. One hour lecture with three hours laboratory.

First Year Level

MAC 91 Industrial Processes / 2 sem. hrs.

Modern processing techniques are pre-studied with practical demonstrations in the multi-purpose shop. Course includes machining, hot metal casting, welding (gas and arc), sheet metal cutting, bending and fabrication. One hour lecture with three hours laboratory.

First Year Level

WELDING

WLD 51-52 Arc Welding / 4-4 sem. hrs.

A study of joining metals by electric arc with the use of the electrode; techniques of basic steps essential to all position welding with all types of electrodes; equipment, current electrodes and all specified joint preparations used.

WLD 55 Sheet Metal Welding / 3 sem. hrs.

Basic techniques in arc welding, oxy-acetylene welding and bronze brazing, theory and practice in soft and silver brazing.

WLD 56-57 Oxy-Acetylene Welding / 3-3 sem. hrs.

Students learn set-up and operation of oxy-acetylene welding equipment; how to weld flat, horizontal, vertical and overhead on standard alloys of steel; and to braze and solder non-ferrous and ferrous metals and their alloys.

WLD 60 Automotive Welding / 3 sem. hrs.

Basic arc and gas welding for automobiles.

WLD 81 Blueprint Reading for Welders / 3 sem. hrs.

The student, after successfully completing the course, can interpret blueprints as applied to the welding trade, and is familiar with welding symbols and their significance.

WLD 91 Cooperative Welding I / 3 sem. hrs.

A supervised cooperative work program in which students are employed in an approved occupation for a minimum of 15 hours a week.

WLD 92 Cooperative Welding II / 3 sem. hrs.

Same as WLD 91, but offered in the spring.



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B.A. — California Western University

Herman J. Torrano, *Air Conditioning
& Sheet Metal*

B.Ed. — Colorado State University

Gary R. Trimble, *Emergency Medical Technology*

Patricia J. Tuntland, *Social Sciences*

B.A. — Concordia College

M.A. — University of Arizona

Ralph J. Turner, *Humanities, Art & Design*

B.A. — Reed College

M.F.A. — University of Oregon

Virginia R. Turner, *Reading & Home Economics*

B.S. — Bennett College

M.Ed. — Wayne State

Robert C. Van de Steeg, *Ophthalmic Dispensing*

O.D. — Illinois College of Optometry

Yone B. Van Olphen, *Reading*

B.A. — San Jose State College

M.A. — Arizona State University

John C. Varga, *Electronics*

B.S. — University of Arizona

Manuel Velez, *Communications*

B.A. — University of Arizona

M.A. — University of Arizona

Nadia E. Villalobos, *Business*

A.A. — Cochise Jr. College

B.A. — University of Arizona

M.Ed. — University of Arizona

Carl C. Wachsman, *Music*

B.S. — Dickinson State College

M.A. — Arizona State University

James E. Waid, *Art & Design*

B.F.A. — University of New Mexico

M.F.A. — University of Arizona

Paul D. Walker, *Music & Humanities*

B.S. — Westchester State College

M.Mus. — Arizona State University

Nancy B. Wall, *Communications*

B.A. — Colorado State University

M.A. — University of Arizona

Louise M. Waller, *Communications & Humanities*

B.S. — St. Louis University

M.A. — University of Minnesota

James C. Wallis, *Drafting, Tool
& Machine Technology*

B.S. — Ball State University

Evelyn B. Wallraff, *Life Sciences*

B.S. — Rosary College

M.S. — University of Chicago

Ph.D. — University of Arizona

Arleigh B. Watkins, *Home Economics*

William B. Watkins, *Leisure-Time Education*

B.A.Ed. — Arizona State University

M.S. — Arizona State University

Glynn D. Webb, *Life Sciences*

B.M. — Louisiana State University

M.S. — University of Arizona

George R. Welch, *Art & Design*

B.S. — Central State University

M.S. — Bank Street College of Education

Sharon S. Welch, *Office Education*

B.S. — University of Arizona

M.Ed. — University of Arizona

Herbert D. Welsh, *Radiologic Technology*

M.D. — University of Michigan

James P. Wesselmann, *Mathematics*

B.S. — University of Arizona

M.A. — University of Arizona

W. Curtis Wilcox, *Cardiopulmology*
M.D. – Tulane University

Yang, Tien Wei, *Life Sciences*
A.B. – Oberlin College
M.S. – University of Arizona
Ph.D. – University of Arizona

Tamas D. Zsitvay, *Political Science*
B.A. – Arizona State University
M.A. – Arizona State University

Roger V. Zuniga, *Fire Science*

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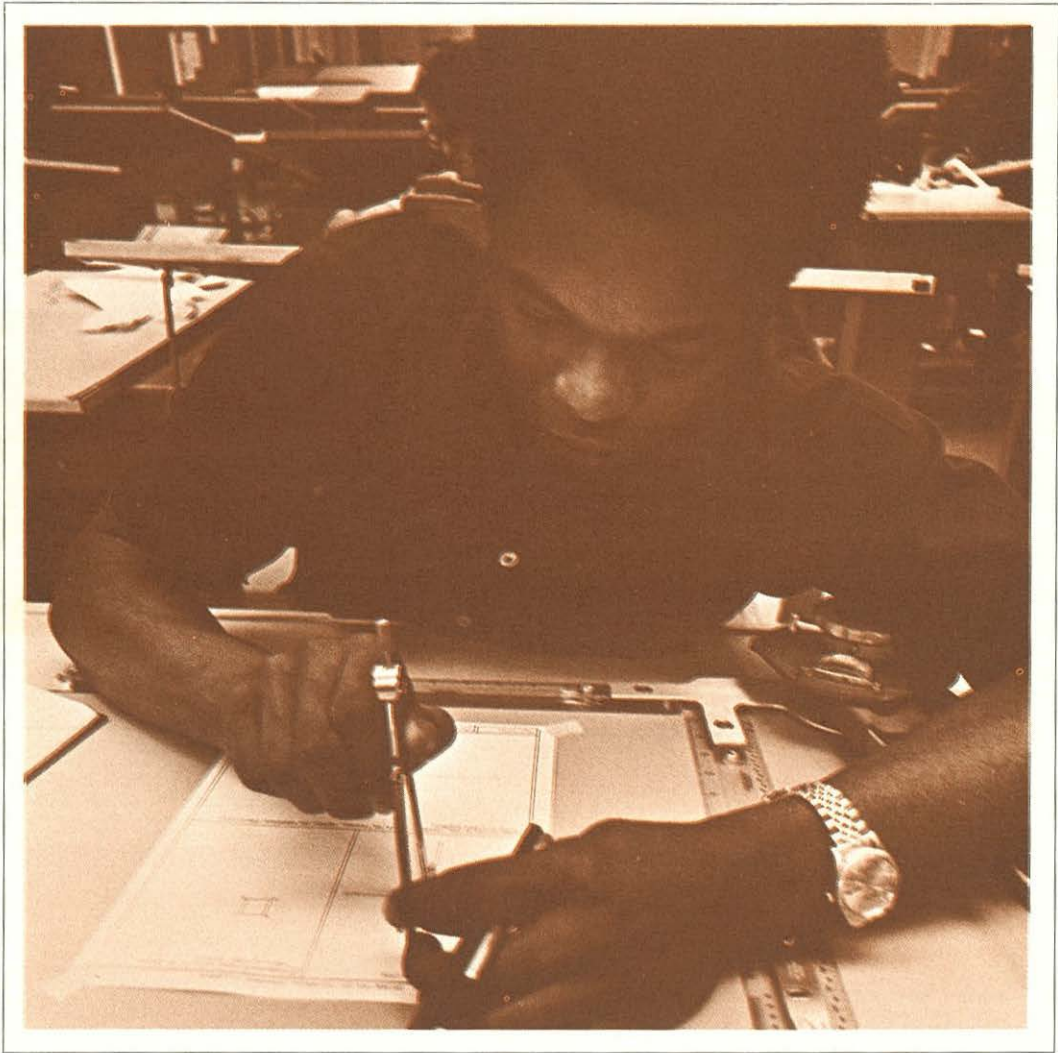
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Programs

Leisure-Time Education

Health Education (LTH) has been deleted from the Leisure-Time Education program.

Mid-Management (Real Estate)

A two-year real estate program, aimed at both training persons new to the field and upgrading those already in it, is being introduced under Mid-Management studies in the fall of 1972.

Employment in the real estate field is growing rapidly, making this an increasing opportunity for both career minded young people and adults seeking the challenge of a new occupation. Courses in the program prepare students for careers in real estate — as salesmen and brokers — and allied fields including governmental agencies and financial institutions.

Radiologic (X-ray) Technology

Intermediate Algebra (MTH 11) replaces Health Math (MTH 65) as a course which should be included in the Radiologic Technology program.

Courses

AIR CONDITIONING

ACD 80-81 Cooperative Air Conditioning Training I, II/ 3-3 sem. hrs.

A supervised cooperative work program is provided for second year students in which they are employed in an approved air conditioning occupation for an average minimum of 15 hours per week.
Second Year Level
Prerequisite: Enrollment in ACD 82 or 83 and consent of instructor.

ACD 82-83 Cooperative Air Conditioning Seminar I, II/1 to 3 sem. hrs. per sem.

A study of common job-related problems through case studies, projects, discussions and individual instruction. Course is designed to improve the performance of air conditioning students in ACD 80-81.
Second Year Level
Prerequisite: Enrollment in ACD 80 for ACD 82 or ACD 81 for ACD 83 and consent of instructor.

AUTO MECHANICS

AUT 70-71 Cooperative Automotive Training I, II/ 3-3 sem. hrs.

A supervised cooperative work program is provided second year students in which they are employed in an approved automotive occupation for an average minimum of 15 hours per week.
Second Year Level
Prerequisite: Enrollment in AUT 72 or 73 and consent of instructor.

AUT 72-73 Cooperative Automotive Seminar I, II/1 to 3 sem. hrs. per sem.

A study of common job related problems through case studies, projects, discussions and individual instruction. The course is designed to improve the performance of automotive students in AUT 70-71.
Second Year Level
Prerequisite: Enrollment in AUT 70 for AUT 72 or AUT 71 for AUT 73 and consent of instructor.

COMMUNICATIVE ARTS

COM 5 Imaginative Writing — Poetry/3 sem. hrs.

(Change in credit hours. Description in catalog.)

COM 6 Imaginative Writing — Short Story/3 sem. hrs.

(Change in credit hours. Description in catalog.)

COM 55 Imaginative Writing — Poetry/3 sem. hrs.

(Change in credit hours. Description in catalog.)

COM 66 Imaginative Writing — Short Story/3 sem. hrs.

(Change in credit hours. Description in catalog.)

COMPUTER SCIENCE

CSC 95 Cooperative Computer Science Seminar I/1 sem. hr.

A study of common job-related problems through case studies, projects, discussions and individual study. Course is designed to improve the performance of computer science students in CSC 96.
Second Year Level
Prerequisite: Enrollment in CSC 96 and consent of instructor.

CSC 99 Cooperative Computer Science Seminar II/1 sem. hr.

A continuation of CSC 95.
Second Year Level
Prerequisite: Enrollment in CSC 97 and consent of instructor.

COMPUTER SCIENCE

CSC 95 Cooperative Computer Science Seminar I/1 sem. hr.

A study of common job-related problems through case studies, projects, discussions and individual study. Course is designed to improve the performance of computer science students in CSC 96.
Second Year Level
Prerequisite: Enrollment in CSC 96 and consent of instructor.

CSC 99 Cooperative Computer Science Seminar II/1 sem. hr.

A continuation of CSC 95.
Second Year Level
Prerequisite: Enrollment in CSC 97 and consent of instructor.

DENTAL ASSISTING

DAT 56 Dental Assisting Techniques — Basic/3 sem. hrs.

(Change in credit hours. Description in catalog.)

DAT 57 Dental Assisting Theory — Advanced/4 sem. hrs.

(Change in credit hours. Description in catalog.)

DAT 58 Dental Assisting Techniques — Advanced/5 sem. hrs.

(Change in credit hours. Description in catalog.)



DRAFTING

DFT 80-81 Cooperative Drafting Training I, II/3-3 sem. hrs.

A supervised cooperative work program is provided for second year students in which they are employed in an approved drafting occupation for an average minimum of 15 hours per week.

Second Year Level

Prerequisite: Enrollment in DFT 82 or 83 and consent of instructor.

DFT 82-83 Cooperative Drafting Seminar I, II/1 to 3 sem. hrs. per sem.

A study of common job-related problems through case studies, projects, discussions and individual instruction. The course is designed to improve the performance of drafting students in DFT 80-81.

Second Year Level

Prerequisite: Enrollment in DFT 80 for DFT 82 or DFT 81 for DFT 83 and consent of instructor.

DRAMA

DRA 50-51 Children's Theater/3-3 sem. hrs.

The study and experience of principles and techniques of creative dramatics as related to children; the development of capabilities of relating with and teaching children in dramatic efforts; also, the performance of scripted and improvisational works as well as some production of simple masks, costumes and set pieces.

ELECTRONICS

ETR 68-69 Cooperative Electronics Training I, II/3-3 sem. hrs.

Practical experience through a supervised cooperative work program. Students are employed in an approved occupation for a minimum of 15 hours per week. (Course was numbered ETR 71 in the catalog.)

Second Year Level

Prerequisite: A student's written application to enter course and selection by instructor.

ETR 70-71 Cooperative Electronics Seminar, I, II/1 to 3 sem. hrs. per sem.

A study of common job-related problems through case studies, projects, discussions and individual instruction. Course is designed to improve the performance of electronics students in ETR 68-69.

Second Year Level

Prerequisite: Enrollment in ETR 68 for ETR 70 or ETR 69 for ETR 71 and consent of instructor.

ENGINEERING

ENG 70 Construction Survey/3 sem. hrs.

This is an elementary surveying course intended primarily for architectural students.

Prerequisite: Consent of instructor.

EXPLORATORY

EXP 80 Cooperative Training I/3 sem. hrs.

A supervised work experience for students in any program area that does not have its own cooperative education program.

Students are placed in part-time jobs which are related to their career interests for a minimum of 15 hours per week.

Second Year Level

Prerequisite: Enrollment in EXP 81 and consent of instructor.

EXP 81 Cooperative Seminar I/1 sem. hr.

A study of common job-related problems through self-study, case studies, projects and discussions. Course is designed to improve the performance of cooperative education students in EXP 80.

Second Year Level

Prerequisite: Enrollment in EXP 80 and consent of instructor.

EXP 82 Cooperative Training II/3 sem. hrs.

A continuation of EXP 80.

Second Year Level

Prerequisite: Enrollment in EXP 83 and consent of instructor.

EXP 83 Cooperative Seminar II/1 sem. hr.

A continuation of EXP 81.

Second Year Level

Prerequisite: Enrollment in EXP 82 and consent of instructor.

GENERAL BUSINESS

BUS 68 Cooperative Accounting Training/3 sem. hrs.

A continuation of BUS 66.

Second Year Level

Prerequisite: Accounting core and consent of instructor.

BUS 74 Home Mortgage Lending/3 sem. hrs.

The viewpoint of the home mortgage loan officer is taken in this course. The mortgage market picture is presented first, then the acquisition of a mortgage portfolio. Also mortgage plans and procedures, mortgage loan processing and servicing, and obligations of the mortgage loan officer.

HEALTH CAREERS

HCA 99 Special Studies in Health Careers/(Sem. hrs. to be arranged.)

For special health related projects, permitting students to conduct research and experimental work. Results of projects must be presented in manuscript form.

Prerequisite: Consent of advisor.

LAW ENFORCEMENT

LEN 12 Defensive Tactics/2 sem. hrs.

(Course was numbered LEN 112 in the catalog.)

LEN 14 Firearms/2 sem. hrs.

(Course was numbered LEN 114 in the catalog.)

LEN 71 Patrol Procedures/2 sem. hrs.

(Course description in catalog.)

Prerequisite: LEN 100, 102 (changed from 101) or 104 or consent of instructor.

LEN 78-79 Criminal Law and Administration of Justice/3-3 sem. hrs.

(Course was numbered 101-102 in catalog.)

LEN 80 Criminal Evidence and Court Procedures/3 sem. hrs.

(Course was numbered 103 in catalog.)

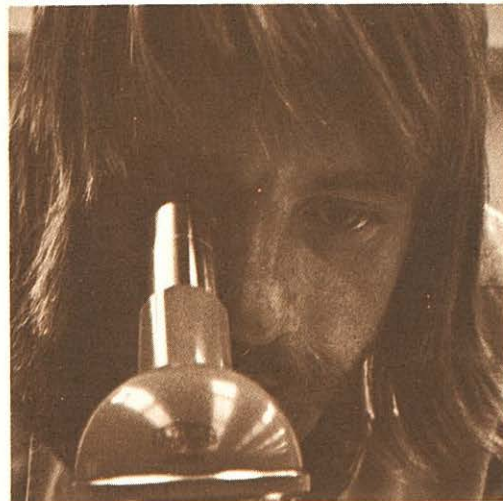
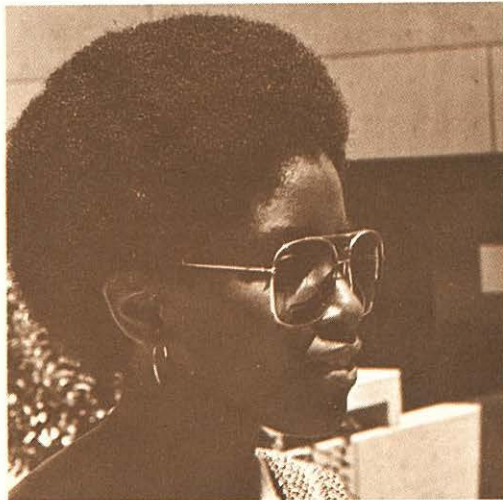
Prerequisite: LEN 100 (added) or 102.

LEN 82 Police Community and Human Relations/3 sem. hrs.

(Course was numbered LEN 108 in catalog.)

LEN 84 Juvenile Procedures/3 sem. hrs.

(Course was numbered LEN 109 in catalog.)



**LEN 86-87 Cooperative Law Enforcement Training I, II/
1 to 3 sem. hrs. per sem.**

A supervised cooperative work program is provided second year students. Students are employed in an approved law enforcement occupation for an average minimum of 15 hours per week.

Second Year Level

Prerequisite: Consent of instructor.

LEN 102 Introduction to Corrections/3 sem. hrs.

(Course was numbered LEN 62 in catalog.)

LEN 108 Police Administration/3 sem. hrs.

(Course was numbered LEN 64 in catalog.)

LEISURE-TIME EDUCATION

Health Education

(Course listings LTH 1 through 7 have been deleted from the Leisure-Time Education program.)

RECREATION EDUCATION

LTR 5 Supervised Co-op Work Experiences/1 to 3 sem. hrs.

Students are offered an opportunity to apply skills learned in the classroom by being placed with recreational agencies for on-the-job supervised training. (Change in catalog information on this course.)

Second Year Level

Prerequisite: Consent of instructor.

LTR 10 Community Resources in Recreation/2 sem. hrs.

(Course not being offered.)

LTR 12 Methods of Recreational Sports/1 to 3 sem. hrs.

Course provides group instruction and practical experience in tournaments and organizational planning of leisure sports. (Change in catalog information on this course.)

LTR 14 Folk, Square and Social Dance/2 sem. hrs.

An introduction to folk, square, modern and social dances for majors and minors.

LTR 15 Outdoor Recreation/3 sem. hrs.

An over-view of the scope and magnitude of outdoor recreation including the history and development of outdoor recreation, conservation and organized camping. Camp craft skills are taught during field trips. (Change of catalog information on this course.)

LTR 16 Recreation for Adults/3 sem. hrs.

(Change in course title. Description in catalog.)

LTR 17 Survival/2 sem. hrs.

Principles and techniques of survival. Students have an opportunity to enhance their ability to survive with the environment. (Change in catalog information on this course.)

LTR 18 Recreation History and Sociology/2 sem. hrs.

(Course not being offered.)

LTR 20 Recreation Equipment and Facilities/1 to 3 sem. hrs.

The principles of organization and operation of indoor and outdoor recreational buildings and facilities. Order procedures, inventory, stocking and repair of equipment is included. (Change in catalog information on this course.)

**LTR 21 Methods of Recreation Arts and Crafts/
1 to 3 sem. hrs.**

(Course not being offered.)

LTR 39 Introduction to Parks and Recreation/3 sem. hrs.

A general survey of the development and role of parks and their current functions in modern society. Also a general survey of recreation including theories of leisure, changing recreation use, income and mobility factors, and models of general recreation experiences.

LTR 50 Water Recreation and Resources/3 sem. hrs.

Practices in managing outdoor water oriented recreation on private and public lands.

LTR 52 Recreation Systems and Management/3 sem. hrs.

An introduction to national, state, county, city and private parks and recreational systems in each.

LTR 54 Park Facilities/3 sem. hrs.

The planning, inspection and maintenance of park facilities.

LTR 56 Park Administration/3 sem. hrs.

Methods of administering various park systems.

LTR 101 Recreation Administration and Finances/3 sem. hrs.

The administration, financing and responsibilities of parks and recreational areas, personnel selection, public relations, use of community resources, and legal aspects of recreation administration.

LIFE and PHYSICAL SCIENCES

Chemistry

CHM 12 Concepts in Chemistry/3 sem. hrs.

The study of basic concepts in chemistry and their applications. For the education major.

**CHM 51 Cooperative Chemical Technology Training I/
3 sem. hrs.**

A supervised cooperative work program is provided for second year students in which they are employed in an approved chemical technology occupation for an average minimum of 15 hours per week.

Second Year Level

Prerequisite: Enrollment in CHM 52 and consent of instructor.

CHM 52 Chemical Technology Seminar I/1 sem. hr.

A study of common job-related problems through case studies, projects, discussions and individual instruction. Course is designed to improve the performance of chemical technology students in CHM 51.

Second Year Level

Prerequisite: Enrollment in CHM 51 and consent of instructor.

**CHM 53 Cooperative Chemical Technology Training II/
3 sem. hrs.**

A continuation of CHM 51.

Second Year Level

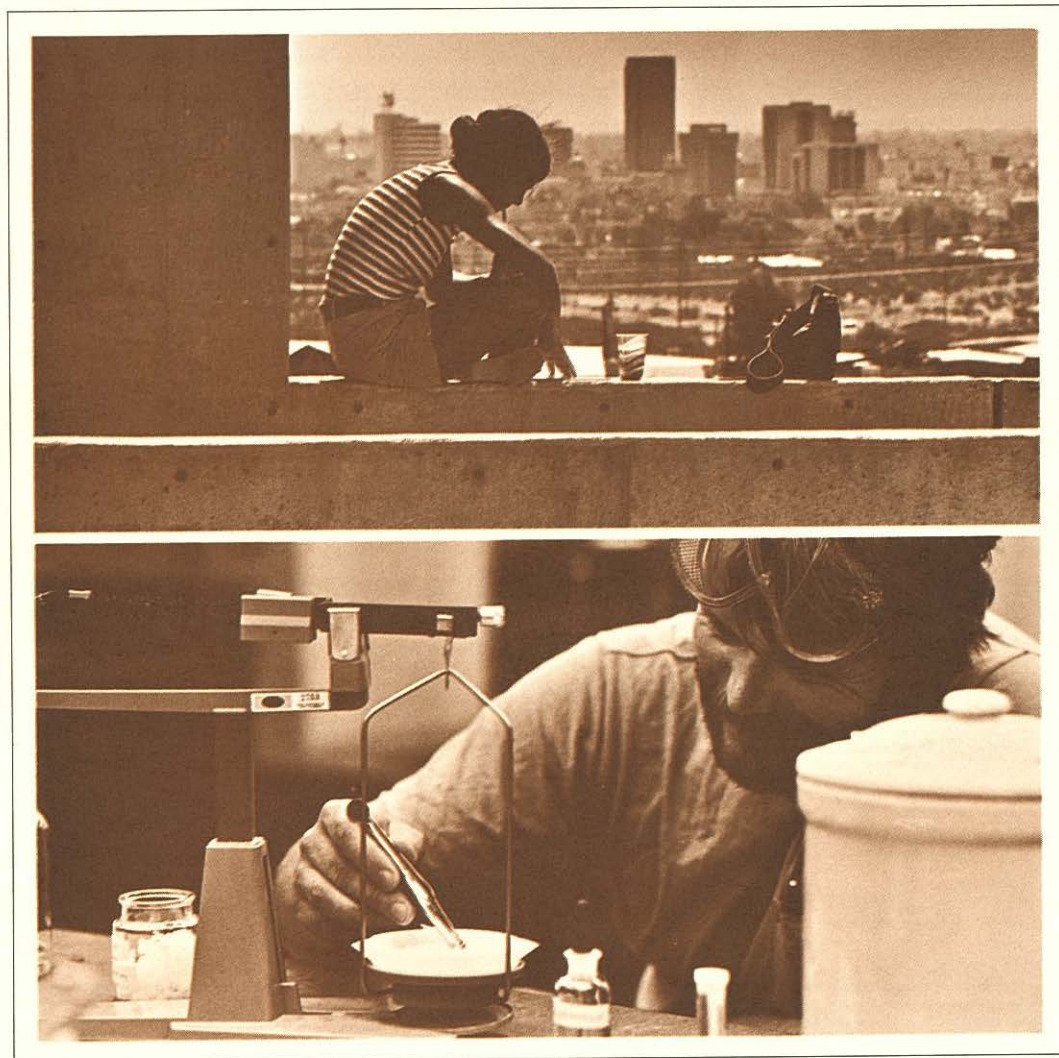
Prerequisite: Enrollment in CHM 54 and consent of instructor.

CHM 54 Chemical Technology Seminar II/1 sem. hr.

A continuation of CHM 52.

Second Year Level

Prerequisite: Enrollment in CHM 53 and consent of instructor.



Life Sciences

LSC 80-81 Cooperative Natural Resource Management Technician Training I, II/1 to 3 sem. hrs. per sem.

A supervised cooperative work program is provided for second year students in which they are employed in an approved natural resource management position for an average minimum of 15 hours per week.

Second Year Level

Prerequisite: Consent of instructor.

Physics

PHY 12 General Physics/3 sem. hrs.

A one-semester course offering an introduction to the subject matter of general physics, mechanics, heat, light, sound, electricity, magnetism and modern physics. Includes laboratory.

First Year Level

Prerequisite: High School algebra.

PHY 72 Fundamentals for Science/3 sem. hrs.

A review of basic skills and topics needed by a student taking any introductory science course.

MANAGEMENT

MAN 65-66 Real Estate Principles-Practices I, II/4-4 sem. hrs.

This course prepares the student for the state licensure qualifying examination. In addition, it provides familiarity with real estate and associated rules and regulations.

MATHEMATICS

MTH 66 Health Careers Math II/3 sem. hrs.

(Course not being offered.)

MUSIC

MUS 54 Jazz Improvisation/2 sem. hrs.

A study of musical elements leading to an understanding and execution of musical improvisation in jazz styles. Developed in a group setting with individual opportunities for solo improvisation against a jazz rhythm section, as well as listening to and analysis of performances by outstanding jazz artists.

SHEET METAL

SML 60-61 Cooperative Sheet Metal Training I, II/3-3 sem. hrs.

A supervised cooperative work program is provided for second year students in which they are employed in an approved sheet metal occupation for an average minimum of 15 hours per week.

Second Year Level

Prerequisite: Enrollment in SML 62 or 63 and consent of instructor.

SML 62-63 Cooperative Sheet Metal Seminar I, II/1 to 3 sem. hrs. per sem.

A study of common job-related problems through case studies, projects, discussions and individual instruction. Course is designed to improve the performance of sheet metal students in SML 60-61.

Second Year Level

Prerequisite: Enrollment in SML 60 for SML 62 or SML 61 for SML 63 and consent of instructor.

SOCIAL SCIENCES

SSC 44-45 Supervised Field Internship-Seminar I, II/3-3 sem. hrs.

Two semesters required for community service majors (not casework majors). (Course description in catalog.)

SPANISH

SPA 52 Bilingual Reading, Spanish and English/3 sem. hrs.
(Course not being offered under Spanish.)

SPA 105 Introducción a la Literatura Española II/3 sem. hrs.
(Letter designation corrected.)

SPA 115 Chicano Literature I/3 sem. hrs.

A panoramic view of Chicano literature; an examination of some approaches to literary criticism; and selected readings from works by outstanding Chicano writers. (Offered only in Spanish.) (Change in course description.)

SPA 115 Literatura Chicana I/3 sem. hrs.

Se dará un vistazo a la literatura Chicana en general; se examinarán ciertos métodos críticos literarios; y se leerán selecciones de escritores sobresalientes. (Cambio de la descripción de curso.)

TOOL AND MACHINE TECHNOLOGY

MAC 68-69 Cooperative Machine and Tool Training I, II/3-3 sem. hrs.

A supervised cooperative work program is provided for second year students in which they are employed in an approved tool and machine occupation for an average minimum of 15 hours per week.

Second Year Level

Prerequisite: Enrollment in MAC 70 or 71 and consent of instructor.

MAC 70-71 Cooperative Machine and Tool Seminar I, II/1 to 3 sem. hrs. per sem.

A study of common job-related problems through case studies, projects, discussions and individual instruction. Course is designed to improve the performance of tool and machine technology students in MAC 68-69.

Second Year Level

Prerequisite: Enrollment in MAC 68 for MAC 70 or MAC 69 for MAC 71 and consent of instructor.

WELDING

WLD 93-94 Cooperative Welding Seminar I, II/1 to 3 sem. hrs. per sem.

A study of common job-related problems through case studies, projects, discussions and individual instruction. The course is designed to improve the performance of welding students in WLD 91-92.

Second Year Level

Prerequisite: Enrollment in WLD 91 for WLD 93 or WLD 92 for WLD 94 and consent of instructor.



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Ed.D. — Arizona State University

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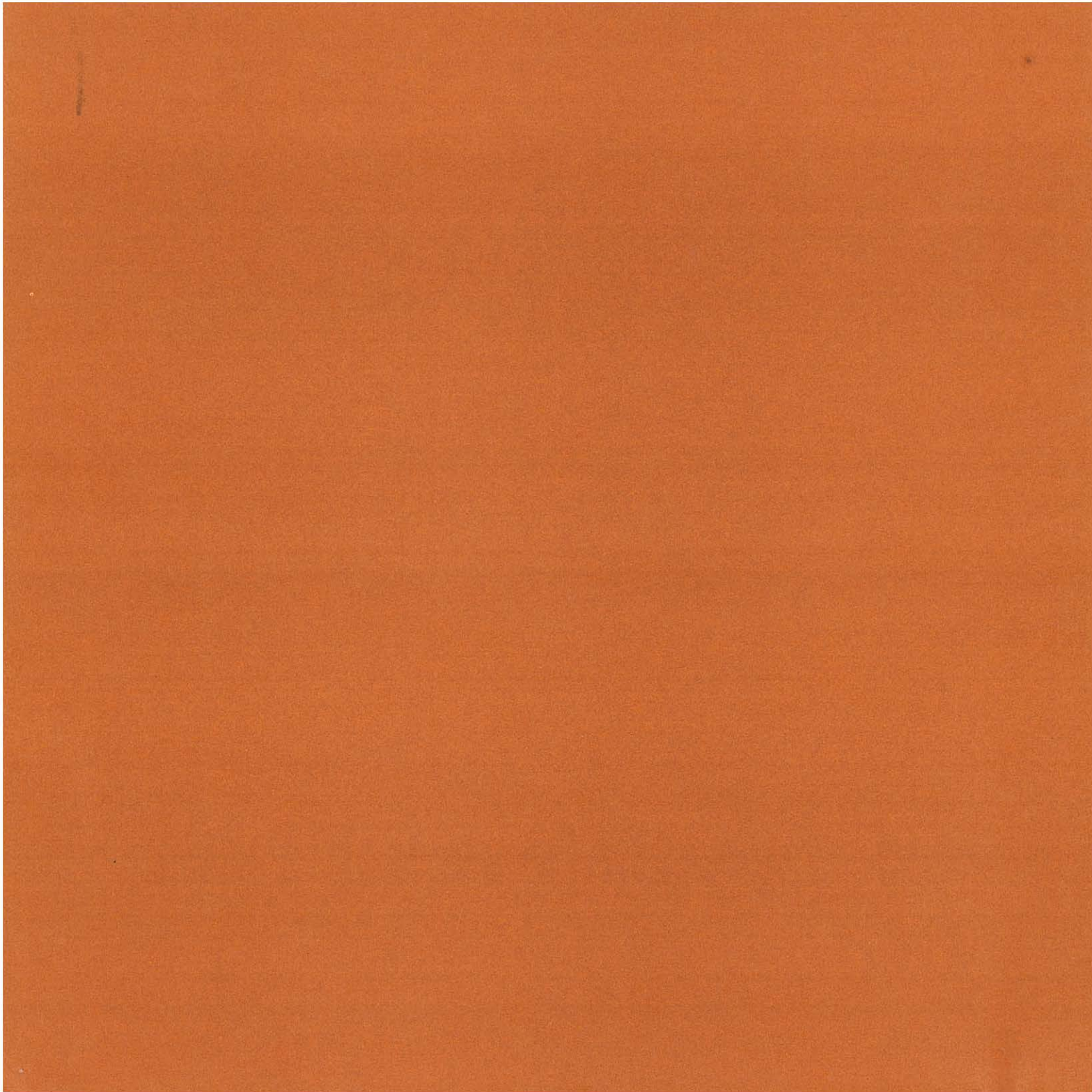
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M.A. — California State College

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M.Ed. — University of Arizona



"Nature forms us for ourselves, not for others, to be, not to seem."
Michel de Montaigne

