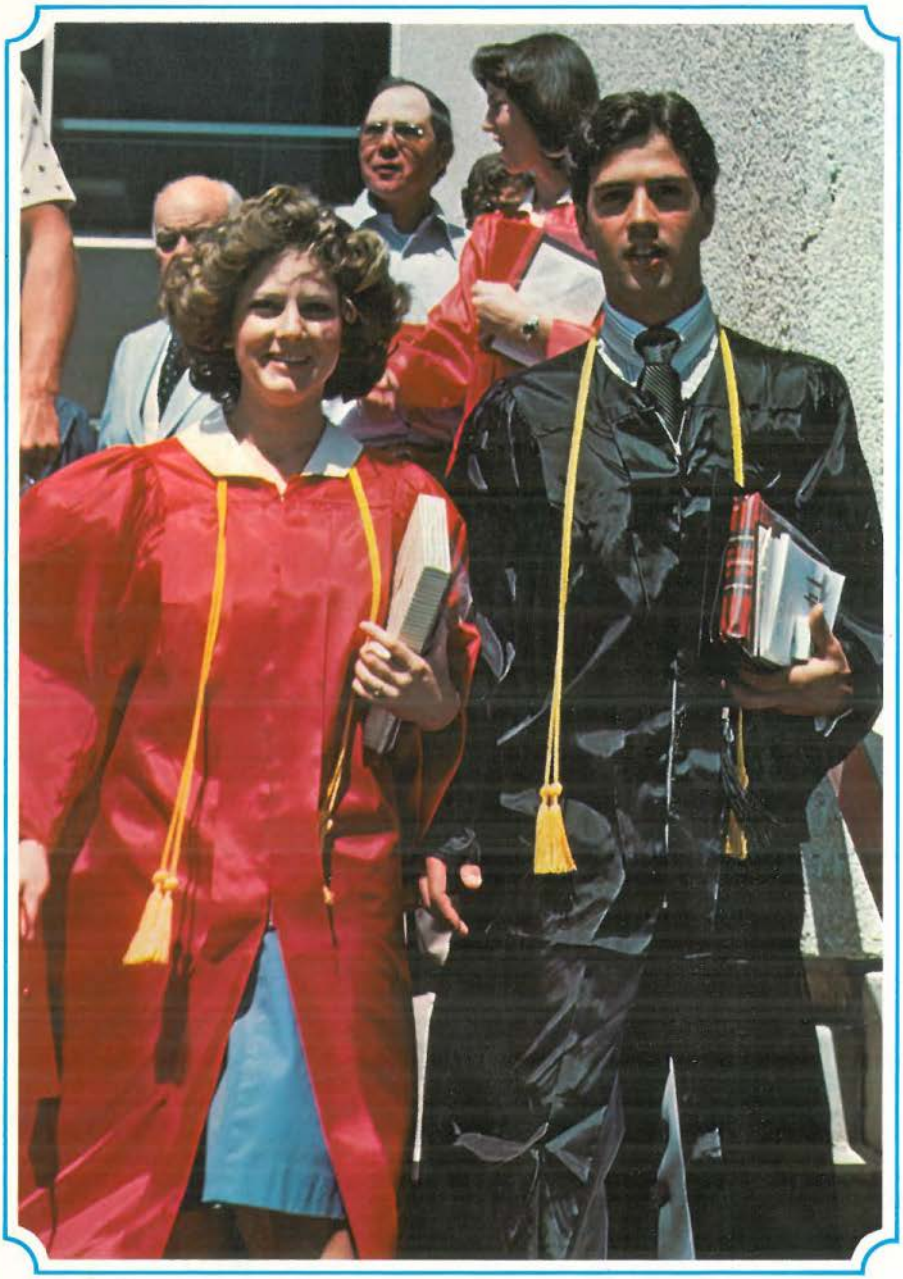

MESA COLLEGE

Grand Junction, Colo. • 1979-80 Catalog

Mesa College

GRAND JUNCTION, COLORADO
81501

CATALOG
1979-80

STATEMENT ON EQUAL OPPORTUNITY

With respect to the admission and education of students, with respect to the availability of student loans, grants, scholarships, and job opportunities, with respect to the employment and promotion of teaching and non-teaching personnel, with respect to the student and faculty activities conducted on premises owned or occupied by the College, with respect to student and faculty housing situated on premises owned or occupied by the College, and with respect to all other activities, Mesa College shall not discriminate against any person on account of race, creed, color, national origin, sex, or handicap.

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Foreword

MESA COLLEGE is a comprehensive coeducational institution operated under the governance of the Trustees of the Consortium of State Colleges in Colorado. The College is accredited by the North Central Association of Colleges and Schools and is also accredited for special programs by a number of state and national agencies. Mesa College confers Bachelor of Arts and Bachelor of Science degrees in eleven programs; Associate in Arts, Associate in Commerce, and Associate in Science degrees in traditional academic majors; and Certificates and Associate in Applied Science degrees in a number of vocational-technical fields.

THIS CATALOG is intended for the guidance of students and faculty but does not constitute a guarantee that all courses listed will actually be offered during the current or forthcoming academic year. Mesa College reserves the right to withdraw or add courses prior to the beginning of any semester or summer term. In some programs certain courses may be offered on an alternate-year basis or as determined by apparent demand. All program offerings are subject to adequate appropriations by the Colorado General Assembly.

General Information

HISTORY OF THE COLLEGE

Mesa College was organized as Grand Junction State Junior College in 1925 by authority of legislation that had been enacted on April 20 of that year. The College opened its doors on September 21 in a renovated former elementary school building at Fifth Street and Rood Avenue, culminating a quarter-century of planning by community leaders. Another twelve years passed before the Colorado General Assembly enacted legislation providing state support of $100 per student. Prior to that time local individuals, organizations and students had paid for the institution's operating expenses. The College received its first state and county aid in 1938 after formation of the Mesa County Junior College District under terms of the 1937 legislation. The name of the institution was changed to Mesa College.

The basic support structure continued until 1974 when, under terms of Senate Bill No. 16 enacted by the General Assembly of 1972, the electorate of the junior college district voted to dissolve the district and transfer the assets of Mesa College to the Trustees of State Colleges in Colorado (now known as the Trustees of the Consortium of State Colleges in Colorado), effective July 1, 1974. The legislation authorized the expansion of Mesa College's programs to include the Bachelor of Arts and Bachelor of Science degrees.

Mesa College has experienced growth in both enrollment and physical plant throughout the years. The first permanent structure on the present campus, a large classroom building completed in 1940, continues to serve an important function as an education facility. Many other fine buildings have been added during succeeding years, especially during a period of marked growth in the 1960's. Expansion of Mesa College's faculty and other resources has kept pace with the enrollment, providing the students with a favorable student-instructor ratio and access to quality learning materials and facilities.

Recent developments at the institution have included the reorganization of instructional divisions into six schools, some of which are departmentalized; reorganization of the administrative staff; and a change from the quarter system to the semester system. The summer program offers a choice of one twelve-week or two six-week sessions. Courses may be taken concurrently in the different sessions.

PHILOSOPHY AND GOALS

Mesa College is a democratic center of learning dedicated to the improvement of human capability and extends its services to those who may profit from them regardless of age, sex, race, creed, color, cultural background, economic status, or handicap. Committed to the traditional trilogy of instruction, service, and research, with an emphasis on instruction, the College seeks to provide an environment for improving each student's unique talents and sense of social responsibility by helping the student to recognize knowledge as the basis of mankind's past accomplishments and the source of future achievements.

By promoting the acquisition of skills as well as the discovery, retention, transmission, and application of knowledge, the College seeks to provide opportunities for the personal development of the intellectual, ethical, and

aesthetic sensibilities that may enable the student to pursue a rewarding career.

While recognizing the importance of preparing individuals to assume civically responsible and economically productive roles in society, the College seeks to assist persons in liberating themselves from narrow interests and prejudices and in learning to observe reality precisely, to judge opinions and events critically, to think logically, and to communicate effectively.

Additionally, the College seeks to offer programs of value in areas of civic and cultural life, research and recreation. Thus, the institution hopes to demonstrate its concern for—and its desire to play a positive and constructive role in—improving the quality of both human life and the environment.

In order to implement the philosophy of this institution, the College shall:

1) offer programs leading to baccalaureate degrees and associate degrees in the liberal arts, the sciences, and business;
2) offer vocational-technical programs leading to certificates and associate degrees;
3) offer continuing-education programs directed toward personal, civic, vocational, and professional self-improvement;
4) offer a sufficiently wide range of lower-division courses to assure smooth, successful transfer by students to other institutions;
5) provide community services, including intellectual, civic, and cultural activities, advisory services, and research programs;
6) include in all degree programs sufficient courses in the sciences and mathematics, the social sciences, humanities and the arts to insure that students might be conversant in the areas of general knowledge.

ACCREDITATION

In 1957 Mesa College was fully accredited by the North Central Association of Colleges and Schools as a community junior college. Since March 1974 the College has been accredited at the baccalaureate level by North Central. Accreditation by this agency places credits earned at Mesa College on a par with those earned at other similarly accredited institutions throughout the United States. (At the time this catalog was being printed, Mesa College was preparing for a periodic review by North Central.) Various programs at Mesa are approved by appropriate state and national agencies, including the Colorado State Board of Nursing, Colorado State Board of Practical Nursing, National League for Nursing, Colorado State Board of Accountancy, and American Medical Association Council on Medical Education (Radiologic Technology).

ENROLLMENT—1978 FALL TERM

	Freshmen	Sophomores	Juniors	Seniors	Unclassified	Totals
Men	969	273	159	167	1	1569
Women	1334	250	116	102	1	1803
	2303	523	275	269	2	3372

Of the total 3,372 students, 3,174 were Colorado residents and 198 were non-residents, including 14 from foreign countries.

LOCATION

Mesa College's campus is bordered by North Avenue, Twelfth Street, Orchard Avenue, Cannell Avenue, Mesa Avenue, and College Place, about one and one-quarter miles north and east of Grand Junction's nationally famous Downtown Shopping Park. The residential section in the vicinity of Mesa College is attractive and modern. Several stores and other conveniences are located within walking distance of the campus, and many others, including large shopping centers, are located along North Avenue.

Grand Junction's location in a scenic part of the Rocky Mountain West provides unlimited opportunity for the outdoorsman. Many Mesa College activities involve the physical advantages of the region. Among these activities is the College's physical education program in skiing, which is conducted at the Powderhorn-on-Grand Mesa Ski Area. Qualified instructors, a variety of lifts, and miles of excellent trails combine to make the ski area a valuable adjunct to the College's winter program. Students also take advantage of the city's parks, golf courses and swimming pools, and the numerous outdoor attractions to be found in the nearby mountains.

Directly to the south and east of Mesa College across North Avenue is beautifully landscaped Lincoln Park, the public recreation center of Grand Junction. The park includes a green-turfed football field, new quarter-mile track, baseball diamond and stands, eight concrete tennis courts, and a nine-hole golf course with grass fairways and greens, all available to college students. Lincoln Park is the site of the annual National Junior College Athletic Association Baseball Tournament.

BUILDINGS AND EQUIPMENT

Mesa College is developing its campus according to a master plan which is periodically updated to provide for the College's current and future needs.

Houston Hall (1940), the first permanent building on the present campus, provides classrooms for business, data processing, home economics, humanities, social science, and other subject areas.

Horace Wubben Hall (1962) incorporates the finest of modern science and engineering classroom and laboratory facilities for physical and natural sciences and the field of engineering. A special feature of this building is an octagonal lecture hall, seating 100, which has provisions for audio-visual presentations and laboratory demonstrations. The fully air-conditioned building also provides staff offices, reference library, and conference rooms.

Lowell Heiny Library (1967) is a four-level building incorporating the latest concepts in library design, with a wide variety of study facilities and open stacks available for up to 80,000 volumes. The collection includes more than 75,000 volumes plus 1,000 periodicals. The library has facilities for a variety of learning experiences, including reading, viewing, listening, research, and group discussions. The first level of the building provides office space for administrative and student services staffs.

Walter Walker Fine Arts Center (1969) includes classroom and studio facilities for art, music, and drama and a multi-purpose Little Theatre.

William A. Medesy Vocational-Technical Center (1969) houses the Mesa College Area Vocational School. The building has shops, laboratories, and classrooms for auto mechanics, auto body and fender, welding, electronics, dental assisting, and graphic-communications departments. The school serves both youth and adults of the region as a training center for various occupations.

Roe F. Saunders Physical Education Center (1968) provides facilities for a variety of physical education and recreation activities. Major features include all-purpose gymnasium, swimming and diving pools, locker and shower rooms, classrooms, and office space for the Department of Physical Education and Recreation. Physical education and practice athletic fields are located immediately west of the Physical Education Center. Tennis courts are just north of the facility.

Three 200-student residence halls—**Aspen, Juniper,** and **Pinon** (1966, 1967)—and a smaller dormitory, **Elm Hall** (1961), provide comfortable living quarters for boarding students. Most of the rooms are doubles, but a few singles are available. All rooms are furnished with modern wall-hung furniture.

Walnut Ridge Apartments (1978) are available to sophomores, juniors, and seniors. Forty-eight attractively furnished two- and three-bedroom units provide complete housekeeping facilities.

Mary Rait Hall (1948, remodeled 1967) includes classrooms, Media Services, Printing Services, and other facilities on the first floor. The upper two floors provide office space for sixty faculty members.

W. W. Campbell College Center (1962) contains cafeteria, bookstore, study and recreational lounges for students and faculty, office and conference facilities for student leaders, a snack bar, and game rooms.

Early Childhood Education Center (1964) provides facilities for Mesa College's training program for directors and other personnel of child-care centers and also for the Parent Education and Preschool program. The **Mesa College Day Care Center**, organized for the convenience of Mesa College students who have small children, is located on the lower level of this building.

College Service Center (1968) houses all types of equipment and shops used in general campus upkeep. It also includes areas for the Purchasing Department, central receiving, supply storage, and campus mail service.

Counseling and Career Center provides a central location for counseling, career-development, employment, and placement services.

Audio-Tutorial Laboratory houses audio-visual, library aids, and simulated patient rooms for specialized training in Nursing and Allied Health programs.

Student Health Center includes office space and clinical facilities for the College Health Service staff.

Shops and laboratories for various types of courses are also available at the State Home and Training School Farm, which is leased to Mesa College.

COLLEGE-COMMUNITY RELATIONS

Through mutual cooperation with the community, Mesa College has become an integral factor in the educational, cultural and social development of Colorado West. Faculty members are available for lectures and discussions on a wide range of subjects related to education, agriculture, science, the arts and humanities, careers and current social problems. Student groups appear before both public and private audiences for information or entertainment programs. The public is invited to attend many types of programs at the College—musical, dramatic, forensic, religious, athletic, and those devoted to public affairs and international relations.

Special programs of community-wide interest are presented in College facilities from time to time by community groups. The churches of Grand Junction cooperate with the College in meeting the needs for religious education among the students. Opportunities include participation in student classes in Sunday schools, youth organizations, and in choirs.

Degrees, Programs, Instructional Organization

Mesa College grants the Bachelor of Arts and Bachelor of Science degrees in a number of areas. The College also awards Associate in Applied Science, Associate in Arts, Associate in Commerce, and Associate in Science degrees in a variety of disciplines. In addition, Certificate programs are available in several occupational (vocational-technical) areas. Specific requirements for the various awards are described in the Graduation Requirements section of this catalog and, in some instances, in the text which describes the different instructional units and programs of the College.

Mesa College has programs of three general types:

(1) Those offered in business and the arts and sciences;
(2) Those that are considered occupational or vocational-technical in nature; and
(3) Classes offered through the Office of Continuing Education.

INSTRUCTIONAL UNITS

The instructional units of Mesa College and their respective subject-matter areas are:

SCHOOL OF BUSINESS—Accounting, Data Processing, General Business, Job-Entry Training (non-college credit), Management, Office Administration, Secretary—Legal or Medical, and Travel, Recreation and Hospitality Management.

SCHOOL OF HUMANITIES AND FINE ARTS—Art, Drama, English, Literature, Foreign Languages, Journalism, Music, Philosophy, Reading, and Speech.

SCHOOL OF INDUSTRY AND TECHNOLOGY—Auto Body and Fender, Auto Mechanics, Electric Lineman, Electronics, Graphic Communications, and Welding.

SCHOOL OF NATURAL SCIENCES AND MATHEMATICS—Agriculture, Astronomy, Biology, Botany, Chemistry, Computer Science, Engineering, Engineering Technology, Geology, Home Economics, Mathematics, Physics, Physical Science, Production Agriculture, Statistics, and Zoology.

SCHOOL OF NURSING AND ALLIED HEALTH—Dental Assisting and Expanded-Duty Functions, Emergency Medical Technician, Medical Office Assisting (Health), Nursing, and Radiologic Technology.

SCHOOL OF SOCIAL AND BEHAVIORAL SCIENCES—Anthropology, Archaeology, Dance, Early Childhood Education, Economics, Education, Geography, History, Human Services, Law Enforcement, Physical Education, Political Science, Psychology, Recreation, Occupational Guidance, Social Science, and Sociology.

AREA VOCATIONAL SCHOOL—The coordinating entity for the various occupational programs taught in the different schools of the College.

CONTINUING EDUCATION AND OUTREACH—The coordinating office for adult education, night classes, and off-campus classes.

MAJORS AND PROGRAMS OF STUDY

The program of study pursued by a student at Mesa College will depend upon career plans and educational objectives. For those who plan to work toward the baccalaureate degree, Mesa College offers majors in Animal-Plant Management, Business (Accounting or Management), Computer Science, Environmental Geoscience, Liberal Arts, Human Services, Occupational Guidance Specialist, Leisure and Recreation Services, Selected Studies, and Visual and Performing Arts.

A student may first receive a certificate or associate degree before continuing toward the baccalaureate degree, but such a plan is entirely optional.

Some students may choose to take courses at Mesa College which will fulfill lower-division requirements for transfer to a college or university that offers baccalaureate or professional programs not currently available at Mesa College. Others may prefer to work toward one of the associate degrees, either as preparation for immediate employment upon graduation or as the first phase of their total educational objective.

In recent years Mesa College has given increased attention to a variety of Occupational Education programs for students whose immediate plans do not include completion of a baccalaureate degree. These specialized programs of a terminal, technical, or semi-professional nature are designed to help students develop the specific skills required for employment in various technical occupations.

SECOND DEGREES

A student who has been awarded a bachelor's degree or an associate degree by Mesa College or another institution can earn an additional bachelor's or associate degree from Mesa College. The second degree will not, however, be awarded at the same commencement as the first, and the major for the second degree must be different from the major for the first.

To receive an additional bachelor's degree, the student must:

1. Earn at least 30 semester hours of additional credit, at least 18 of which must be in upper-division courses, with no fewer than two semesters of residence at Mesa College.
2. Satisfy all specific program requirements for the new major and the general education requirements. (It is expected that these will be done wholly or in part by transfer of credit earned toward the first degree.)

To receive an additional associate degree the student must earn at least 15 semester hours of additional credit at Mesa College, with a minimum of one semester of residence at Mesa College.

Students seeking to earn a second degree must file an approved Program of Study with the Registrar.

CONSORTIUM OF STATE COLLEGES IN COLORADO

The institutions governed by the Trustees of the Consortium of State Colleges in Colorado (Adams State College, Mesa College, Metropolitan State College, and Western State College) are joined in a consortium, the purpose of which is to identify and facilitate cooperative efforts among the institutions. It is expected that such efforts will lead to broader educational opportunities for students than can be offered by any one of the institutions alone. Mesa College

is also authorized to enter into consortium agreements with other public institutions of higher education in the state to make additional programs and services available to students. For additional details about the consortium program see the *Admissions Information* section of this catalog.

SUMMARY OF SUBJECT AREAS AND DEGREES

(See Instructional Units *in this section and also* Course Descriptions *for identification of academic school which administers the program.)*

Subject	
Accounting	AC, BS
Afro-American Studies (History)	Courses
Agriculture, General	AS
Agriculture, Professional	AS, BS
Agriculture, Production	AAS
Animal-Plant Management	BS
Animal Science	AS
Anthropology	Courses
Archaeology	Courses
Art	AA
Astronomy (Physical Science)	Courses
Auto Body and Fender	AAS
Auto Mechanics	AAS
Biology, Applied	AS, BS
Biology, General	AS
Botany, General (Biology)	AS
Business Administration	AA
Business, General	Courses
Business Management	AA, BS
Chemistry, General	AS
Computer Science, Mathematics Statistics	AS, BS
Dance (Physical Education, Drama)	Courses
Data Processing	AAS
Dental Assisting, Expanded Duty	Certificate
Dentistry, Pre-	AS
Drama	AA
Economics	AA
Education	Courses
Education, Early Childhood	AAS
Electric Lineman	Certificate
Electronics Technology	AAS
Emergency Medical Technician	Courses
Engineering	AS
Engineering Technician, Civil	AAS
Engineering Technician, Drafting	AAS
English	AA
Environmental Geoscience	BS
Finance (Business)	Courses
Fine Arts	AA
Foreign Language	Courses
Forestry, Pre- (Biology, Agriculture)	AS
French	Courses
Genetics (Biology)	Courses
Geography	Courses
Geology	AS, BS
German	Courses
Government (Political Science)	Courses
Graphic Communications	AAS
Health	Courses
History	AA
Home Economics	AS
Humanities	AA
Human Services	BA
Insurance	Courses

Subject	
Job-Entry Training	Certificate
Journalism	Courses
Latin-American Studies (History)	Courses
Law Enforcement Technology	AAS
Law, Pre- (Political Science)	AA
Legal Secretary (Business)	AAS
Leisure and Recreation Services	BA
Liberal Arts	AA, BA
Literature (English)	AA
Management (Business)	AA, BS
Marketing (Business)	Courses
Mathematics, Applied	AS
Mathematics, General	AS
Math, Statistics, Computer Science	AS, BS
Medical Office Assistant (Health)	Certificate
Medical Secretary (Business)	AAS
Medicine, Pre- (Natural Sciences, Math)	AS
Microbiology	Courses
Music, Liberal Arts	AA
Music, Performing Arts	AA
Natural Resources	AS, BS
Nursing, Associate-Degree	AS
Nursing, Practical	Certificate
Occupational Guidance Specialist	BS
Office Administration (Business)	AC
Optometry, Pre- (Natural Sciences, Math)	AS
Pharmacy, Pre- (Natural Sciences, Math)	AS
Philosophy	Courses
Physical Education	AA
Physical Science	Courses
Physics	Courses
Political Science	Courses
Psychology	AA, BA
Radiologic Technology	AAS
Range Management	AS
Reading	Courses
Recreation	AA, BA
Secretarial Studies	AC
Secretary, Office-Clerical	Certificate
Selected Studies	BA
Shorthand	Courses
Social Science	AA, BA
Sociology	AA, BA
Spanish	Courses
Speech, Debate, Forensics	AA
Statistics, Math, Computer Science	AS, BS
Surveying (Engineering)	Courses
Travel, Recreation and Hospitality Management (Business)	AAS
Typing	Courses
Veterinary Medicine, Pre-	AS
Visual and Performing Arts	BA
Welding	Certificate, AAS
Writing, Creative (English)	Courses
Zoology (Biology)	Courses

Admissions Information

(See How to Apply for Admission *on inside back cover for additional application and admission information.)*

ADMISSION TO MESA COLLEGE

Mesa College will admit high school graduates, non-graduates of high school who are 18 years of age or older (see Admission of Special Students below) who have sufficient experience and seriousness of purpose to enable them to benefit from Mesa College's offerings. Admission is granted without regard to race, color, creed, national origin, sex, or handicap.

Admission to Mesa College is granted upon the filing of an application for admission and the presentation of satisfactory credentials. All applications must be filed upon the official forms available at the College, or, for Colorado residents, at the office of the high school principal. A $10 evaluation fee must accompany the admission application.

Colorado high school graduates who have completed satisfactorily a minimum of fifteen acceptable units of high school work are eligible for admission to the freshman class. The application for admission, which includes a transcript of the high school record properly filled out and signed by the high school principal should be on file in the Admissions Office not later than August 1 for the Fall Semester. As the number of approved applicants approaches the planned capacity for the Fall Semester, this deadline may be advanced to an earlier date. Applications for admission for the Spring Semester should be on file in the Admissions Office not later than two weeks prior to the beginning of the semester.

Admission to Mesa College does not constitute admission to programs which require special admissions procedures. These include the Early Childhood Education program, the Electric Lineman program, and all programs offered by the School of Nursing and Allied Health.

ADMISSION OF SPECIAL STUDENTS

Individuals who lack some of the requirements for admission as regular students may be admitted as special students on either a part-time or full-time basis. A special student may become a regular student upon fulfilling the requirements for entrance. This may be done by submitting a G.E.D. High School Equivalency Certificate with a composite standard score of 45 or above or, in some cases, by substituting certain college courses for high school units.

ADVANCED PLACEMENT

Mesa College recognizes superior high school achievement by means of advanced placement for those students who have taken enriched or accelerated courses before entering college. Usually, applicants qualify for such placement by scoring higher than average on the American College tests (ACT) or special placement examinations prepared by the respective academic schools or departments of Mesa College. Detailed information concerning advanced placement may be obtained by writing the Office of Admissions.

ADMISSION TO ADVANCED STANDING (Transfer Students)

Students honorably dismissed from other colleges or institutions may be admitted to advanced standing at Mesa College. Students applying for advanced standing shall furnish to the Admissions Office a transcript of all college work (to be sent from each institution attended). An applicant for admission who has already attended another institution cannot disregard a collegiate record and apply for admission as a first-time freshman.

A high school transcript is required of all transfer students with fewer than 60 semester hours.

Transfer students with fewer than 60 semester hours of credit are also required to take the ACT prior to registration unless the test has been taken previously and an official record of the scores is on file in the Mesa College Office of Admissions. All applicants for the Associate-Degree Nursing program, regardless of the number of hours transferred, are required to have ACT scores on record in the Admissions Office. Such test scores are not a regular part of the official transcript and are released by the student's former school only at the student's specific request.

It is Mesa College's general policy to accept up to 60 semester hours of credit in transfer from accredited two-year community or junior colleges.

Transfer students (Colorado residents) who may be on probation or suspension from the institution previously attended cannot be admitted until they have been approved by the Admissions Committee. In such cases the applicant must address a written petition to this committee describing the circumstances leading up to the probation or suspension status and any significant changes in these circumstances that would indicate that a successful record might be established at Mesa College. Out-of-state transfer applicants must be in good standing at the collegiate institution most recently attended to be eligible for admission to Mesa College.

ADMISSION OF FOREIGN STUDENTS

Foreign students will be considered for admission Summer Session and Fall Semester only. In making the decision to attend Mesa College, foreign students should be aware that the College does not have special programs for foreign students and that no funds are available for financial aid covering tuition and fees or living expenses.

To be considered for admission, foreign students must complete and submit the following to the Admissions Office at Mesa College prior to August 1 for Fall Semester and May 1 for Summer Session: (1) Application form with $10 non-refundable application fee; (2) Medical examination report; (3) Copy of American College Testing Scores; (4) High school transcript, translated into English; (5) Transcripts from other colleges and universities attended; and (6) Certificate of financial support.

Foreign students must provide documented evidence of ability to read, write, speak and understand the English language. This requirement may be fulfilled in one of the following ways: (1) Submit scores of Test of English as a Foreign Language (TOEFL) with an average of 45 or higher; (2) Submit results of Michigan Test of English Language with minimum score of 70; (3) Complete a recognized English Language Institute with an achievment level of 108; or (4) A foreign student who has been enrolled as a regular full-time student at another college or university may be considered on an individual basis.

Before admission is granted, a foreign student must provide proof of finan-

cial ability to meet cost of tuition, fees, books, living accommodations, and incidental expenses for at least one full year. The total cost per student is approximately $5,500 per calendar year. The sum of $1,000 must be deposited with the Mesa College Business Office by August 1 for Fall Semester or May 1 for Summer Session. This will be applied to the first semester's expenses and will be refunded only if admission is not granted.

Further information and forms may be obtained from the Director of Admissions.

ADMISSION OF HANDICAPPED STUDENTS

Mesa College admits physically handicapped students and assists such students with class schedules, housing, parking, and health problems.

Currently, the physical barriers in the buildings and facilities on the campus are under study relative to changes needed to accommodate the handicapped student. Some of these changes have already been made, and it is hoped that adequate state funding will allow completion of this project in the near future.

Since many of the classroom buildings are not equipped with elevators, it is often difficult for the physically handicapped to schedule all classes on a readily accessible level. It is recommended that the prospective student visit the campus prior to enrollment and meet with counselors to discuss special needs and determine the feasibility of completing the program of the student's choice.

CONSORTIUM STUDENTS

A purpose of the Consortium of State Colleges is to establish procedures for facilitating the best kinds of programs through inter-institutional efforts, exporting and importing critical programs, serving as liaison for the institutions and other agencies, and permitting and supporting the development of institutional excellence through shared resources—physical, professional, organizational, and curricular.

The registrars of the five institutions of the Consortium have developed a form to be used for inter-institutional registration. Using this registration form, a student in good standing at any of the schools will be accepted as a student at any of the others. Before the consortium student registers at another school, agreements will be reached by the home and host schools concerning the exact application of earned credits toward degrees, majors, and electives. Students should contact the registrar of the home institution to obtain further information on arrangements.

Institutions of the Consortium of State Colleges in Colorado have agreed on the following:

1. Credit for consortium courses shall be treated as resident courses and not as transfer courses for purposes of fulfilling major and minor requirements and for graduation.
2. Grades for consortium students shall be awarded by cooperating institution faculty in the normal manner. The cooperating institution shall provide the grades of consortium students to the home institution registrar for posting to students' educational records.

The terms "home institution" and "cooperating institution" are defined as follows:

1. Each student shall have a "home institution", which is defined as that

institution at which a student has matriculated by paying application fees and has been accepted as a student in good standing. The home institution shall maintain all education records and shall administer all student services, including financial aid. The cooperating and home institution shall share responsibilities for academic advising.

2. A "cooperating institution" is defined as any consortium institution other than the home institution at which a consortium student enrolls in courses.

ADMISSION INFORMATION FOR VETERANS

The programs offered by Mesa College, with certain exceptions, are approved by the Veterans Administration (VA) for the education and training of those veterans and dependents of veterans eligible under applicable public laws. Veterans or dependents planning a course of training in special programs not described in the college catalog or identified as approved for veterans' benefits should check with the veterans certification officer before enrolling in such a program, if benefit assistance is desired.

Veterans and dependents who plan to apply for VA benefits while attending Mesa College must contact the Office of Veterans Affairs as soon as the decision to attend Mesa is made. Application for benefit assistance must be made at least six weeks prior to the initial registration if the student plans to have the benefit check on hand for payment of expenses at the time of registration. Without this advance payment, the student must make other financial arrangements and be prepared to finance tuition and fees, books, supplies, and living expenses for at least two months. This represents the normal processing time required for the VA to establish the applicant's file. Further information may be obtained from the Office of Veterans Affairs.

ADMISSIONS AND COUNSELING TESTS

Mesa College requires the ACT (American College Test) of all new students to be submitted to the Admissions Office prior to registering for any classes. Students are not admitted to Mesa College on the basis of "passing" or "failing" the ACT tests. The test results are used by the counseling center and by the student and adviser as the basis for planning a course of study, and as an aid in placement in certain class sections, keeping within the student's abilities and interests. Extra classroom instruction is provided on a limited basis for those whose test scores indicate weakness or deficiencies in certain areas such as English and mathematics. The results may also be used for scholarship consideration and institutional research.

There are some exceptions and exemptions to this admissions requirement. Students who are exempt from having to submit their ACT scores as part of their admissions requirement are:

1) Students enrolled only in classes offered through the Continuing Education Outreach Program.
2) Students who are enrolled in a certificate program of one year or less.
3) Students transferring to Mesa College from other accredited colleges or universities with 60 or more semester hours of credit. This does not apply to Associate-Degree Nursing applicants, who must take the ACT regardless of the number of credit hours transferred.
4) Students enrolled in resident instruction for nine or fewer semester hours of credit for the first two semesters.

5) Students who have already earned an associate or bachelor degree from another college. (See exception in item 3.)

When a student has accumulated 12 or more hours of credit and enrolls in the resident-instruction program in either an associate-degree or baccalaureate-degree program, the student is required to have ACT scores on file in the Office of Admissions and Records.

High school students admitted to Mesa College under special consideration must submit their ACT scores as part of their admissions requirement.

It is recommended that prospective students take the ACT tests during their high school senior year. Transfer students (unless exempt under item 3 or 5 above) are required to have their ACT test scores on file in the Admissions Office prior to registration. ACT scores from a previous college or university are acceptable. A special residual ACT test is scheduled prior to registration each semester for applicants who for valid reason did not take the ACT on one of the five national test dates. Contact the Director of Admissions or the Testing Office for further details. The results will be available to the student and the student's adviser during registration. A special testing fee of $12.50 will be collected from the student immediately prior to the test.

Scholastic Aptitude Test (SAT) scores are not required by Mesa College and will not excuse the student from the ACT tests. When the SAT scores are received they are filed in the student's permanent record and personnel folder where they are available for counseling purposes if desired.

COURSE-OF-STUDY REQUIREMENTS

The course of study which an individual student pursues depends upon interests, aptitudes, and future plans. Freshman and sophomore (lower-division) requirements at Mesa College are essentially the same as at the other four-year institutions in the state. Students who plan to transfer after one or more years at Mesa College should decide upon the college of transfer as early as possible. This will enable the student to take courses that will meet the lower-division requirements of the intended transfer college. Course planning is the responsibility of the student; however, counselors and faculty advisers are available to assist students as needed.

REGISTRATION

In order to become a student of the College, an applicant for admission must register on the official forms provided by the Registrar's Office during the period scheduled for registration and pay tuition and fees at the Business Office. Credit will be given only for the specific courses for which the student is registered.

NO-CREDIT-DESIRED COURSES

A student who desires to attend certain classes regularly, but does not wish to take the final examinations or receive grades or credit, should register No Credit Desired in these courses. Credit for such courses may not be established at a later date.

WITHDRAWAL FROM COLLEGE

A student who desires to withdraw from the College should notify his faculty adviser and report to the Office of Admissions and Records. The

necessary withdrawal papers will be filled out and officially signed by an appropriate College official. The student will receive a grade of W (withdrawn) for each course regardless of whether passing or failing at the time of withdrawal. Such withdrawal may be made at any time during the semester prior to the sixth day after midterm grades are posted and available to students from their faculty advisers. No student may withdraw from the College after this date, except in case of extreme emergency.

Expenses at Mesa College

Mesa College reserves the right to adjust any and all charges, including fees, tuition, room and board, at any time deemed necessary by the Governing Board.

Because charges for tuition and fees are subject to annual review by various state agencies and appropriations for higher education by the Colorado General Assembly and the charges for room and board are subject to annual review by the Trustees of the Consortium of State Colleges in Colorado, the costs for the 1979-80 academic year could not be determined when this catalog was printed. The following rates are those actually charged during the 1978-79 academic year. Students are invited to write for a current rate card, which will be available by July 1, 1979.

TUITION AND FEE SCHEDULE (IN EFFECT DURING 1978-79)

Full-Time Students, Regular Academic Year:	**Semester**	**Year**
COLORADO RESIDENTS (Enrolled in 10 to 18 hours)		
Tuition	$ 226.00	$ 452.00
Student Services Fees	75.00	150.00
TOTAL	$ 301.00	$ 602.00
(Surcharge of $15.00 per hour over 18 semester hours)		
NON-COLORADO RESIDENTS (Enrolled in 10 to 18 hours)		
Tuition	$ 904.00	$1,808.00
Student Services Fees	75.00	150.00
TOTAL	$ 979.00	$1,958.00
(Surcharge of $60.00 per hour over 18 semester hours)		

Students Enrolled for Nine Credit Hours or Less

COLORADO RESIDENTS		
Tuition	$ 22.00	per semester hour
Student Services Fees	3.00	per semester hour
TOTAL	$ 25.00	per semester hour
NON-COLORADO RESIDENTS		
Tuition	$ 60.00	per semester hour
Student Services Fees	3.00	per semester hour
TOTAL	$ 63.00	per semester hour

Summer Session—1978

Colorado Residents (includes $2.00 student fee)	$ 24.00	per semester hour
Non Residents (includes $2.00 student fee)	62.00	per semester hour

DETERMINATION OF RESIDENCE STATUS FOR TUITION PURPOSES

The classification of students as residents of Colorado for tuition purposes is determined under Colorado statute. The final decision regarding tuition status rests with the institution. Questions regarding residence (tuition) status should be referred only to the Director of Admissions. Opinions of other persons are not official or binding upon the institution.

PRIVATE AND SPECIAL INSTRUCTIONAL FEES

When private and special instructional services are required, additional charges will be incurred by the student. These fees vary with the nature of the instruction. Private instruction in applied music is available through the College from instructors approved by the College. Cost of this instruction is $60 per semester for one lesson each week. Other special instructional services available to students which require extra fees include bowling, skiing, golf, swimming, etc.

PAYMENT OF TUITION AND FEES

Tuition and fees are due and payable at the time of registration, and registration is not complete until the student's obligation is met in full. Any student who enrolls and attends classes is liable for payment of fees. No student having unpaid financial obligations of any nature due the College shall be allowed to graduate or to receive a transcript of credits.

REFUNDS OF TUITION AND FEES

If a student withdraws within ten calendar days of the first day of classes, two-thirds of tuition and fees may be refunded. After ten days, no refunds will be made except in cases of unusual emergency.

APPLICATION AND EVALUATION FEES

Application and Evaluation Fee (non-refundable)	$ 10.00

Valid only for the semester for which the student makes application.

MISCELLANEOUS FEES

Late registration, $10 first day, $5 each additional day, maximum	$ 30.00
Graduation (cap, gown, diploma)	10.00
Late petition for graduation	2.00
Late credential fee	3.00
Room damage deposit	75.00
Parking permit	6.00

ROOM AND BOARD

Two types of on-campus housing are available. Sophomores, juniors and seniors may reside in new college apartments which are modern living units for three or four students consisting of bedrooms, bath, kitchen and living room. College dorms with cafeteria meal plans are available to all students. Meal plans are also available to students residing in the college apartments and those students permitted to reside off campus. The five-day meal plan provides three

meals per day, Monday through Friday. The optional weekend plan includes five meals (breakfast is not served on Sunday).

PAYMENT OF ROOM AND BOARD

Room and board is contracted on a yearly basis but is payable each semester at the time of registration. Registration is not complete until the student's obligation is met in full.

ROOM AND BOARD SCHEDULE (IN EFFECT DURING 1978-79)

	Semester	Year
Apartments		
Complete occupancy	$ 405.00	$ 810.00
Partial occupancy	608.00	1,216.00
Dorms		
Double occupancy	311.00	622.00
Single occupancy	386.00	772.00
Board		
Five-day meal plan	315.00	630.00
Optional weekend meal plan	86.00	172.00
Seven-day meal plan	401.00	802.00

REFUNDS ON ROOM AND BOARD

See pages 31, 32 of this catalog.

BOOKS AND SUPPLIES

Textbooks, notebooks and school supplies are sold at the College Bookstore. Cost of needed books and supplies will vary according to the course taken by the student but should not exceed $200 for the year. For some programs, the cost may be substantially less. Some saving may be realized by buying used books which may be available in limited quantities. Nursing students will have additional costs of uniforms and transportation to and from hospital training centers.

Graduation Requirements

To graduate from Mesa College with an associate degree or baccalaureate degree, a student must:

1. Have been regularly enrolled for at least two semesters, including the semester during which graduation requirements are met, and must have earned a minimum of 16 semester hours at Mesa College for an associate degree and 28 semester hours for a baccalaureate degree.
2. File with the Registrar an application for graduation sometime during the semester immediately preceding the semester during which graduation requirements are to be met. A nominal graduation fee is charged for the diploma and all degrees.
3. Satisfy all general and specific requirements of the College including the fulfillment of all financial obligations.
4. Have removed from the official record all marks of deficiency in those subjects for which the student expects to receive credit toward graduation.

Only lower-division courses will be accepted in fulfilling general-education requirements.

Students must attain a minimum cumulative grade-point average of 2.0 (C) in lower-division work before being permitted to take upper-division subjects for credit.

A student seeking a baccalaureate degree from Mesa College must earn a minimum of 40 semester hours of upper-division credit at Mesa College or the higher minimum that may be established for a particular program.

Except for changes in major, students are required to complete the curriculum or course of study in which they initially enroll, provided courses needed to complete the program are available. In cases where it appears, because of catalog changes, advantageous to the student to change to current catalog requirements, the student has this option. The student must obtain approval of the Dean of the School and must meet all requirements of the catalog, including the general-education requirements. The student cannot choose part of the program from one catalog and part from another.

If a student resumes study or begins a new course of study at Mesa College after having been absent from college enrollment for one academic year or more, the student must follow the curriculum or course of study outlined in the catalog current at the time of re-enrollment unless the School concerned gives written authorization for the student to pursue a different curriculum or course of study.

Mesa College reserves the right to evaluate on a course-by-course basis any credits earned 15 or more years prior to re-enrollment which the student wishes to apply toward any degree or certificate program.

DEGREE REQUIREMENTS

In addition to completing the general graduation requirements listed in the preceding paragraphs, students who wish to qualify for an associate degree or a baccalaureate degree must complete certain *General Education* requirements for each of the specific degrees as outlined in the following: (Most degree programs require ENGL 111 and 112; some programs accept ENGL 111 and 115. Students should check with adviser.)

Associate in Arts Degree:

Freshman English	6 semester hours
Literature	6 semester hours
Social Science	6 semester hours
Physical Science or Mathematics	6 semester hours
Biology or Psychology	6 semester hours
Physical Education (two semesters of different activity courses)	4 semester hours
Approved electives	30 semester hours

Associate in Science Degree:

Freshman English	6 semester hours
Social Science or Literature	6 semester hours
Physical Education (two semesters of different activity courses)	4 semester hours
Laboratory Science or Mathematics	26 semester hours
Approved electives	22 semester hours

Associate in Commerce Degree

See requirements in School of Business section.

Associate in Applied Science Degree

Freshman English	6 semester hours
Social Science (including Psychology) or Literature	6 semester hours
Physical Education (two semesters of different activity courses)	4 semester hours

In addition to the above general-education requirements, students seeking the Associate in Applied Science Degree must enroll in one of the specially designed Occupational Education programs. The specific course requirements for these programs are listed in the *Instructional Unit* sections of this catalog.

For any of the associate degrees, a student must earn a 2.0 grade-point average for all hours taken toward meeting the 60-hour minimum requirement plus 4 semester hours of physical activity courses with at least a 2.0 average.

Baccalaureate Degree Requirements

Students who meet requirements for the baccalaureate degree must complete a minimum of 120 semester hours plus 2 semesters (4 semester hours) of different physical activity courses. Of the 124 credit hours, a minimum of 40 semester hours must be in upper-division courses. A minimum of 2.0 (C) overall grade-point average must be maintained. Repeated courses will be counted only once. Each baccalaureate-degree program must include 40 semester hours of lower-division *General Education* courses from Sections I and II of the following: (Student should check with faculty adviser to determine departmental recommendations.)

I. 6 semester hours in English composition ENGL 111, 112; or, in a few programs, ENGL 111, 115; or, for those who qualify, ENGL 126, 127; plus

II. 34 semester hours in four areas distributed as follows:
   (a) 8-9 semester hours in Biological Sciences and/or Psychology chosen from the following: both BIOL 101 and 102 or both BIOL

105 and 106 or both BIOL 121 and 131; PSY 121, 122; PSY 233 (if taken following PSY 121, 122); and 220, 200,

(b) 6-9 semester hours in Humanities and Fine Arts as follows:
6 hours in ENGL 131, 132, 134, 135, 141, 142, 143, 254, 255, 256, 261, 262; and
3 hours in ART 115, 120, 140, 150, 151, 152, 170, 180, 190, 211, 212; or DRAM 115, 141, 235, 236; or FA 101, 102; or MUS 114, 115, 127, 137, 251, 252; or SPCH 101, 102, 201, 202, 235, 241; and

(c) 6-9 semester hours in Physical Sciences and Mathematics chosen from:
CHEM 121, 121L, 122, 122L, 131, 131L, 132, 132L, 211, 211L, 212, 212L, 221, 221L; CSCI 100, 111, 131, 132, 135, 230, 240, 250; GEOL 101, 101L, 102, 102L, 111, 111L, 112, 112L, 201, 201L, 203; MATH 101, 102, 105, 106, 108, 110, 113, 119, 121, 127, 130, 131, 132, 133, 134, 135, 146, 151, 152, 161, 253, 260, 265; PHYS 111, 111L, 211, 211L, 212, 212L, 221, 221L, 222, 222L, 224; PSCI 111, 112, 113, 114, 115; STAT 200, 214; and

(d) 6-9 semester hours in Social Sciences chosen from:
ANTH 101, 102, 221, 222; ECON 201, 202 (will count only if taken following ECON 201); GEOG 101, 102; HIST 101, 102, 105, 106, 120, 125, 126, 131, 132, 136; POLS 101, 102, 254, 256, 261, 262; SOCS 201; SOC 144, 260, 264.

Specific information concerning the requirements of the various baccalaureate-degree programs at Mesa College is included in the sections of this catalog dealing with programs and courses offered by each of the academic schools.

VOCATIONAL CREDITS

Nine hours only of vocational credits may count toward the Associate in Arts, Associate in Science, and Associate in Commerce degrees.

Nine hours only of vocational credits may count toward the Bachelor of Arts and Bachelor of Science degrees, with the following exceptions:

B.A., Human Services	15 hours
B.A., Leisure and Recreation Services	18 hours
B.A., Selected Studies	Varies
B.S., Occupational Guidance	Varies
*B.S., Accounting	18 hours
*B.S., Business Management	18 hours

**Vocational credits must be approved by the Dean of the School of Business.*

CERTIFICATES

Mesa College offers one- and two-year certificates in several vocational-technical fields. The specific requirements for certification in these programs are found elsewhere in this catalog. (See Alphabetical index.)

ACADEMIC ADVISING

Students are expected to assume the responsibility for planning their academic programs in accordance with College rules and policies and departmental major requirements. They are, however, urged to consult with advisers in their major department concerning their academic programs and objectives. The College will assume no responsibility for difficulties arising out of the student's failure to establish and maintain contact with his or her major department and adviser.

The student alone is ultimately responsible for knowing the requirements for a particular degree and for fulfilling those requirements. Upon completion of the requirements (including those of a major), the student will be awarded the appropriate degree.

ACCELERATION OF COLLEGE STUDY

It is possible for students to satisfy the requirements for baccalaureate degrees in less than the traditional four years (eight regular academic-year semesters). The various things that can be done to accomplish this should, when possible, be discussed with faculty advisers. They include: enrolling in college classes while in high school; exceeding the normal course load at Mesa College; enrolling in the summer sessions at Mesa College or elsewhere; challenging by examination courses in which competence has previously been attained; earning credit hy testing through the College-Level Examination Program (CLEP); obtaining credit for work experience. Further information may be obtained from faculty advisers and the testing office.

TRANSFER OF CREDIT

Accreditation by the North Central Association of Colleges and Schools assures the acceptance of credits earned at Mesa College by other accredited colleges and universities throughout the United States. Students are reminded that acceptance of transfer credit by any accredited college depends upon the individual student's previous grade average and a certification from Mesa College that the student is in "good standing."

TEACHER PREPARATION

Mesa College recognizes the need for teachers and encourages students with appropriate interest and aptitude to prepare for teaching. Currently, Mesa College does not offer a haccalaureate degree in teacher training and education. The first two years of teacher training consist primarily of general-education courses, which are offered by Mesa College. Students should plan their study program at Mesa to coordinate with the requirements of the college to which they plan to transfer.

Mesa College has developed a consortium agreement with the University of Northern Colorado which makes it possihle to offer certain courses required for Colorado teacher certification at the secondary-school level. When there are enough interested students to warrant transporting the course from the University of Northern Colorado, Mesa College will attempt to schedule the course. Students successfully completing such courses will receive UNC credit. Mesa College does not have an agreement in all teaching-major areas but is working to expand the agreement to more areas.

General Academic Regulations

LATE REGISTRATION

Students who register late are expected to make up the work missed. Students who register after the first week are advised to enroll for less than a normal 15 credit hour load. Late registration must be completed within ten calendar days including the first day of registration. A special fee is charged for late registration. This information is included under "Miscellaneous Fees."

ATTENDANCE

Students at Mesa College are expected to attend all sessions of each class in which they are enrolled. Failure to do so may result in a lowered grade or exclusion from class. At any time during a semester, a student who fails to attend regularly may be dropped from college rolls.

Absences will he excused when incurred by reason of a student's participation in required field trips, intercollegiate games and other trips arranged by the College only if previously approved by the Office of Student Affairs. The coach, instructor or other official whose activities require students to be absent from classes shall file with the Vice-President for Student Affairs a list of the names of the students involved at least 24 hours before the activity.

Absences due to serious illness or strictly unavoidable circumstances may be excused if the instructor in charge of the course is completely satisfied as to the cause. Being excused for an absence in no way relieves the student of the responsibility of completing all the work of the course to the satisfaction of the instructor in charge.

STUDENT LOAD AND LIMITATIONS

The normal student load is 15 semester hours (18 for engineering students). The minimum load to be recognized as a full-time student is 12 semester hours. Students may register for less than 12 semester hours, in which case they are classified as part-time students.

INDEPENDENT STUDY

Independent-study courses are offered in a number of programs in the various Schools. Credit earned through independent study is limited to 6 semester hours toward an associate degree and 12 semester hours toward a baccalaureate degree.

Students are not allowed to enroll for credit in a lower-division independent-study course until they have completed a minimum of 8 semester hours of work in the field in which the independent study is planned and also have attained a cumulative grade-point average of 2.5 or higher. Students must attain a cumulative grade-point average of 2.75 or higher and complete a minimum of 8 semester hours of work in the field in which upper-division independent study is planned before they can enroll in an upper-division independent-study course. In all cases., consent of the instructor is required.

Independent-study courses cannot be used to fulfill general-education requirements for a degree.

ACADEMIC STANDARDS

Academic Standing. The scholastic standing of a student at Mesa College is computed on the basis of all courses attempted. This includes grades of courses attempted at other accredited colleges and universities from which the student may have transferred, as well as those earned at Mesa College. Mesa College uses the four-point system in computing the grade-point average (GPA) of its students. Under this system, a student receives four quality points for each semester hour of A; three points for each semester hour of B; two points for each semester hour of C; one point for each semester hour of D; and no quality points for F's. An example follows:

3 Semester Hours	A	= 12 points
3 Semester Hours	B	= 9 points
3 Semester Hours	C	= 6 points
3 Semester Hours	D	= 3 points
3 Semester Hours	F	= 0 points
30 divided by 15 = 2.00 GPA		

If a student repeats a course previously taken at Mesa College, only the second grade received is computed in determining the cumulative average. Incomplete grades are considered as tentative grades and until changed are not considered in computing either the cumulative grade-point average or the grade-point average for the particular semester concerned. A student is not considered to be making satisfactory progress toward a degree unless the student is achieving a cumulative grade-point average of 2.00 (C), or higher. For academic purposes, students either currently or formerly enrolled are classified (1) in good standing, (2) on academic probation, or (3) suspended.

"Good Standing" signifies that the student is making satisfactory academic progress and is eligible to continue studies at Mesa College.

"Academic Probation" indicates a status between good standing and suspension and constitutes a warning to the student that the student's scholastic achievement needs improvement or suspension may result.

"Academic Suspension" represents a temporary involuntary separation of the student from the College for failure to meet minimum academic standards.

ACADEMIC PROBATION AND SUSPENSION

A student is subject to academic probation for the next semester enrolled if he/she does not achieve the cumulative grade-point average required for the following specific categories of total credit hours completed:

Credit Hours	Cumulative GPA
0 - 20	1.5
21 - 30	1.6
31 - 40	1.7
41 - 50	1.8
51 - 60	1.9
above 60	2.0

At the end of any semester in which a student's cumulative grade-point average falls below the above requirement, the student will be placed on probation for the next semester enrolled as either a part-time or full-time student. If the student, at the end of the semester on probation, fails to bring his/her

cumulative GPA up to the minimum required for his/her particular credit-hours-completed category, such student shall be subject to academic suspension.

Once a student is placed on probation, the student may not be reinstated in satisfactory academic standing based upon less than minimum full-time performance (12 semester hours credit completed) for the semester on probation. Part-time achievement (less than 12 semester hours) can only either continue the student on probation for another semester or result in suspension, depending upon whether the student's academic performance for the semester on probation meets the minimum GPA requirement prescribed above or falls below this requirement.

After a student has completed more than 60 semester hours, probation and suspension shall be based on the 2.00 cumulative grade-point average which is the minimum required to be making satisfactory progress toward a degree. If at the end of any given semester a student permits his/her cumulative grade-point average to fall below a 2.00 GPA, such student will be placed on academic probation for the next semester enrolled.

If at the end of the semester on academic probation, the student fails to earn a 2.00 or higher GPA, such student will be considered immediately subject to suspension. In the event a student placed on academic probation earns the minimum 2.00 GPA for the semester on probation, but fails to raise his/her cumulative grade-point average up to the minimum 2.00 requirement, such student shall be continued on academic probation for an additional semester, or semesters, provided the student's semester average meets the requirement of 2.00 or higher GPA. This situation of probation could continue until such time as the student either is reinstated in satisfactory academic standing by improving his/her cumulative GPA to 2.00 or above or is suspended for failure to earn a 2.00 or higher for the particular semester on probation.

An exception to the preceding is that any student, regardless of previous academic standing, may be considered subject to suspension if his/her grade-point average falls below .75 for any semester enrolled, as either a part-time or full-time student.

A first suspension shall be for a period of one semester, summer term excluded. Subsequent suspension shall be for one calendar year.

Where extenuating circumstances exist, a suspended student may appeal to the Vice-President for Student Affairs for permission to be continued on probation for the next semester.

Any student who has been suspended may not enroll as a part-time student, except during the summer term.

All of the above measures are to be viewed from the standpoint that academic probation and suspension are not disciplinary in nature, but rather an attempt to guide the student in the direction of the student's highest academic potential.

EVALUATION

The evaluation of student learning progress is considered to be a planned and continuous process and consists of a variety of activities including judgment, observation, testing, etc. Midterm and final examinations are a part of the evaluation process.

GRADE REPORTS

Individual grade reports are mailed to the permanent home address of every student at the end of each semester. Special reports may be obtained at any time upon application to the Records Office. An official grade report is withheld, however, until all fees owed the College are paid.

SYSTEM OF GRADES

Grades at Mesa College are indicated as follows: A, excellent to superior; B, good to excellent; C, satisfactory; D, passing but not satisfactory; F, failure; I, incomplete; W, withdrawn; NC, no credit; WN, withdrawn from no-credit class; IP, in progress.

INCOMPLETES

A grade of "I" (incomplete) is given to a student only in emergency cases. Once given, the incomplete grade must be made up by the end of the next term, summer term excluded. If the incomplete grade is not made up, the "I" grade will automatically be changed to the grade which was specified by the instructor on the incomplete grade report turned in to the Records Office.

This policy does not exclude extension of the incomplete grade in exceptional circumstances. An incomplete grade is not to be made up by a second or subsequent enrollment for credit in the same course.

HONOR LISTS

The President's List is made up of those students who earn a straight "A" (4.00 grade-point) average while enrolled in a minimum of 13 credits for a particular semester.

The Dean's List includes students who achieve a grade-point average of 3.5 or higher while enrolled in a minimum of 13 credits.

The lists are based on semester grades, not cumulative grade-point averages, and are published at the end of Fall and Spring semesters. Regardless of grade-point average, a student who receives a failing grade (F) in any course is not eligible for the Dean's List.

GRADUATION WITH HONORS

Each year during formal commencement ceremonies Mesa College recognizes the following categories of academic achievement:

With Distinction—Associate-degree graduates with cumulative grade-point averages of 3.50 to 3.74.

With High Distinction—Associate-degree graduates with cumulative grade-point averages of 3.75 to 4.0.

Cum Laude—Baccalaureate-degree graduates with cumulative grade-point averages of 3.50 to 3.74.

Magna Cum Laude—Baccalaureate-degree graduates with cumulative grade-point averages of 3.75 to 3.89.

Summa Cum Laude—Baccalaureate-degree graduates with cumulative grade-point averages of 3.90 to 4.0.

Student Services

The entire College, with its academic departments and vocational programs, exists for the benefit of its students. The college setting provides students the opportunity to develop socially as well as educationally. Learning is a total experience which is not confined to the classroom and the library. Mesa College's Student Services department offers programs and services that provide students with quality opportunities to increase skills and competencies in such areas as self-understanding, interpersonal relations, realistic decision-making, value clarification, and the setting of life goals.

COUNSELING AND CAREER CENTER

Mesa College offers a comprehensive program designed to meet the individual needs of students in the areas of personal counseling, educational decision-making, career development, employment and placement.

Personal counseling is available to students encountering difficulties in adjusting to or coping with life situations or the college environment. Students receive assistance in identifying problem areas, developing alternatives, and implementing change. The staff receives regular consultation from the Mesa County Mental Health Center and also maintains a referral contract which permits referral of students for assessment or treatment when deemed necessary.

Students who are uncertain about the direction they wish to take in college or those who are considering a change can find support, information, and resources to aid them in their educational decision-making process. Information on educational alternatives, testing, study skills, time management, and basic education course work are among the resources available at the Center.

Career development is an important emphasis in the Center's programming. Students are encouraged to explore various career options, utilize the Student Development Library, secure information from the Colorado Computer Information System, take vocational or personality inventories, or participate in numerous programs designed to aid them in their career decisions.

Employment and placement services include job development, part-time and full-time job listings, scheduled employer interviews, guidance to students regarding job search, resume writing, interview techniques, and salary negotiation, as well as development of placement folders.

Special programs are also presented by the Center to aid students in their personal development. Many informational, educational, and skill-building workshops and groups are offered during the year as outreach activities. These programs are non-credit and are open to all students, staff, and faculty.

All services are provided free to students, with all contacts being confidential and adhering to ethical standards as prescribed by the American Psychological Association and the American Personnel and Guidance Association.

STUDENT HEALTH SERVICES

Good health, both physical and emotional, is an important factor in successful college work. It is the intent of the College Health Service to provide competent medical care. The Out-Patient Clinic serves as a fixed and readily available source of medical assistance for any student (part-time or full-time) who has a known or suspected health problem.

Services include consultation, diagnosis, and treatment of illnesses or in-

juries, as well as health counseling, medical referrals, and health education. The Health Service will cooperate with your family physician in providing continuation of treatment previously prescribed if the physician so desires.

The Health Service is located in a building on the north side of Elm Avenue immediately across the street from the College Center. It is staffed with a full-time registered nurse and employs the services of a medical doctor on a two-hour daily schedule during class days. Physician services are available by appointment only. The registered nurse may be seen on a walk-in basis. Office hours for receiving students are: weekdays, 7:30 a.m. to 11:30 a.m. and 12:30 p.m. to 4 p.m., except Friday when closing time is 2 p.m.

The Student Health Service is not open on Saturdays, Sundays, or holidays. Students who reside on campus should report illnesses that occur after hours or on weekends to the Head Resident of the residence hall, who can assist with proper arrangements for treatment. Residence-hall occupants should use area hospitals for emergencies only or upon referral by physician. In extreme emergencies, call the Grand Junction Rescue Squad, telephone 242-1234.

ACADEMIC AND VOCATIONAL ADVISING

All students, including transfers, are assigned an academic adviser on the basis of vocational or major-subject interest. The faculty adviser helps the student plan a course of study and complete the registration process and then continues to provide assistance in such matters during the entire period that the student is enrolled at Mesa College, unless the student requests to be transferred to another adviser.

STUDENT ACTIVITIES

Mesa College promotes an active extra-curricular program which provides breadth and depth to students' educational experience. Consequently, an extensive and varied program, available to all students, includes such activities as intercollegiate athletics, intramurals, drama, theater dance, forensics, numerous art and music groups, student government, and student organizations of special interest.

The Mesa College student newspaper, the *Criterion*, and the student radio station, KMSA, provide students with news of current happenings both on and off campus. The yearbook, the *Maverick*, is published annually to provide a remembrance of the year's activities. The *Criterion* and *Maverick* offices are located in the College Center; KMSA operates from Houston Hall. Student activities are coordinated through the Office of Student Activities located on the lower level of Lowell Heiny Library.

Student Body Association provides a means for Mesa College students to participate in both curricular and extra-curricular programs and policies. The association operates through the Student Cabinet, a legislative body composed of students elected by the student body. The cabinet is active in providing a broad program of social, educational and cultural activities. The cabinet works with the college Lectures and Forums Committee in bringing nationally known artists and lecturers to the campus each year. Student Body Association offices are located in the W. W. Campbell College Center.

THE COLLEGE CENTER

Located in the main artery of the campus, the W. W. Campbell College Center serves as a meeting place for many Mesa College students and faculty members. Through the College Center Board and the Student Body Association, it becomes the hub for cultural, recreational, and social activities throughout the year. In addition to housing offices for the Student Body Association, the *Criterion* and the *Maverick*, it includes the College Cafeteria, Snack Bar, and the Bookstore, as well as a very active games room and a student lounge.

FINANCIAL AIDS

Financial aid at Mesa College consists of a balanced program of scholarships and grants-in-aid awarded for outstanding academic achievement or outstanding performance in special skill areas including vocational skills, athletics, drama, music, etc. Mesa College also participates in federal and state programs of grants, loans, and student employment, the awarding of which is based primarily on need as determined by an accepted needs-analysis system.

COLORADO STUDENT-AID PROGRAMS

(Available to full- and half-time students. Half-time students will be considered for assistance only when the needs of full-time students have been met.)

1. **Colorado Grants**—Grants not to exceed $1,000 are awarded to Colorado resident students on the basis of documented financial need. Financial aid packages which include Colorado Grants may not exceed the documented financial need of the student.
2. **Colorado Scholarships**—This program is an effort by the State of Colorado to recognize Colorado resident students for outstanding achievement in academic and talent areas. This award shall not exceed $300 and need is not a factor in determining recipients.
3. **Colorado Work-Study**—This program is designed to provide employment, both on and off campus, for students with documented need.
4. **Colorado Student Incentive Grant** (CSIG) is a matching program between the State of Colorado and the federal government. Half of the grant to a student is provided by the state and half of the grant is funded by the federal government. Awards are made only to students with extreme need, and the maximum CSIG that may be awarded any student is $1,500 of which $750 is CSIG funds and $750 Colorado Grants funds.
5. **Colorado Non-Resident Scholars Program**—Similar to Colorado Scholars program, these awards are available to students living in states bordering Colorado.

FEDERAL STUDENT-AID PROGRAMS

1. **B.E.O.G.**—Basic Educational Opportunity Grant Program is a grant program available to needy students enrolling in an eligible institution of post-secondary education. Application forms are available from high schools or the office of financial aids at any accredited post-secondary institution. The student applies directly to the Basic Education Opportunity Grants analysis center and, upon receipt of a Student Eligibility Report (SER) from BEOG, submits the SER to the financial aids officer of the college of the student's choice for the grant determination. Full-time and half-time

students enrolling in an institution of post-secondary education who are high school graduates or equivalent are eligible to apply. The BEOG Program is the base program for financial aids at Mesa College.

2. **College Base Programs**—Mesa College participates in many of the other federal student-aid programs. These include: (1) the National Direct Student Loan Program, (2) the Nursing Student Loan Program, (3) Supplemental Educational Opportunity Grants Programs, (4) the College Work-Study Program, and (5) the Law Enforcement Education Program (LEEP) for in-service law enforcement officers only.

Supplemental Educational Opportunity Grants (SEOG) are available to exceptionally needy students who wish to attend Mesa College. Under this program, students from low-income families who have exceptional financial need may receive an outright grant of from $200 to $1,500. The amount of grant is geared to the parental contribution but may not exceed one-half of the student's total financial need. It is the last consideration in preparing a financial-aid package.

Financial need to pay for educational expenses is an essential requirement to qualify for assistance from any of these programs. Students who must have financial aid in order to secure a college education are encouraged to contact the financial aids office of the College for necessary information and application forms. Both full time and half-time students may receive consideration.

Since financial need is the primary requirement for determining eligibility for assistance under any of the federal student aid programs, Mesa College requires that the student applicant submit either the Family Financial Statement (FFS) of the American College Testing Program or the Parent's Confidential Statement (PSC) of the College Scholarship Service. These forms should be available at either the high school principal's or counselor's office, or may be obtained by writing the Office of Financial Aid at Mesa College.

There is no absolute deadline for submitting applications for any of the federal student-aid programs; however, students who have all application materials complete and on file with the Admissions Office and Financial Aids Office by March 15, and have demonstrated financial need, will receive consideration in the first screening of applications. In addition, any application other than BEOG received after July 1 may not be fully processed by the beginning of Fall Semester.

Guaranteed Student Loans may be obtained up to a maximum of $2,500 but not to exceed the student need for an academic year. Applications are submitted to participating banks, savings and loans associations, and credit unions. These loans are available at seven per cent interest, repayable after students complete their education. If the student is eligible for the federal interest benefits, the accruing interest, while the student is in school, is paid by the federal government. A student who does not qualify for the interest benefit, as determined by a financial-needs analysis, may secure a loan but the interest accrues and is payable by the student while the student is enrolled in post-secondary education.

MESA COLLEGE SCHOLARSHIP AND DEVELOPMENT FUND, INC.

The Mesa College Scholarship and Development Fund, Inc., is a non-profit agency comprised of prominent citizens of the area who are interested in aiding deserving students at Mesa College. This group, which functions independently of the College, conducts an annual drive to raise funds for scholarships and

student loans. The organization also serves as a receiving and clearing agency for many of the established scholarships and for those received from clubs and organizations. All scholarships are designed to apply toward tuition and fees:

1. **Scholarships**—Each semester a number of scholarships amounting to $150 per semester are awarded to students who have achieved the minimum 3.0 grade-point average and who have not previously received a scholarship. Applications are submitted immediately following mid-term examinations. Scholarships are awarded at the completion of the semester; the scholarship then becomes effective for the subsequent semester.
2. **Community Clubs and Organizations Scholarships**—In addition to the institutional scholarships described above, many scholarships and awards have been established for students of the College by individuals and organizations of the Grand Junction area. The amounts of these awards vary but all are designed to apply toward tuition and fees.
3. **Student Loans**—The College provides short-term and intermediate-term loan funds from which students may borrow to help meet financial obligations temporary in nature. By definition, short-term loans are limited to a maximum of $50, repayable within 60 days or by the end of the semester, whichever comes first. Intermediate-term loans are repayable within six months or, in any event, not later than September 1 following the date of the loan. Loans in this category are normally limited to $450. There is a service charge for loans made from this fund: $2 per $100 borrowed and $1 for any fraction over $100.

PART-TIME EMPLOYMENT

The Office of Student Services operates a job placement service to assist students who work part time to help pay for their college expenses. Applications for such employment should be obtained from, and filed with, the Office of the Director of Student Financial Aids immediately following registration. Students will then be notified as steady part-time jobs become available.

STUDENT HOUSING

Residence Halls at Mesa College offer students more than just a place to study and sleep. Each hall is staffed with personnel who are interested in a student as an individual and who provide information about college programs and offer counsel when needed.

Colleges have learned through experience that freshmen living in campus halls adjust more readily to campus life and that, on the whole, their grades are better than those of students living off campus. Consequently, the College believes that all freshmen not living at home should live in the residence halls. Any exception to residence-hall living for freshmen under 21 years of age must be granted by the Housing Director.

On-Campus Apartments—The new Walnut Ridge apartment complex is reserved for sophomore, junior, and senior students. The two- and three-bedroom apartments are attractively furnished to accommodate three and four persons. The apartments are fully carpeted and completely equipped, including stove, refrigerator, garbage disposal and dishwashers as well as beds, dressers, study desks, chairs and couches. Utilities are included.

Students are responsible for securing their own roommates. A security deposit is required in addition to signing a nine-month lease.

Mesa College has adopted the following rules regarding housing of students:

(1) To the extent that vacancies are available, all freshman resident students must live in College residence halls unless permission is granted by the Director of Housing for them to live off campus.
(2) Sophomore resident students and upper-division students (juniors and seniors) are encouraged to live in College residence halls but may live off campus if they prefer to do so.
(3) Freshmen who cannot be accommodated in the residence halls at the time of registration and who are not excused by the Vice President for Student Affairs or the Director of Housing on one of the bases given below are required to move into a residence hall the semester immediately following the time notification by the College is given the student that space is available. Exceptions to the above rule must be granted by the Director of Housing.
(4) Students who live with their wives or husbands, or with their parents in Grand Junction or vicinity, shall register their housing with the Office of Admissions and Records at the time of registration of each academic year and in the event of change in address during the year.
(5) Students otherwise required to live on campus but whose health conditions demand special services and living conditions or whose relatives make available their homes at a considerable saving to the student on room and board, must secure permission from the Director of Housing to live off campus.
(6) Students who are 21 years of age are not required to live in College residence halls and do not have to secure permission of the Director of Housing to live off campus.

General Requirements. A housing deposit of $75 is required, in addition to the signed contract, before a room reservation will be made. This guarantees the holding of a room space for a period not later than 9 a.m. on the first day of classes of the semester for which the space is reserved. Upon the student's occupancy of the room and the completion of registration, the $75 room reservation deposit becomes a security deposit held by the College Business Office. If all provisions of the contract have been complied with and no damage charges have been assessed, the $75 security deposit will be refunded within 60 days. When a reservation is cancelled 30 days prior to registration for the semester for which accommodations have been reserved, the full $75 reservation deposit will be refunded. Otherwise, there will be no refund of the reservation deposit.

Refund on Housing and Boarding Contract. The housing and boarding contract is a contract for the *full academic year* (Fall and Spring semesters), payable on a semester basis. Normally, no student will be permitted to break the contract unless the student is getting married, has special health problems, or is terminating his or her enrollment at the College.

If the student marries during the semester, the housing contract may be terminated if the student wishes. The student will be assessed charges for room and board in accordance with the following refund policy. The $75 security deposit, less damages, will be refunded.

Room Refund Policy—Students who withdraw from the College and/or Residence Hall after officially checking into a hall will receive a refund of rent based on the date of official check-out in accordance with the following scale:

90% of semester rent refunded when check-out occurs during first week
80% of semester rent refunded when check-out occurs during second week
70% of semester rent refunded when check-out occurs during third week
60% of semester rent refunded when check-out occurs during fourth week
50% of semester rent refunded when check-out occurs during fifth week
40% of semester rent refunded when check-out occurs during sixth week
30% of semester rent refunded when check-out occurs during seventh week

No refunds of rent will be made for check-outs that occur after the seventh week.

Board Refund Policy—Departing students are charged for meals through the week in which formal check-out occurs. Students leaving during the last two weeks of the semester are charged the full semester rate for meals.

No refunds are made for missed meals or for temporary absences from the hall except as follows: (a) Residents absent from their residence hall because of illness may apply at the Office of Housing for a board refund for any period of absence in excess of seven days. Such application must be accompanied by a written statement from the Head Resident and the attending physician certifying the medical basis for the absence and period of absence. (b) Students whose college academic requirements necessitate their being away from the residence hall for a period in excess of seven days may apply at the Office of Housing for a board refund. In such cases the student must notify the Head Resident and the Office of Housing prior to leaving.

Off-Campus Housing. Students who cannot be accommodated in Mesa College residence halls will be granted permission to live off campus. The College has no jurisdiction over off-campus housing but attempts to assist students in locating housing by soliciting listings of accommodations that may be available in the Grand Junction area.

CAMPUS PARKING

Students and College staff members who wish to park on campus may purchase parking permits for designated areas. The parking sticker does not guarantee a parking space, but permits on-campus parking when such space is available.

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT OF 1974

The College's practice in regard to student record keeping is based on the provisions of the Educational Privacy Act of 1974 (the Buckley Amendment) and is intended to be a safeguard against the unauthorized release of information. This act applies to all enrolled students, former students, and alumni. For details, see Mesa College Student Handbook.

Instructional Programs

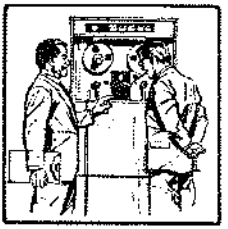
The following sections of this catalog describe the various schools and other units of Mesa College's instructional organization. Included is information about the specific programs, degrees, and options offered by the different units.

Students who have selected majors will find specific requirements, suggested course sequence, and other essential information listed under the appropriate school. Students who have not selected definite majors but who wish to work toward the associate degree should consult their faculty advisers to select courses which will meet the requirements. All students are advised to familiarize themselves with the information included under Graduation Requirements in another section of this catalog. (See index.)

The course descriptions in this catalog indicate the content of the course and the prerequisites when applicable. Courses are numbered and given titles. For example, ***HIST 131*** *is a course number and* ***United States History*** *is the corresponding course title. The number in parentheses at the end of the course title indicates the credit granted, in terms of semester hours, for each course.*

Courses numbered 1 through 99 are preparatory in nature and are not intended for transfer or for degree requirements. In some instances they may be counted as electives. Courses numbered 100-199 are designed for freshmen. 200-299 for sophomores. 300-399 for juniors, and 400-499 for seniors. For an explanation of course prefixes (departmental abbreviations), see the first page of Course Description section.

Mesa College reserves the right to withdraw from its offerings any course which the enrollment does not justify giving during any particular semester. Other courses may be added any semester if there is sufficient demand. In some programs, certain courses may be offered on an alternate-year basis or as determined by demand.



School of Business

James C. Carstens, Dean

Faculty: Anderson, Breyley, Buckley, Capps, T. Carmichael, Dickson, Dimpfl, M. Harper, Isaacson, E. Johnson, Morgan, Mourey, Myers, Reicks, Rider, Rogers, R. Youngquist.

The purpose of the School of Business is to provide students with specialized training for a future of self-reliance and economic opportunity. Courses in this school are designed to: help students develop skills and understanding of business principles necessary to enter and succeed in the business field; aid students in their personal economic planning, in buying for consumption, and in safeguarding and protecting their interests as consumers; enable students to gain a better understanding of the agencies, functions, methods, and organization of business enterprises, and develop an understanding of business ethics. The programs provide opportunities for practical applications and also provide background courses for students planning to enter advanced business study.

PROGRAMS

Several types of programs are offered by the School of Business. The Bachelor of Science programs in Accounting and Business Management are designed for persons desiring to enter a profession or to continue formal study in a graduate school. Associate-Degree programs are designed for persons desiring to obtain employment immediately after completion of the course of study or to transfer to another institution. One-year Certificate programs are designed for students desiring immediate employment after completion of the program. The one- and two-year programs provide necessary preparation for beginning employment as data-processing workers; bookkeepers; assistant accountants; general, medical, or legal secretaries or stenographers; typists; filing clerks; business machine operators; and other types of business and office workers.

DEGREES AND CERTIFICATES

Students in the School of Business may choose from programs leading to the following degrees and certificates:

Four-Year Degree Programs:

- Bachelor of Science in Accounting
- Bachelor of Science in Business Management
- (A School of Business proposal for a Bachelor of Science in Marketing is currently under consideration by appropriate agencies)

Two-Year Degree Programs:

- Associate in Applied Science—Data Processing
- Associate in Applied Science—Legal Secretary
- Associate in Applied Science—Medical Secretary
- Associate in Applied Science—Travel, Recreation, and Hospitality Management

Associate in Arts in Business Administration
Associate in Commerce in Accounting
Associate in Commerce in Office Administration (Secretarial)

One-Year Certificate Programs:
Data Processing
Job-Entry Training in Business
Legal Secretary
Medical Office Assistant
Office Clerical-Secretarial

Bachelor of Science in Accounting

In order to receive the Bachelor of Science in Accounting a student must satisfactorily complete the following:

	Hrs.
General Education (including 4 hours of Physical Education)	44
Accounting:	
Required Courses	25
Elective Courses	9
Core Courses (exclusive of General Education)	18
Electives	28
TOTAL	124

ACCOUNTING

Suggested Course Sequence

FRESHMAN YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
+ BUAC 201 (Principles of Accounting I)	3	+ BUAC 202 (Principles of Accounting II)	3
ENGL 111 (English Composition)	3	ENGL 112 (English Composition)	3
BUDP 101 (Business Data Processing)	3	* SPCH 102 (Speechmaking)	3
BUMA 201 (Principles of Management)	3	BUDP 131 (COBOL I)	3
General Education (Math or Physical Science)	4	* MATH 121 (Mathematical Foundations)	3
	16		15

SOPHOMORE YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
+ BUAC 321 (Intermediate Accounting I)	3	+ BUAC 322 (Intermediate Accounting II)	3
General Education (Psychology or Biology)	3	General Education (Psychology or Biology)	3
General Education (Literature)	3	General Education (Literature)	3
* ECON 201 (Principles of Economics)	3	* ECON 202 (Principles of Economics)	3
* BUGB 251 (Business Law I)	3	* BUGB 252 (Business Law II)	3
Physical Education	2	Physical Education	2
	17		17

JUNIOR YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
+ BUAC 401 (Advanced Accounting I)	5	+ BUAC 402 (Advanced Accounting II)	5
* STAT 214 (Statistical Applications in Business)	3	* BUMA 431 (Quantitative Decision-Making)	3
+ BUAC 331 (Cost Accounting I)	3	BUAC 332 (Cost Accounting II or Elective)	3
General Education (Social Science)	3	Elective	3
		General Education (Psychology or Biology)	3
	14		17

SENIOR YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
BUAC 441 (Income Tax or Upper Division Elective)	5	BUAC 421 (CPA Review or Upper Division Elective)	3
BUAC 411 (Auditing I or Upper Division Elective)	3	BUAC 442 (Advanced Tax or Upper Division Elective)	5
Electives	6	BUAC 412 (Auditing II or Upper Division Elective)	3
		BUAC 423 (Controllership) or Upper Division Elective	3
	14		14

* *Core Courses*
\+ *Required Accounting Courses*

Bachelor of Science in Business Management

In order to receive the Bachelor of Science in Business Management, a student must satisfactorily complete the following:

	Hrs.
General Education (including 6 hours of Economics and 4 hours of Physical Education)	44
Management:	
Required Courses	15
Elective Courses	27
Core Courses (exclusive of General Education)	6
Accounting	9
Business Law	6
BUGB Electives (not including BUGB 101)	6
Upper Division Electives	12
TOTAL	125

Note: A maximum of 6 hours from the following may count as Management courses for Management majors: ECON 301, 310, 401, 410; BUDP 241; OGSP 422; PSY 412.

BUSINESS MANAGEMENT

Suggested Course Sequence

FRESHMAN YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
*BUGB 101 (Introduction to Business)	3	*BUDP 101 (Business Data Processing)	3
ENGL 111 (English Composition)	3	ENGL 112 (English Composition)	3
PSY 121 (General Psychology)	3	PSY 122 (General Psychology)	3
General Education (Social Science)	3	*MATH 121 (Mathematical Foundations)	3
General Education (College Algebra or Mathematics of Finance)	3- 4	General Education (Humanities)	3
		Physical Education	2
	15-16		17

SOPHOMORE YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
+ BUMA 201 (Principles of Management)	3	BUGB Elective	3
BUAC 201 (Principles of Accounting I)	3	BUAC 202 (Principles of Accounting II)	3
ECON 201 (Principles of Economics)	3	ECON 202 (Principles of Economics)	3
*STAT 214 (Statistical Applications in Business)	3	BUGB Elective	3
General Education (Humanities)	3	General Education (Humanities)	3
Physical Education	2		
	17		15

JUNIOR YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
+ BUMA 231 (Principles of Marketing)	3	+ BUMA 302 (Problems in Small Business Operations)	3
BUAC Elective	3	BUGB 252 (Business Law II)	3
BUGB 251 (Business Law I)	3	Upper Division Management Electives	9
+ BUMA 339 (Managerial Finance)	3		
Upper Division Management Elective	3		
	15		15

SENIOR YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
Upper Division Management Electives	9	+ BUMA 491 (Business Policies)	3
Upper Division Electives	6	Upper Division Management Electives	6
		Electives	6
	15		15

* *Core Courses*
\+ *Required Management Courses*

Data Processing

Associate in Applied Science

In order to receive the Associate in Applied Science in Data Processing, a student must satisfactorily complete the following:

	Hrs.
General Education:	
English and/or Technical Report Writing	6
Social Science, Psychology or Literature	6
Physical Education	4
Accounting	6
Mathematics	6
BUGB 101 (Introduction to Business)	3
BUDP Courses:	
Non-Language	9
Language	12
Electives	12
TOTAL	64

DATA PROCESSING

Suggested Course Sequence

FRESHMAN YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
*BUDP 101 (Business Data Processing)	3	47	*BUDP 131 (COBOL I)	3	92
*BUAC 201 (Principles of Accounting I)	3	47	*BUDP 121 (Computer Operations)	3	47
*BUGB 101 (Introduction to Business)	3	47	*BUAC 202 (Principles of Accounting II)	3	47
ENGL 111 (English Composition)	3	47	ENGL 112 or 115 (English Composition or Technical Writing)	3	47
Physical Education	2	32	Physical Education	2	32
Elective	3	47	Elective	3	47
	17			17	

SOPHOMORE YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
#Computer Language	3	92	#*Computer Language	3	92
#Computer Language	3	92	*BUDP 281 (Automated Systems)	3	47
ECON 201 (Principles of Economics)	3	47	ECON 202 (Principles of Economics)	3	47
*MATH 121 (Mathematical Foundations)	3	47	*STAT 214 (Statistical Applications in Business)	3	47
Elective	3	47	Elective	3	47
	15			15	

**Core Courses*
#Select three of the following four languages: COBOL II, RPG, Assembler, FORTRAN.

SUGGESTED ELECTIVES: Managerial Accounting, Computers in Management, Cost Accounting, College Algebra.

Legal Secretary

Associate in Applied Science

In order to receive the Legal Secretary Associate in Applied Science degree, a student must satisfactorily complete the following:

	Hrs.
General Education:	
English and/or Literature	6
Social Science, Psychology or Literature	6
Physical Education	4
Other Courses listed in Suggested Course Sequence	48
TOTAL	64

(See Course Sequence on next page)

LEGAL SECRETARY

Suggested Course Sequence

FRESHMAN YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
ENGL 111 (English Composition)	3	47	ENGL 112 (English Composition)	3	47
BUOA 152 (Intermediate Typing)	3	47	BUOA 251 (Advanced Typing)	3	47
BUOA 112 (Intermediate Shorthand)	3	47	BUOA 211 (Advanced Shorthand)	3	47
General Education (Social Science or Psychology)	3	47	General Education (Social Science or Psychology)	3	47
BUGB 141 (Business Mathematics)	3	47	BUGB 211 (Business Communications)	3	47
Physical Education	2	32	Physical Education	2	32
	17			17	

SOPHOMORE YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
BUOA 101 (Secretarial Accounting)	3	47	BUOA 245 (Legal Procedures II)	3	47
BUGB 251 (Business Law I)	3	47	BUOA 201 (Office Management)	3	47
BUOA 244 (Legal Procedures I)	3	47	Speech	3	47
BUOA 265 (Electronic Word Processing)	3	47	Business Electives	6	94
Business Elective	3	47			
	15			15	

Typing and Shorthand are subject to challenge. Approved Business electives may be substituted.

SUGGESTED BUSINESS ELECTIVES: Office Simulation, Secretarial Co-Op or Work Experience, Introduction to Data Processing, Introduction to Business, Human Relations in Business, Business Law II, Machine Transcription.

SUGGESTED SOCIAL SCIENCE ELECTIVES: Psychology, Economics, American Government, Sociology.

Medical Secretary

Associate in Applied Science

In order to receive the Medical Secretary Associate in Applied Science degree, a student must satisfactorily complete the following:

	Hrs.
General Education:	
English	6
Social Science, Psychology or Literature	6
Physical Education	4
Other Courses Listed in Suggested Course Sequence	49
TOTAL	65

MEDICAL SECRETARY

Suggested Course Sequence

FRESHMAN YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
ENGL 111 (English Composition)	3	47	ENGL 112 (English Composition)	3	47
BUOA 151 (Beginning Typing)	3	47	BUOA 152 (Intermediate Typing)	3	47
SPCH 101 (Interpersonal Communications)	3	47	BUGB 211 (Business Communications)	3	47
Social Science, Psychology, or Literature	3	47	Social Science, Psychology, or Literature	3	47
BUGB 141 (Business Mathematics)	3	47	BUOA 101 (Secretarial Accounting)	3	47
Physical Education	2	32	Physical Education	2	32
	17			17	

SOPHOMORE YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.
SOC 260 (General Sociology)	3	47
BIOL 143 (Human Anatomy and Physiology)	3	60
HLTH 147 (Medical Terminology)	2	32
PSY 133 (Human Growth and Development)	3	47
PER 265 (First Aid)	2	32
Elective	3	
	16	

Spring Semester	Sem. Hrs.	Contact Hrs.
HLTH 159 (Medical Office Procedures)	3	47
BUOA 231 (Medical Transcription)	4	92
BUOA 251 (Advanced Typing)	3	47
HLTH 154 (Lab Techniques)	2	32
Elective	3	47
	15	

RECOMMENDED ELECTIVES: Related Work Experience, Office Management, Personal and Community Health, Nutrition, Human Relations in Business.

Travel, Recreation, and Hospitality Management

Associate in Applied Science

In order to receive the Associate in Applied Science degree in Travel, Recreation, and Hospitality Management, a student must satisfactorily complete the following:

	Hrs.
General Education:	
English Composition	6
History of Colorado and Principles of Economics	6
Physical Education	4
Business School Courses in Suggested Course Sequence	18
Travel, Recreation, and Hospitality Courses as Indicated	31
Survey of Earth Science	3
Technical Report Writing	3
Electives	6
TOTAL	77

TRAVEL, RECREATION, AND HOSPITALITY MANAGEMENT

Suggested Course Sequence

FRESHMAN YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.
BUTR 101 (Travel Industry I)	5	79
ENGL 111 (English Composition)	3	47
BUGB 135 (Salesmanship)	3	47
BUGB 141 (Business Mathematics)	3	47
Physical Education	2	32
	16	

Spring Semester	Sem. Hrs.	Contact Hrs.
BUTR 102 (Travel Industry II)	5	79
ENGL 112 (English Composition)	3	47
BUMA 121 (Human Relations in Business)	3	47
PSCI 113 (Survey of Earth Science)	3	47
Physical Education	2	32
	16	

Summer Session Between Freshman and Sophomore Year	Sem. Hrs.	Contact Hrs.
BUTR 251 Work Experience	15	600

SOPHOMORE YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.
BUTR 201 (Management in Travel Industry I)	3	47
BUAC 201 (Principles of Accounting I)	3	47
BUGB 251 (Business Law I)	3	47
HIST 120 (History of Colorado)	3	47
Elective	3	47
	15	

Spring Semester	Sem. Hrs.	Contact Hrs.
BUDP 101 (Business Data Processing)	3	47
BUTR 202 (Management in Travel Industry II)	3	47
ENGL 115 (Technical Writing)	3	47
ECON 201 (Principles of Economics)	3	47
Elective	3	47
	15	

Business Administration

Associate in Arts

This program is designed primarily for students who wish to complete two years at Mesa College and then transfer to another college or university. In order to receive the Associate in Arts degree in Business Administration a student must satisfactorily complete the following:

	Hrs.
General Education:	
English Composition	6
Literature	6
Social Science (Suggest Economics)	6
Physical Science or Mathematics	6
Biology or Psychology	6
Physical Education	4
Business Data Processing	3
Introduction to Business	3
Business Communications	3
Principles of Accounting	6
Electives	15
TOTAL	64

BUSINESS ADMINISTRATION

Suggested Course Sequence

FRESHMAN YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111 (English Composition)	3	ENGL 112 (English Composition)	3
MATH 113 (College Algebra)	4	*BUAC 202 (Principles of Accounting II)	3
*BUGB 101 (Introduction to Business)	3	*BUGB 211 (Business Communications)	3
*BUAC 201 (Principles of Accounting I)	3	MATH 121 (Mathematical Foundations)	3
Elective	3	Elective (Suggest Speechmaking)	3
	16		15

SOPHOMORE YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
Biology or Psychology	3	Biology or Psychology	3
Literature	3	Literature	3
ECON 201 (Principles of Economics)	3	ECON 202 (Principles of Economics)	3
*BUDP 101 (Business Data Processing)	3	Elective (Suggest Statistical Applications of Business)	3
Elective	3	Elective	3
Physical Education	2	Physical Education	2
	17		17

Required Core Courses

Accounting

Associate in Commerce

The Associate in Commerce Degree is designed primarily for students who wish to complete two years at Mesa College and transfer to another college or university.

In order to receive the Associate in Commerce degree in Accounting, a student must satisfactorily complete the following:

	Hrs.
General Education:	
English Composition	6
Principles of Economics	6
Electives	18
Physical Education	4
Business Mathematics or Mathematical Foundations of Business	3
Business Data Processing	3
Accounting	9
Business Law	6
Income Tax	3
Principles of Management	3
Business Elective	3
TOTAL	64

ACCOUNTING

Suggested Course Sequence

FRESHMAN YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
*BUGB 141 (Business Mathematics) or MATH 121 (Mathematical Foundations)	3	*BUMA 201 (Principles of Management)	3
ENGL 111 (English Composition)	3	ENGL 112 (English Composition)	3
*BUDP 101 (Business Data Processing)	3	*BUAC 202 (Principles of Accounting II)	3
*BUAC 201 (Principles of Accounting I)	3	SPCH 102 (Speechmaking) or other General Education	3
General Education Elective	3	General Education Elective	3
Physical Education	2	Physical Education	2
	17		17

SOPHOMORE YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
*BUGB 251 (Business Law I)	3	*BUGB 252 (Business Law II)	3
ECON 201 (Principles of Economics)	3	ECON 202 (Principles of Economics)	3
*BUAC 211 (Managerial Accounting)	3	General Education Electives	6
General Education Elective	3	*BUGB 241 (Income Tax)	3
Business Elective	3		
	15		15

*Core courses.

Office Administration (Secretarial)

Associate in Commerce

In order to receive the Associate in Commerce degree in Office Administration (Secretarial), a student must satisfactorily complete:

	Hrs.
General Education	
English	6
Social Science or Literature	12
Physical Education	4
Business Mathematics	3
Intermediate Shorthand	3
Intermediate Typewriting	3
Secretarial Accounting	3
Business Communications	3
Business Data Processing	3
Office Management	3
Office Simulation	3
Transcription Machines	3
Word Processing or Advanced Typing	3
Business Electives	3
Electives	9
TOTAL	64

OFFICE ADMINISTRATION (SECRETARIAL)

Suggested Course Sequence

FRESHMAN YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
Social Science or Literature	3	Social Science or Literature	3
ENGL 111 (English Composition)	3	ENGL 112 (English Composition)	3
*BUOA 112 (Intermediate Shorthand)	3	*BUDP 101 (Business Data Processing)	3
*BUGB 141 (Business Mathematics)	3	*BUOA 101 (Secretarial Accounting)	3
*BUOA 152 (Intermediate Typewriting)	3	BUOA 251 or BUOA 265 (Advanced Typewriting or Word Processing)	3
Physical Education	1	Physical Education	1
	16		16

SOPHOMORE YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
Social Science or Literature	3	Social Science or Literature	3
*BUGB 211 (Business Communications)	3	BUOA 201 (Office Management)	3
BUOA 221 (Transcription Machines)	3	*BUOA 271 (Office Simulations)	3
Physical Education	1	Physical Education	1
Electives	6	Electives	6
	16		16

*Core Courses.

SUGGESTED ELECTIVES: Business Law, Advanced Shorthand, Secretarial Co-Op, Management Courses, Economics, Speech, Work Experience.

One-Year Certificate Programs

These programs are designed to be flexible enough to meet individual needs. Substitutions or additions may be made in the suggested course sequences with the approval of the student's adviser.

DATA PROCESSING

In order to receive the one-year Certificate in Data Processing a student must satisfactorily complete the following course sequence or a similar sequence with substitutions approved by the adviser. Students may select either the Accounting or Secretarial option.

ALL STUDENTS

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
BUDP 101 (Business Data Processing)	3	47	BUDP 131 (COBOL I)	3	92
ENGL 111 (English Composition)	3	47	BUDP 121 (Computer Operator)	3	47
BUGB 101 (Introduction to Business)	3	47	BUGB 249 (Personal Finance)	3	47

ACCOUNTING OPTION

BUAC 201 (Principles of Accounting I)	3	47	BUAC 202 (Principles of Accounting II)	3	47
BUGB 141 (Business Mathematics)	3	47	BUGB 241 (Income Tax)	3	47

SECRETARIAL OPTION

BUOA 152 (Intermediate Typing)	3	47	BUOA 112 (Intermediate Shorthand)	3	47
BUOA 111 (Beginning Shorthand)	3	47	BUOA 221 (Transcription Machines)	3	47
			BUOA 101 (Secretarial Accounting)	3	47

JOB-ENTRY TRAINING

In order to receive the one-year Certificate in Job-Entry Training, a student must satisfactorily complete the following: (Courses with a BUJT prefix, designed for the Job-Entry Program only, do not provide college credit for any degree at Mesa College.)

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
BUJT 51 (Typewriting)	3	80	BUJT 51 (Typewriting)	3	80
BUJT 11 (Gregg Shorthand or Stenoscript)	3	80	BUJT 11 (Gregg Shorthand or Stenoscript)	3	80
BUJT 21 (Bookkeeping)	3	80	BUJT 21 (Bookkeeping)	3	80
BUJT 31 (Business Mathematics and Office Machines)	3	80	BUJT 81 (Personal Development and Filing)	2	80
BUJT 61 (Word Study)	3	80	BUJT 61 (Word Study)	3	80
BUJT 41 (Business English)	3	80	BUJT 41 (Business English)	3	80
	18			17	

Summer Session	Sem. Hrs.	Contact Hrs.
BUJT 51 (Typewriting)	3	80
BUJT 11 (Gregg Shorthand or Stenoscript)	3	80
BUJT 21 (Bookkeeping)	3	80
BUJT 31 (Business Mathematics and Office Machines)	3	80
BUJT 71 (Speech)	3	80
BUJT 41 (Business English)	3	80
	18	

LEGAL SECRETARY

In order to receive the nine-month Certificate in Legal Secretary, a student must satisfactorily complete the following course sequence or a similar sequence with substitutions approved by the adviser:

Fall Semester	Sem. Hrs.	Contact Hrs.
ENGL 111 (English Composition)	3	47
BUOA 244 (Legal Procedures I)	3	47
BUOA 152 (Intermediate Typing) or		
BUOA 251 (Advanced Typing)	3	47
BUOA 112 (Intermediate Shorthand)	3	47
BUGH 141 (Business Mathematics)	3	47
BUOA 265 (Electronic Word Processing)	3	47
	18	

Spring Semester	Sem. Hrs.	Contact Hrs.
ENGL 172 (English Composition) or		
ENGL 115 (Technical Writing)	3	47
BUOA 245 (Legal Procedures II)	3	47
BUOA 101 (Secretarial Accounting)	3	47
BUOA 211 (Advanced Shorthand)	3	47
*Social Science Elective	3	47
**Business Elective	3	47
	18	

Suggested Social Science electives include American Government, Sociology, Economics or Psychology.

***Suggested Business electives include Work Experience, Business Law, or other Business course as approved by adviser.*

Typing and Shorthand courses are subject to challenge. Approved Business electives may be substituted for these courses.

MEDICAL OFFICE ASSISTANT

In order to receive the nine-month Certificate in Medical Office Assistant, a student must satisfactorily complete the following course sequence or a similar sequence with substitutions approved by the adviser:

Fall Semester	Sem. Hrs.	Contact Hrs.
BIOL 143 (Human Anatomy and Physiology)	3	60
HLTH 147 (Medical Terminology)	2	32
BUOA 151 (Beginning Typing)	3	47
PSY 121 (General Psychology)	3	47
BUOA 101 (Secretarial Accounting)	3	47
ENGL 111 (English Composition)	3	47
	17	

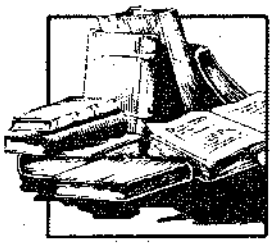
Spring Semester	Sem. Hrs.	Contact Hrs.
HLTH 159 (Medical Office Procedures)	3	47
BUOA 231 (Medical Transcription)	4	92
BUOA 152 (Intermediate Typing)	3	47
HLTH 154 (Lab Techniques)	2	32
PER 265 (First Aid)	2	32
BUGB 211 (Business Communications)	3	47
	17	

OFFICE CLERICAL-SECRETARIAL

In order to receive the nine-month Certificate in Office Clerical-Secretarial, a student must satisfactorily complete the following course sequence or a similar sequence with substitutions approved by the adviser:

Fall Semester	Sem. Hrs.	Contact Hrs.
ENGL 111 (English Composition)	3	47
BUOA 111 (Beginning Shorthand)	3	47
BUOA 151 (Beginning Typing)	3	47
BUGB 141 (Business Mathematics)	3	47
BUGB 211 (Business Communications)	3	47
	15	

Spring Semester	Sem. Hrs.	Contact Hrs.
ENGL 112 (English Composition) or		
ENGL 115 (Technical Writing)	3	47
BUOA 112 (Intermediate Shorthand)	3	47
BUOA 152 (Intermediate Typing)	3	47
BUOA 101 (Secretarial Accounting)	3	47
BUOA 221 (Transcription Machines)	3	47
Electives	3	47
	18	



School of Humanities and Fine Arts

Dan M. Showalter, Dean

Faculty: Berkey, Birkedahl, Blackburn, Boschi, P. Carmichael, DeVinny, Djos, Edmonds, Frohock, Gallegos, Guyton, Huffer, R. Johnson, Lay, Dan MacKendrick, Meyers, Mountain, Pilkenton, Ritchie, M. Robinson, W. Robinson, Runner, A. Sanders, D. Sanders, Schneider, Sowada, Speiman, Margaret Sullivan, Tharaud, Zeigel.

The School of Humanities and Fine Arts endeavors to promote in students cultural awareness and critical judgment. The school embraces the disciplines of Art, Dance, Drama, Languages, Literature, Music, Philosophy, and Speech. Students are encouraged to understand, to evaluate, to appreciate, and to participate in the various forms of self-expression. Studies in these areas help students develop intellectual and moral values, both aesthetic and utilitarian, which may contribute to fuller and nobler lives for the individual and society.

The School of Humanities and Fine Arts includes the following departments:

Department of Art (Donald E. Meyers, Department Head)
Department of Languages and Literature (Robert L. Johnson, Department Head)
Department of Music (Darrell C. Blackburn, Department Head)
Department of Speech and Drama (William S. Robinson, Department Head).

Bachelor of Arts in Liberal Arts

The Liberal Arts Program is an academic concept which provides an opportunity for students, in consultation with faculty advisers, to design much of their own major program. The specific area requirements permit each individual to be exposed to a variety of academic disciplines. The plan also allows the student flexibility in selecting a supporting program of transdisciplinary study.

Students working toward a Bachelor of Arts degree in Liberal Arts must complete the general education, physical education, and other requirements outlined in paragraphs which follow. No course used to fulfill a general education requirement may be used to fulfill requirements for a major. See *Baccalaureate Degree Requirements* on pages 19, 20 of this catalog.

Requirements for the Bachelor of Arts in Liberal Arts

1. Forty semester hours in General Education, including ENGL 111 and ENGL 112.
2. Seventy-one semester hours in specific areas:

   Fine Arts, 18; Humanities, 18; Social Science, 18; Mathematics, 5; Physical and/or Biological Sciences, 8; Physical Education, 4.
3. Fifteen semester hours of electives (other than those previously listed), representing a minimum of three disciplines:

   Accounting, Agriculture, Art, Biology, Business, Chemistry, Data Processing, Drama, Economics, Education, English, French, Geology, German, History, Home Economics, Literature, Mathematics, Music, Philosophy, Physical Education, Physics, Political Science, Psychology, Religion, Sociology, Secretarial, Spanish, Speech.

Lower- and Upper-Level Course Requirements

Each student enrolled in the Liberal Arts baccalaureate program will be required to complete:

1. Eighty semester hours plus physical-education requirement in lower-division courses.
2. Forty semester hours in upper-division courses (300's and 400's).
3. A total of 126 semester hours.

General Implementation by Candidate for B.A. in Liberal Arts

A student entering the Liberal Arts baccalaureate program must submit a major program for approval by his or her faculty adviser. Faculty advisers may, at their discretion, seek assistance from other members of the faculty to review the proposed program of any student. This program, which must be submitted during the student's junior-equivalent year, will then be reviewed by the Registrar for approval or notation of deficiencies. The program must then be submitted to the Dean of the School of Humanities and Fine Arts for final approval in conference with the Registrar.

FOREIGN LANGUAGE

Since foreign-language courses are essential for many bachelor's degree programs, especially in English and science areas, lower-division students may wish to consider taking foreign language during the first two years. Persons desiring to earn a B.A. degree in Liberal Arts with subsequent certification for teaching are advised to take at least two sequences of a language. Most English majors desiring to teach should have at least two years of a language.

Bachelor of Arts in Visual and Performing Arts

Art, music, dance and drama are combined to provide students with a broad concept of the arts as they relate to and influence each other and also as they relate to living. Through this concept, students may broaden their experience before specializing in graduate school or, if they terminate their formal education at the baccalaureate-degree level, they will have the advantage of greater knowledge of the arts as a whole. Also, the success of community arts programs is served by individuals who have competency in more than one area.

The Visual and Performing Arts degree offerings are flexible and broad enough to allow considerable freedom in planning a program of study to fit individual talents and needs, including the attainment of the intermediate Associate in Arts degree described elsewhere.

Course of Study for B.A. Degree in Visual and Performing Arts

General Education requirements, including ENGL 111 and 112	40
Physical Education	4
Man Creates	3
Practicum in the Arts	4
Civilization and the Arts	6
Aesthetics or Seminar in Critical Analysis of the Arts	3
Arts Management	3
Fine Arts Electives	14
Other Electives	47
TOTAL (includes Independent Study and Credit by Examination)	124

VISUAL AND PERFORMING ARTS

Suggested Course Sequence for Art Emphasis

FRESHMAN YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111 (English Composition)	3	ENGL 112 (English Composition)	3
Social Science	3	Social Science	3
FA 101 (Man Creates)	3	ART 152 (Art Foundation)	3
ART 151 (Art Foundation)	3	ART 212 (Art History)	3
ART 211 (Art History)	3	Elective	3
Physical Education	2	Physical Education	2
	17		17

SOPHOMORE YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
Physical Science	3	Physical Science	3
Biological Science or Psychology	3	Biological Science or Psychology	3
Processes and Media	3	Processes and Media	3
Processes and Media	3	Processes and Media	3
Life Drawing	3	Elective	1
Elective	1	Practicum	3
	16		16

JUNIOR YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
Humanities	3	Humanities	3
*Advanced Studio	3	*Advanced Studio	3
*Aesthetics	3	*Advanced Studio	3
*Advanced Studio	3	*Civilization and the Arts	3
*ART 415 (20th Century Art History)	3	Electives	5
Elective	2		
	17		17

SENIOR YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
*Advanced Studio	3	*Advanced Studio	3
*Advanced Studio	3	*Advanced Studio	3
*FA 401 (Critical Analysis of the Arts)	3	*Art History Seminar	3
*ART 311 (Exhibitions and Management)	2	*ART 312 (Exhibitions and Management)	2
Electives	5	Electives	5
	16		16

**Upper-division.*

VISUAL AND PERFORMING ARTS

Suggested Course Sequence for Drama Emphasis

FRESHMAN YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111 (English Composition)	3	ENGL 112 (English Composition)	3
Literature (Introduction to Drama) or Social Science	3	Literature (Introduction to Shakespeare) or Social Science	3
Physical Science, Mathematics, Biological Science, or Psychology	3	Physical Science, Mathematics, Biological Science, or Psychology	3
Physical Education	2	Physical Education	2
FA 101 (Man Creates)	3	SPCH 112 (Voice and Diction)	3
DRAM 141 (Introduction to Theatre)	3	DRAM 142 (Make-up and Costuming)	3
	17		17

(Sequence continued on next page)

SOPHOMORE YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
Social Science	3	Social Science	3
Physical Science, Mathematics, Biological Science, or Psychology	3	Physical Science, Mathematics, Biological Science, or Psychology	3
DRAM 251 (Stage Movement)	3	DRAM 252 (Beginning Acting)	3
DRAM 243 (Theatre Practice: Scene Construction)	3	DRAM 244 (Theatre Practice: Light and Sound)	3
Voice Class	3	Practicum in the Fine Arts	3
Dance	1	Dance	1
Elective	2	Elective	2
	18		18

JUNIOR YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
FA 301 (Civilization and the Arts)	3	FA 302 (Civilization and the Arts)	3
Acting, Directing, or Scene Design	3	Acting, Directing, or Scene Design	3
ENGL 326 (World Drama)	3	ENGL 327 (World Drama)	3
DRAM 331 (History of the Theatre)	3	Electives	4
MUS 251 (Music Theatre)	3		
	15		13

SENIOR YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
FA 401 (Seminar in Critical Analysis)	3	FA 402 (Arts Management)	3
Acting, Directing, or Technical Theatre	3	Acting, Directing, or Technical Theatre	3
ENGL 411 (American Drama)	3	ENGL 413 (Contemporary Drama)	3
Electives	3	Electives	3
	12		12

A Drama major must be in a play or work as a technical crew member each semester. All Drama majors must take six hours of speech courses.

Associate in Arts Degrees

Students who wish to work toward the Associate in Arts degree in any of the disciplines included in the School of Humanities and Fine Arts should refer to the schedule listed under Graduation Requirements elsewhere in this catalog (see index). Faculty advisers will assist candidates for the Associate in Arts degree in planning a program that will meet the requirements.

Study directed toward the Associate in Arts degree will serve as a basis for the Bachelor of Arts in Liberal Arts or the Bachelor of Arts in Visual and Performing Arts and also for programs offered in other academic units at Mesa College. The Associate in Arts program also serves as a basis for transfer to other institutions toward baccalaureate degrees not currently available at Mesa College.

SCHOLARSHIPS

Music, art, and drama students may apply directly to their respective departments for consideration as scholarship applicants. Auditions or portfolio of work may be required. Students in all areas may apply for other types of general scholarships and grants available through the Office of Financial Aids. See information in **Student Services** section of this catalog.

ART COLLECTION

The Mesa College Art Department maintains and displays a collection of student art work and reserves the right to retain one piece of work from each student enrolled in a studio class.

School of Industry and Technology

Alfred J. Goffredi, Dean

Faculty: Bollan, Branton, Charlesworth, Duff, Fetters, Fresquez, Hill, McMurlyn, Rowley, Turnpte, Wells, Youngblood.

The School of Industry and Technology offers a variety of options in Auto Body and Fender (ABF), Auto Mechanics (AMEC), Electric Lineman (ELIN), Electronics (ELEC), Graphic Communications (GRCO), and Welding (WELD), each of which prepares students for employment and advancement in some of the nation's most important industries and technologies. The instructional program includes both classroom lecture-discussion and specialized training in well-equipped shops, which are supervised by highly skilled personnel.

Auto Body and Fender

Associate in Applied Science

At the end of one year a student is awarded a certificate of capability. Upon completion of the requirements set forth in the curriculum, a student receives the Associate in Applied Science degree. Practical application covers all phases of body and fender repair, including a comprehensive unit in auto painting. The training provides the necessary laboratory skills, knowledge of theory, principles and related subjects essential to enter and progress competitively in the occupation. Students may enter the program any semester.

Requirements for the Associate in Applied Science degree in Auto Body and Fender include the following:

	Sem. Hrs.
English or Vocational Communications	6
Social Science	6
Physical Education	4
Auto Body	46
Electives	4
Total required for graduation	66

AUTO BODY AND FENDER CURRICULUM

FIRST YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
ABF 100 (Applied Mathematics)	2	32	ABF 120 (Auto Body Repair and Refinishing II)	8	160
ABF 110 (Auto Body Repair and Refinishing I)	8	160	ABF 130 (Auto Reconditioning)	3	64
ABF 140 (Oxyacetylene Welding)	2	48	ABF 150 (Arc Welding)	2	48
English or Vocational Communications	3	48	English or Vocational Communications	3	48
Physical Education	2	64	Physical Education	2	64
	17	352		18	384

(Sequence continued on next page)

SECOND YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.
ABF 200 (Panel and Spot Painting)	2	64
ABF 210 (Frame Repair)	2	64
ABF 230 (Auto Body Repair and Refinishing III)	5	160
ABF 220 (Shop Management)	2	32
Social Science	3	48
	14	368

Spring Semester	Sem. Hrs.	Contact Hrs.
ABF 240 (Auto Body Repair and Refinishing IV)	5	160
ABF 250 (Estimating)	3	48
BUMA 121 (Human Relations in Business)	2	32
Social Science	3	48
	13	288

AUTO MECHANICS

Associate in Applied Science

This program is designed to train persons who wish to enter into the automotive service trades, including general mechanics, specialists of various types, shop foremen, service managers, service salesmen, instructors, factory service representatives, insurance adjustors and other positions. It provides the necessary foundation upon which students may enter and advance themselves in the automotive trades.

The curriculum is designed in modules of five weeks each except Engines which is ten weeks. Generally there are nine modules offered each semester and a student may choose among these. This system allows anyone interested to enroll for any module and therefore become proficient in one or more aspects of auto mechanics.

Requirements for the Associate in Applied Science degree in Auto Mechanics include the following:

	Sem. Hrs.
English or Vocational Communications	6
Physical Education	4
Engineering Drawing (ENGR 105)	2
Auto Mechanics	46
Social Science	6
Electives	2
Total required for graduation	66

AUTO MECHANICS

Certificate

Requirements for a Certificate in Auto Mechanics include:

AMEC 111: Applied Math for Auto Mechanics (2 semester hours, 30 contact hours) plus 44 semester hours of auto mechanics courses from the following list:

		Semester Hrs.	Contact Hrs.
AMEC 110	Beginning Welding for Auto Mechanics	2	48
AMEC 113	Internal Combustion Engines	3	75
AMEC 114	Engine Rebuilding and Repairs	6	150
AMEC 121	Clutches, Standard Transmissions and Overdrive	3	75
AMEC 122	Drivelines and Differentials	3	75
AMEC 123	Carburetors	3	75
AMEC 124	Electrical Systems	3	75
AMEC 125	Automotive Brake Systems	3	75
AMEC 127	Transmissions	3	75

(Sequence continued on next page)

AMEC 133	Air Conditioning	3	75
AMEC 136	Ignition Systems	3	75
AMEC 139	Emission Control	3	75
AMEC 140	Alignment and Wheel Balance	3	75
AMEC 141	Suspension Repair	3	75

ELECTRIC LINEMAN

One-Year Certificate Program

This program is designed to provide well-trained personnel for electrical services and construction companies. Students receive field training and practical theory in all phases of power-line installation and maintenance. Field training consists of actual job experience in an outdoor school laboratory. It covers climbing, setting and removing various sizes of poles, also guy work, conductors, transformers, streetlights, installation of services, tree trimming, and the use and care of safety equipment.

Related Training, conducted in laboratory and classroom, provides ample opportunity for acquaintance with the materials and hardware of the trade and also the theory of their use. Fundamentals basic to the trade are emphasized through classes in electricity, construction techniques, transmission, distribution systems, underground procedures, hot line, and safety.

Requirements for the one-year certificate include:

		Semester Hrs.	Contact Hrs.
ELIN 111	Applied Mathematics	5	80
ELIN 120	Fundamentals of Electricity I	5	160
ELIN 131	Electric Distribution Theory I	4	64
ELIN 132	Electric Distribution Theory II	4	64
ELIN 136	Related Fundamentals I	4	64
ELIN 137	Related Fundamentals II	4	128
ELIN 140	Underground Procedures	5	160
ELIN 145	Hot-Line Procedure	2	80
ELIN 150	Applied Theory and Fundamentals I, II, III	10	320

(This program does not operate on the traditional semester system. Consult the department for starting time of each course.)

ELECTRONICS TECHNOLOGY

Associate in Applied Science

The Electronics Technology curriculum has been arranged to provide optimum specialized technical instruction. The objective and the emphasis throughout is on an understanding of the engineering principles basic to the field of electronics. The curriculum is organized in a manner unlike that found in the professional engineering school or in the traditional trade school.

The curriculum is designed to provide two options, Electronics option and Maintenance option.

The courses are arranged in workable sequence suitable to the instructional needs of the students, with an appropriate balance among technology courses, general education courses, and laboratory applications. It is not a pre-engineering curriculum suitable for transfer to other institutions.

A graduate of either program will have a good foundation in the principles

of electronics and considerable facility with the "hardware" encountered in the electronics industry.

A background of algebra, geometry, and trigonometry is desired for this program.

ELECTRONICS OPTION

This option is a basic preparation for entry employment in a variety of occupations in the field of electronics.

MAINTENANCE OPTION

This option will provide training in both mechanical and electrical areas. The overall thrust of the option is to develop a well versed helper entering the maintenance field in mining, shale oil production, and plant equipment.

Requirements include:

	Electronics Option Sem. Hrs.	Maintenance Option Sem. Hrs.
English Composition, Report Writing	6	6
Technical Mathematics	8	8
Electronics	38	26
Mechanical	0	14
Social Science	6	6
Electronic Drafting	3	0
Physical Education	4	4
Physics	4	4
Total required for graduation	69	68

ELECTRONICS TECHNOLOGY CURRICULUM

Suggested Course Sequence

FIRST YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
ELEC 117 (Basic Circuits I)	6	160	ELEC 253 (Basic Circuits III)	4	96
ELEC 118 (Basic Circuits II)	6	160	ELEC 122 (Radio and Television)	2	64
ELEC 121 (Radio and Television)	2	64	ETEC 102 (Technical Mathematics)	4	64
ETEC 101 (Technical Mathematics)	4	64	PHYS 111 (Physics)	4	96
Physical Education	2		Social Science	3	48
			Physical Education	2	
	20	448		19	368

SECOND YEAR—ELECTRONICS OPTION

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
ELEC 256 (Communications I)	3	80	ELEC 251 (Pulse and Video I)	3	80
ELEC 257 (Communications II)	3	80	ELEC 252 (Pulse and Video II)	3	80
ELEC 265 (Digital Electronics)	4	96	ELEC 259 (UHF and Microwave)	3	80
ELEC 266 (Microprocessors)	3	80	ELEC 261 (Calibration and Maintenance of Test Equipment)	3	80
ENG 111 (English Composition)	3	48	ETEC 251 (Electronic Drafting)	3	64
Social Science	3	48	ENG 115 (Technical Writing)	3	48
	19	432		18	432

SECOND YEAR—MAINTENANCE OPTION

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
ELEC 258 (Hydraulics and Pneumatics)	4	96	ELEC 254 (Industrial Electronics)	2	64
ELEC 260 (Fundamentals of Diesel Engines)	8	160	ELEC 255 (Motors, Generators and Controls)	4	96
ELEC 265 (Digital Electronics)	4	96	WELD 121 (Blueprint Reading)	2	32
ELEC 266 (Microprocessors)	3	80	Welding	2	96
ENG 111 (English Composition)	3	48	ENG 115 (Technical Writing)	3	48
			Social Science	3	48
	20	480		16	384

Graphic Communications Technology

Associate in Applied Science

A two-year technical program designed to prepare the student to enter business, industry, and education systems. The student develops basic skills in visual-information design, visual-information reproduction, and visual-information recording, storage, and retrieval.

Requirements for the Associate in Applied Science degree in Graphic Communications Technology include the following:

	Sem. Hrs.
ENGL 111, 112 (English Composition)	6
Physical Education	4
Social Science or Psychology	6
BUGB 141 (Business Mathematics)	3
Art	3
Advertising	3
Journalism	3
Graphic Communications	31
Electives	6
(Typing and Speech recommended.)	

GRAPHIC COMMUNICATIONS CURRICULUM

FIRST YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
ENGL 111 (English)	3	48	ENGL 112 (English)	3	48
Social Science or Psychology	3	48	Social Science or Psychology	3	48
Physical Education	2	64	Physical Education	2	64
Art	3	48	BUMA 232 (Advertising)	3	48
GRCO 110 (Introduction to Graphic Communications)	2	32	GRCO 130 (Basic Photography)	2	32
GRCO 120 (Graphic Arts Layout & Design)	3	66	GRCO 140 (Typesetting)	3	80
			Elective	3	48
	16	306		19	368

SECOND YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
BUGB 141 (Business Mathematics)	3	48	GRCO 241 (Image Preparation II)	3	80
ENGL 131 (Introduction to Journalism)	3	48	GRCO 251 (Offset Press)	3	80
GRCO 240 (Image Preparation I)	3	80	GRCO 231 (Process Photography II)	3	80
GRCO 250 (Offset Press)	3	80	GRCO 260 (Cost Estimating)	3	48
GRCO 230 (Process Photography I)	3	80	Elective	3	48
	15	336		15	336

Welding

Associate in Applied Science and Certificate Programs

In addition to the Associate in Applied Science degree, both three-semester and four-semester certificate programs are offered. Students who leave the program before completion of the three-semester sequence, and at the request of the student, may be awarded a certificate of capability. Appropriate certificates or the degree will be awarded upon satisfactory completion of the longer programs if requested by the student.

The courses are designed to give students the necessary knowledge of metals, layout work, and welding processes, along with an opportunity to gain manipulative skills and the related information needed to enter and progress in

the welding occupations. Instruction and shop practice are offered in oxyacetylene and arc welding of ferrous metals in all positions. Students can arrange work experience as part of the regular program after being in a program two semesters or more.

Requirements for the Associate in Applied Science degree in Welding include the following:

	Sem. Hrs.
Welding	48
Physical Education	4
Engineering Drawing	3
English	6
Social Science	6
Total required for graduation	65

WELDING CURRICULUM

Associate in Applied Science

First Semester	Sem. Hrs.	Contact Hrs.
WELD 110 (Welding Laboratory I)	7	240
WELD 112 (Oxyacetylene and Arc Theory)	3	64
WELD 115 (Applied Mathematics)	2	48
English or Vocational Communication	3	48
Physical Education	2	64
ENGR 105 (Engineering Drawing)	3	96
	20	560

Second Semester	Sem. Hrs.	Contact Hrs.
WELD 120 (Welding Laboratory II)	7	240
WELD 121 (Blueprint Reading)	2	48
WELD 131 (Fabrication Layout)	2	48
English or Vocational Communications	3	48
Physical Education	2	64
	16	448

Third Semester	Sem. Hrs.	Contact Hrs.
WELD 230 (Welding Laboratory III)	7	240
WELD 141 (Shop Management and Structural Theory)	3	64
WELD 122 (Advanced Blueprint Reading)	2	48
Social Science	3	48
Elective	2	32
	17	432

Fourth Semester	Sem. Hrs.	Contact Hrs.
WELD 240 (Welding Laboratory IV)	7	240
WELD 145 (Metallurgy)	2	48
WELD 132 (Advanced Fabrication Layout)	2	48
Social Science	3	48
*WELD 252 (Work Experience)	7	300
	21	684

NOTE: Work experience is scheduled each semester and may be taken after completion of the second semester of Welding Lab. Twenty hours per week for fifteen weeks will equate to seven semester hours of credit or forty hours per week for fifteen weeks will equate to fourteen semester hours.

Requirements for the Three- and Four-Semester Certificates

	Three Semesters	Four Semesters
Welding	37 hrs.	55 hrs.
ENGR 105 (Engineering Drawing)	3	3
Vocational Communications	3	3
BUMA 121 (Human Relations in Business)	3	3
Total hours required	46	64

School of Natural Sciences and Mathematics

William E. Putnam, Dean

Faculty: Allmaras, Bailey, Bauerle, Boge, Britton, Chowdry, Dail, Davis, Foutz, Fynn, Hafner, Hawkins, Henson, Hurlbut, J. Johnson, Kautzsch, Kelley, Kerns, Kramer, Lenz, Luke, McCallister, Martineau, Peters, Phillips, Ramsey, Rice, Roadifer, Rybak, Marcella Sullivan, Taylor, Wethington, White.

DISCIPLINES INCLUDED

The academic and vocational disciplines comprising the School of Natural Sciences and Mathematics are:

Agriculture
Biology
Chemistry
Computer Science
Engineering
Engineering Technology
Geology
Home Economics
Mathematics
Physics
Production Agriculture
Statistics

BACCALAUREATE PROGRAMS

Under the aegis of this school Bachelor of Science degrees can be earned with specialization in the following:

Animal-Plant Management

The curricula of the two emphasis areas in this program, Applied Biology and Professional Agriculture, are intended to provide the student applied and practical educational experience. Specifically, the Applied Biology emphasis would be expected to lead to employment in a field related to biology, education, health sciences, medicine, or natural resources. However, by judicious selection of electives in consultation with a faculty adviser, a student can prepare for graduate study. The course offerings in the Professional Agriculture emphasis deal mostly with crop production and animal science with a few additional offerings in agriculture economics and peripheral areas. Thus this program is oriented completely toward producing baccalaureate graduates who can function effectively on farms.

Computer Science

The curriculum of this program is intended to provide the student sufficient educational experiences in the closely related fields of computer science, mathematics, and statistics to lead directly to a career in any one of them. It also provides sufficient preparation for graduate study.

Environmental Geoscience

The curriculum of this program is intended to provide the student sufficient educational experience in environmentally oriented geology to lead directly to

a career in resource exploration or production, land use, or a related field. However, by making the substitutions indicated immediately after the required-course listing a student can prepare for graduate study.

TWO-YEAR PROGRAMS

Associate in Science degrees can be earned with specialization in the following:

Agriculture	Geology
Biology	Mathematics
Chemistry	Physics
Computer Science	Statistics

Although a person earning one of these degrees might elect to terminate his or her formal education at this level it would normally be expected that these studies would be continued in appropriate baccalaureate programs either at Mesa College or another institution.

Several additional Associate in Science degree programs are specially designed as the first two years of baccalaureate programs to be completed elsewhere. They are:

Engineering
Home Economics
Pre-Forestry

Associate in Applied Science degrees can be earned with specialization in the following:

Engineering Technology	Production Agriculture

PROFESSIONAL SCHOOL PREPARATION

Preparation for admission into the graduate professional schools of Dentistry, Medicine, Optometry, Pharmacy, and Veterinary Medicine is possible with an Animal-Plant Management major, Applied Biology emphasis, and a judicious choice of electives. It might be noted though that because of the intense competition for admission into these schools a student may elect to study at Mesa College for two years and then transfer for the remainder of his or her baccalaureate education to the parent university of the professional school of choice.

DEPARTMENTS

Several groups within the faculty of the School of Natural Sciences and Mathematics are organized into departments as follows:

Department of Agriculture, Maylon D. Peters, Head
Department of Biological Sciences, Edward C. Huribut, Head
Department of Computer Science, Mathematics, and Engineering, James C. Davis, Head

The faculties of chemistry, geology, home economics, and physics are not formally departmentalized.

SPECIAL REQUIREMENTS

Laboratories

Most courses in the School of Natural Sciences and Mathematics include laboratory work. For students' convenience the class and laboratory portions of such courses are technically treated as different courses with distinctive numbers and individual grades. It is required, however, that a student enrolled in such a class or laboratory be also enrolled in the other unless credit in it has already been established. If, through accident or oversight, the requirement stated above is not enforced it is nonetheless to be understood that credit can not be earned toward graduation for a class or laboratory unless credit is also earned for the other.

Duplication of Courses

In some disciplines within the School of Natural Sciences and Mathematics different courses are offered which contain essentially the same subject matter but at different levels of rigor. When credit is earned in courses with such duplication, credit toward graduation will be considered earned in only the more rigorous one. Duplications to which this limitation applies are: CHEM 121 and CHEM 131, CHEM 122 and CHEM 211, GEOL 101 and GEOL 111, PHYS 111 and any other physics course. The courses PSCI 111, 112, and 113 are considered duplicates of and less rigorous than any course in the respective disciplines physics, chemistry, and geology.

The courses CSCI 131 and ENGR 114 and the courses CSCI 361 and MATH 361 are exact duplications; credit can be earned toward graduation in only one of each pair.

For essentially the purpose stated above, in computer science, engineering technology, mathematics, and statistics, credit toward graduation can not be earned in a lower-numbered course after it has been earned in a higher-numbered course.

In many instances in which duplication such as described above occurs, the less-rigorous course is listed as a requirement in another program. It is to be understood that a more-rigorous or higher-level course can always substitute for a less-rigorous or lower-level required course.

Independent Study

A student can enroll for independent study at different levels or at the same level more than once. However, in the School of Natural Sciences and Mathematics, no more than two semester hours credit toward graduation with an associate degree and four semester hours credit toward graduation with a bachelor's degree can be earned through independent study.

Mesa College reserves the right to withdraw from its schedule any course which the enrollment does not justify offering during any particular term. In some programs certain courses may be offered on an alternate year basis or as determined by demand.

GRADUATION REQUIREMENTS FOR BACCALAUREATE PROGRAMS

The general-education requirements common to all Mesa College baccalaureate programs are listed elsewhere in this catalog. For various academic reasons, within the School of Natural Sciences and Mathematics some courses which meet general-education requirements are also specific baccalaureate-program requirements. It is understood that credit earned in such courses, to the extent of the amount involved, serves to meet the student's general-education requirements but does not preclude his or her enrolling in related courses as electives.

ANIMAL-PLANT MANAGEMENT

Applied Biology Emphasis

BIOL 105
BIOL 106 and 106L
BIOL 107 and 107L
BIOL 201 and 201L
BIOL 202 and 202L
BIOL 211 and 211L
BIOL 250 and 250L
BIOL 301 and 301L
BIOL 311 and 311L
BIOL 401 or 462
Two of the following (class plus laboratory considered one):
BIOL 220 and 220L
BIOL 341 and 341L
BIOL 421 and 421L
AG 352
Some combination of BIOL 460, 461, 462, 463, and 464 for a total of ten hours.

Professional Agriculture Emphasis

Agronomy interest:

AG 142
AG 202
AG 202L
AG 205
AG 213
AG 213L
AG 251
AG 251L
AG 320
AG 332
AG 343
AG 343L
AG 403
AG 403L
AG 422
AG 451
BIOL 105
BIOL 107
BIOL 107L
BIOL 220
BIOL 220L
BIOL 301
BIOL 301L
CHEM 121
CHEM 121L
CHEM 122
CHEM 122L
GEOL 101
GEOL 101L
MATH 113

Animal Science interest:

AG 113
AG 113L
AG 142
AG 202
AG 202L
AG 205
AG 211
AG 211L
AG 254
AG 260
AG 333
AG 334
AG 334L
AG 352
AG 352L
AG 422
BIOL 105
BIOL 106
BIOL 106L
BIOL 107
BIOL 107L
BIOL 301
BIOL 301L
CHEM 121
CHEM 121L
CHEM 122
CHEM 122L
MATH 113

COMPUTER SCIENCE REQUIREMENTS

CSCI 111
CSCI 131
CSCI 131L
CSCI 132 or 133
CSCI 132L
CSCI 135 (or BUDP 131)
CSCI 230
CSCI 230L
CSCI 240
CSCI 250
CSCI 330
CSCI 341
CSCI 361
CSCI 373
CSCI 450
CSCI 470
MATH 151
MATH 152
MATH 253
MATH 260
MATH 265
MATH 390
MATH 450
MATH 452
STAT 200
STAT 311
STAT 312
STAT 313

ENVIRONMENTAL GEOSCIENCE REQUIREMENTS

GEOL 111 and 111L
GEOL 112 and 112L
GEOL 201 and 201L
GEOL 203
GEOL 301 and 301L
GEOL 302
GEOL 321
GEOL 331 and 331L
GEOL 401
GEOL 402 and 402L
GEOL 404 and 404L
ENGL 111 and 115
SPCH 102
ECON 201 and 202 or
BUAC 200 and 201
CHEM 121 and 121L
CHEM 122 and 122L
PHYS 211 and 211L
PHYS 212 and 212L
MATH 113
MATH 130
STAT 200 or CSCI 131 and CSCI 131L
BIOL 105 and one set
of the following:
BIOL 106 and BIOL 106L,
or BIOL 107 and BIOL 107L
or BIOL 211 and BIOL 211L
Six hours of literature or
six hours of one foreign
language

Recommended substitutions for graduate-study preparation:

CHEM 131 and 131L for CHEM 121 and 121L
CHEM 132 and 132L for CHEM 122 and 122L
PHYS 221 and 221L for PHYS 211 and 211L
PHYS 222 and 222L for PHYS 212 and 212L
MATH 151 and 152 and 253 for MATH 113 and 130 and
STAT 200 or CSCI 131 or ENGR 114

Credit for work experience:

GEOL 445, 446, 447, 448, or 449 can substitute for GEOL 401

REQUIREMENTS FOR ASSOCIATE IN SCIENCE DEGREE

The institutional requirements for Associate in Science degrees are listed elsewhere in this catalog. These degrees can be earned with specialization as indicated above by meeting the institutional requirements and earning credit in the discipline of specialization as suggested by a faculty adviser.

REQUIREMENTS FOR ASSOCIATE IN APPLIED SCIENCE DEGREE

Engineering Technology

Engineering technology provides support to engineering effort by helping to move design, research, or planning ideas to application. Two emphases, Civil Engineering and Drafting, are included. In addition to the institutional general education requirements the specific requirements of these programs are:

Civil Engineering	Drafting
ETEC 101	ETEC 101
ETEC 102	ETEC 102
ENGR 111	ENGR 111
ENGR 114	ENGR 114
ENGR 231	ENGR 230
ENGR 232	

Production Agriculture

The Production Agriculture program provides students practical education in agriculture emphasizing technical aspects of crop and animal production, farm management, farm mechanics, and general farm operations.

Courses in this program are taught in a modular format over a two year period with modules ranging in length from two to six weeks. A module consists of classroom and laboratory activities two days per week for a total of ten hours per week. A student may enroll in only those modules of interest to him or her.

In addition to the course work, each student must work on a supervised farm project for a minimum of twelve hours per week. This work may be performed on the two-hundred acre college farm which is now under the supervision of the Agriculture Department.

Before attempting to enroll in this program, a student should consult a representative of the Department of Agriculture.

A student may obtain a certificate by earning forty-eight hours of credit in Production Agriculture courses or may receive an Associate in Applied Science degree upon also meeting the instructional general education and total credit hour requirements.

RECOMMENDED CURRICULA

The following are recommended curricula for the first two years of study in most programs offered by the School of Natural Sciences and Mathematics. They are intended as suggestions only and will be modified frequently to satisfy individual needs.

AGRICULTURE

FIRST YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111	3	ENGL 112	3
BIOL 105	3	BIOL 106 or 107	3
AG 113	3	BIOL 106L or 107L	2
AG 113L	1	AG 260 or 213 and 213L	3 or 4
AG 142	3	AG 254 or 251 and 251L	3 or 4
MATH 113	4	Physical Education Activity	2
	17		16 or 18

SECOND YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
CHEM 121	4	CHEM 122	4
CHEM 121L	1	CHEM 122L	1
AG 211	3	AG 202	3
AG 211L	1	AG 202L	1
Social Science Elective	3	AG 205	5
Electives	4	Electives	4
Physical Education Activity	2		
	18		18

BIOLOGY

FIRST YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111	3	ENGL 115	3
BIOL 105	3	BIOL 106 or 107	3
CHEM 131	4	BIOL 106L or 107L	2
CHEM 131L	1	CHEM 132	4
MATH 113	4	CHEM 132L	1
		MATH 130	3
	15		16

SECOND YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
BIOL 106 or 107	4	BIOL 250	2
BIOL 106L or 107L	1	BIOL 250L	2
ENGL 131	3	ENGL 132	3
HIST 101	3	HIST 102	3
CHEM 201	4	CHEM 202	4
CHEM 201L	1	CHEM 202L	1
Physical Education Activity	2	Physical Education Activity	2
	18		17

CHEMISTRY

FIRST YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111	3	ENGL 112	3
CHEM 131	4	CHEM 132	4
CHEM 131L	1	CHEM 132L	1
MATH 119	5	MATH 151	5
HIST 101	3	HIST 102	3
	16		16

SECOND YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
CHEM 211	3	CHEM 212	3
CHEM 211L	2	CHEM 212L	2
MATH 152	5	MATH 253	4
PHYS 221	4	PHYS 222	4
PHYS 221L	1	PHYS 222L	1
Physical Education Activity	2	Physical Education Activity	2
	17		16

COMPUTER SCIENCE, MATHEMATICS, AND STATISTICS

FIRST YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111	3	ENGL 115	3
CSCI 111	3	CSCI 132	3
CSCI 131	3	CSCI 132L	1
CSCI 131L	1	BUDP 131	3
MATH 151	5	MATH 152	5
BIOL 101	2	BIOL 102	2
BIOL 101L	1	BIOL 102L	1
	18		18

SECOND YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
CSCI 230	3	CSCI 240	4
CSCI 230L	1	MATH 260	3
CSCI 250	3	MATH 265	3
MATH 253	4	STAT 200	3
HIST 101	3	HIST 102	3
Elective	3	Physical Education Activity	2
Physical Education Activity	2		
	19		18

ENGINEERING

FIRST YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111	3	ENGL 112	3
CSCI 131	3	ENGR 111	3
CSCI 131L	1	MATH 152	5
MATH 151	5	PHYS 221	4
CHEM 151	4	PHYS 221L	1
CHEM 151L	1	Physical Education Activity	2
Physical Education Activity	2		
	19		18

SECOND YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGR 240	3	ENGR 241	3
ENGR 251	3	ENGR 252	3
ENGR 251L	1	ENGR 252L	1
MATH 253	4	ENGR 255	3
PHYS 222	4	MATH 260	3
PHYS 222L	1	MATH 265	3
HIST 101	3	HIST 102	3
	19		19

ENGINEERING TECHNOLOGY—CIVIL

FIRST YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111	3	ENGL 112	3
ETEC 101	4	ETEC 102	4
ETEC 125	2	ETEC 123	2
ETEC 125L	1	ETEC 123L	1
ENGR 111	3	CSCI 131	3
HIST 101	3	CSCI 131L	1
Physical Education Activity	2	HIST 102	3
		Physical Education Activity	2
	18		19

SECOND YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ETEC 220	3	ETEC 242	3
ETEC 241	3	ETEC 245	2
ETEC 253	2	ETEC 245L	1
ETEC 253L	1	ETEC 252	2
~~ETEC 255~~	2	ETEC 252L	1
~~ETEC 255L~~	1	ETEC 256	2
ETEC 257	2	ETEC 256L	1
ETEC 257L	1	ENGR 232	3
ENGR 231	3	~~ENGR 250~~	3
	18		18

ENGINEERING TECHNOLOGY—DRAFTING

FIRST YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111	3	ENGL 112	3
ETEC 101	4	ETEC 102	4
ETEC 125	2	ETEC 251	2
ETEC 125L	1	ETEC 251L	1
ETEC 102	2	ETEC ~~255~~	2
ETEC 162L	1	ETEC ~~255L~~	1
ENGR 111	3	CSCI 131	3
Physical Education Activity	2	CSCI 131L	1
		Physical Education Activity	2
	18		19

SECOND YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ETEC 241	3	ETEC 242	3
ETEC 253	2	ETEC 252	2
ETEC 253L	1	ETEC 252L	1
ETEC 255	2	ETEC 254	2
ETEC 255L	1	ETEC 254L	1
ETEC 257	2	ETEC ~~258~~	2
ETEC 257L	1	ETEC ~~258L~~	1
HIST 101	3	HIST 102	3
	15		15

GEOLOGY

FIRST YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111	3	ENGL 112	3
GEOL 111	4	GEOL 112	4
GEOL 111L	1	GEOL 112L	1
MATH 113	4	MATH 130	3
BIOL 105	3	SPCH 102	3
Physical Education Activity	2	Elective	3
		Physical Education Activity	2
	17		19

SECOND YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
CHEM 121 or 131	4	CHEM 122 or 132	4
CHEM 121L or 131L	1	CHEM 122L or 132L	1
PHYS 211	4	PHYS 212	4
PHYS 211L	1	PHYS 212L	1
GEOL 201	4	GEOL 203	3
GEOL 201L	1	Literature or Foreign Language	3
Literature or Foreign Language	3		
	18		16

HOME ECONOMICS

FIRST YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111	3	ENGL 112	3
CHEM 121	4	HEC 111	2
CHEM 121L	1	HEC 115	3
HEC 101	1	HEC 115L	1
HEC 110	1	HEC 136	3
HEC 110L	2	HEC 136L	1
HIST 101	3	HIST 102	3
Physical Education Activity	2	Physical Education Activity	2
	17		18

SECOND YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
HEC 211	3	HEC 238	3
HEC 233	2	HEC 252	2
HEC 251	2	HEC 252L	2
HEC 251L	2	HEC 284	2
HEC 261	1	HEC 264L	1
HEC 261L	2	Electives	6
BIOL 141	3		
BIOL 141L	2		
	17		16

PHYSICS

FIRST YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111	3	ENGL 112	3
CHEM 131	4	CHEM 132	4
CHEM 131L	1	CHEM 132L	1
MATH 119	5	MATH 151	5
HIST 101	3	HIST 102	3
	16		16

SECOND YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
PHYS 221	4	PHYS 222	4
PHYS 221L	1	PHYS 222L	1
MATH 152	5	MATH 253	4
Electives	6	Electives	6
Physical Education Activity	2	Physical Education Activity	2
	18		17

PRE-DENTISTRY, PRE-MEDICINE, PRE-OPTOMETRY, PRE-PHARMACY, PRE-VETERINARY MEDICINE

FIRST YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111	3	ENGL 112	3
BIOL 105	3	BIOL 106 or BIOL 107	3
CHEM 131	4	BIOL 106L or BIOL 107L	2
CHEM 131L	1	CHEM 132	4
MATH 119	5	CHEM 132L	1
		MATH 151	5
	16		18

SECOND YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
CHEM 211	3	CHEM 212	3
CHEM 211L	2	CHEM 212L	2
PHYS 211	4	PHYS 212	4
PHYS 211L	1	PHYS 212L	1
BIOL 106 or BIOL 107	4	BIOL 250	2
BIOL 106L or BIOL 107L	1	BIOL 250L	2
HIST 101	3	HIST 102	3
	18		17

PRE-FORESTRY

FIRST YEAR

Fall Semester	Hrs.	Spring Semester	Hrs.
ENGL 111	3	ENGL 112	3
BIOL 105	3	BIOL 106	3
BIOL 110	1	BIOL 106L	2
CHEM 121	4	BIOL 111	2
CHEM 121L	1	CHEM 122	4
MATH 113	4	CHEM 122L	1
		MATH 146	5
	16		20

VOCATIONAL COURSES CONTACT HOURS

The vocational courses in the School of Natural Sciences and Mathematics involve amounts of faculty contact with students as indicated below.

Production Agriculture

Course	Contact Hours
AGPR 112	48
AGPR 114	32
AGPR 115	64
AGPR 118	96
AGPR 119	64
AGPR 120	64
AGPR 121	32
AGPR 122	32
AGPR 123	32
AGPR 124	32
AGPR 125	32
AGPR 126	32
AGPR 127	48
AGPR 128	32
AGPR 130	32
AGPR 133	32
AGPR 135	32
AGPR 136	32
AGPR 137	64
AGPR 138	48
AGPR 139	48
AGPR 140	32
AGPR 141	64
AGPR 142	48
AGPR 143	48
AGPR 144	64

Engineering Technology

Course	Contact Hours
ETEC 101	60
ETEC 102	60
ETEC 123	45
ETEC 123L	30
ETEC 125	45
ETEC 125L	30
ETEC 162	45
ETEC 162L	45
ETEC 220	45
ETEC 241	45
ETEC 242	45
ETEC 245	45
ETEC 245L	45
ETEC 251	45
ETEC 251L	45
ETEC 252	45
ETEC 252L	45
ETEC 253	45
ETEC 253L	45
ETEC 254	45
ETEC 254L	45
ETEC 255	45
ETEC 255L	45
ETEC 256	45
ETEC 256L	45
ETEC 257	45
ETEC 257L	45
ETEC 258	45
ETEC 258L	45

School of Nursing and Allied Health

Eileen M. Williams, Dean

Faculty: Beaver, Dea, Eicher, Harvey, Garcia, Goodhart, Mundy, Mustee, Phaneuf, Renner, Schumann, VanderKolk, Wells.

The School of Nursing and Allied Health offers five programs preparing students for employment in the health fields. These programs are: Dental Assisting and Expanded Function (DENT), Emergency Medical Technician (EMT), Associate-Degree and Practical Nursing (NURS), and Radiologic Technology (RADT). Applicants are urged to apply early for the program they desire. All of the programs have special admissions committees to select students for the programs from the applicants who meet the requirements.

Dental Assisting and Expanded Function Program

Certificate

This recently developed program was designed to help alleviate the shortage of dental personnel and to provide better dental services to the people of Colorado.

The program includes two summer sessions and two regular semesters (15 months total) and prepares the student to perform as Expanded-Function Dental Assistants. The program begins in a summer session and terminates at the end of the following summer session.

After completion of the first three terms (the initial summer session and the two full semesters), the student is eligible to take the National Certification Examination and become a Certified Dental Assistant. The successful candidate can perform the duties of a Basic Expanded-Duty Dental Assistant (BEDDA) which include:

1. Assisting at chairside during various operative procedures; for general dentistry and the specialties.
2. Taking and processing dental radiographs.
3. Establishing and implementing educational programs in oral hygiene.
4. Performing basic laboratory procedures.
5. Performing basic intra-oral expanded functions, such as polishing restorations, applying topical fluoride, placing rubber dam, placing and wedging matrixes, removing sutures and surgical dressing, taking endodontic cultures.
6. Office Management.

The additional summer session will prepare the student as an Expanded-Duty Dental Assistant (EDDA) and will qualify the graduate to perform expanded functions in the State of Colorado. This includes:

1. Performing all duties and functions of the BEDDA.
2. Performing restorative dentistry such as adapting, placing, and removing temporary restorations and placing, carving, and finishing simple and compound amalgam restorations.

All application materials should be submitted by March 1 in order to be considered for the class starting in May. Successful applicants must be able to type a minimum of 35 words per minute.

DENTAL ASSISTANT CURRICULUM

FIRST YEAR

Summer Session	Sem. Hrs.	Contact Hrs.
DENT 110 (Orientation to Dentistry)	2	30
DENT 112 (Dental Science I)	3	45
BIOL 143 (Anatomy and Physiology for Dental Assistants)	3	45
Physics and Chemistry for Dental Assistants	2	30
SPCH 101 (Interpersonal Communications)	3	45
	13	195

Fall Semester	Sem. Hrs.	Contact Hrs.
DENT 120 (Dental Science II)	3	48
DENT 122 (Oral Pathology)	3	48
DENT 130 (Chairside I)	3	64
DENT 150 (Radiology I)	3	64
DENT 140 (Dental Materials I)	3	64
HEC 221 (Nutrition)	2	32
PSY 133 (Human Growth and Development)	3	48
	20	368

Spring Semester	Sem. Hrs.	Contact Hrs.
DENT 160 (Chairside II)	9	256
DENT 170 (Dental Materials II)	2	64
DENT 180 (Radiology II)	2	64
DENT 190 (Dental Office Procedures)	3	48
DENT 200 (Introduction to Expanded-Duty Dental Assistant)	3	112
	19	544

SECOND YEAR

Summer Session	Sem. Hrs.	Contact Hrs.
DENT 210 (Expanded-Duty Dental Assistant)	9	345

Emergency Medical Technician

Certificate

This standard curriculum has been approved by the National Highway Safety Administration, United States Department of Transportation. Upon satisfactory completion of the course, recommendation of the instructor, and attainment of age 18, the student is eligible to take the examination to be certified as Emergency Medical Technician by the State of Colorado. Students are also eligible to take the national registry examination to become a Registered Emergency Technician: Ambulance.

Emergency Medical Technicians enjoy a variety of career opportunities that include ambulance attendants, rescue personnel, industrial safety personnel, and hospital emergency-room technicians. Employment opportunities in the immediate area are somewhat limited at this time.

Prerequisites: Standard first-aid course, age 18, and/or permission of the instructor.

EMT CURRICULUM

Fall Semester	Sem. Hrs.	Contact Hrs.
EMT 141 (Emergency Medical Technician)	2	70
TOTAL		

Spring Semester	Sem. Hrs.	Contact Hrs.
EMT 142 (Emergency Medical Technician II)	2	50
	4	120

NURSING PROGRAMS

Mesa College nursing programs include Associate Degree Nursing and Practical Nursing. The number of students admitted to these programs is limited. Applicants must be in good health, have satisfactory references, and show aptitude for service in the area chosen.

A special admissions committee chooses students for the two nursing programs from applicants who best meet the requirements. Associate Degree applicants should submit all application materials by February 1 in order to be considered for classes starting the following fall. Prospective Practical Nursing students should apply before May 1. Students will be accepted separately for each program.

The nursing curriculum is organized so that Practical Nursing (LPN) students and Associate-Degree (R.N.) students are enrolled in the same courses Fall and Spring semesters the first year.

All nursing courses must be completed in sequence as numbered. Upon successful completion of Summer Session, Practical Nursing students will be eligible to take state examinations to become licensed practical nurses. A student with passing grades who finds it necessary to withdraw from school at the end of Fall Semester should be qualified to seek a position as nurses' aide or orderly.

Completion of the Practical Nursing program does not guarantee automatic acceptance into the Associate Degree program. Since there is a great need for licensed practical nurses, the spaces reserved for these students will be filled by applicants who intend to practice as LPN's.

Practical Nursing

Certificate

The Practical Nursing program is a 12-month course designed to prepare qualified men and women for service in hospitals and other health agencies as licensed practical nurses. Upon completion of the course, the graduate is qualified to take the licensing examination.

Applicants follow the same procedures as all other Mesa College applicants. Supplementary forms and detailed instructions for making application specifically for Practical Nursing may be secured from the Admissions Office.

Associate Degree Nursing

Associate in Science

Initiated in September 1962, this program is fully accredited by the Colorado Board of Nursing and by the National League for Nursing. Upon completion of the prescribed course of study, the graduate receives the Associate in Science degree and is eligible to take the examination for licensure as a registered nurse. The purpose of this program is to prepare graduates to serve as registered nurses in first-level (staff nurse) positions in hospitals, nursing homes, physicians' offices, and other health agencies where adequate direction is provided.

Laboratory experiences are planned with hospitals in the Grand Junction area and other health and welfare agencies in the community.

Students are required to have at least a 2.0 grade average in nursing courses at the end of Spring Semester of their freshman year and to maintain this average each succeeding semester in order to continue in the program.

NURSING CURRICULUM

FIRST YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.
BIOL 141 (Anatomy & Physiology)	5	112
HEC 211 (Nutrition)	3	48
NURS 113 (Nursing Concepts I)	7	176
NURS 112 (Introduction to Nursing)	2	32
Physical Education	1	32
	18	400

Spring Semester	Sem. Hrs.	Contact Hrs.
BIOL 250 (Microbiology)	4	96
NURS 123 (Nursing Concepts II)	9	304
Physical Education	1	32
PSY 133 (Human Growth and Development)	3	48
	17	480

Summer Session	Sem. Hrs.	Contact Hrs.
NURS 143 (Clinical Nursing)	7	320
NURS 141 (Personal & Vocational Relations)	2	30
NURS 142 (Health in the Home and Community)	2	30
	11	380

SECOND YEAR

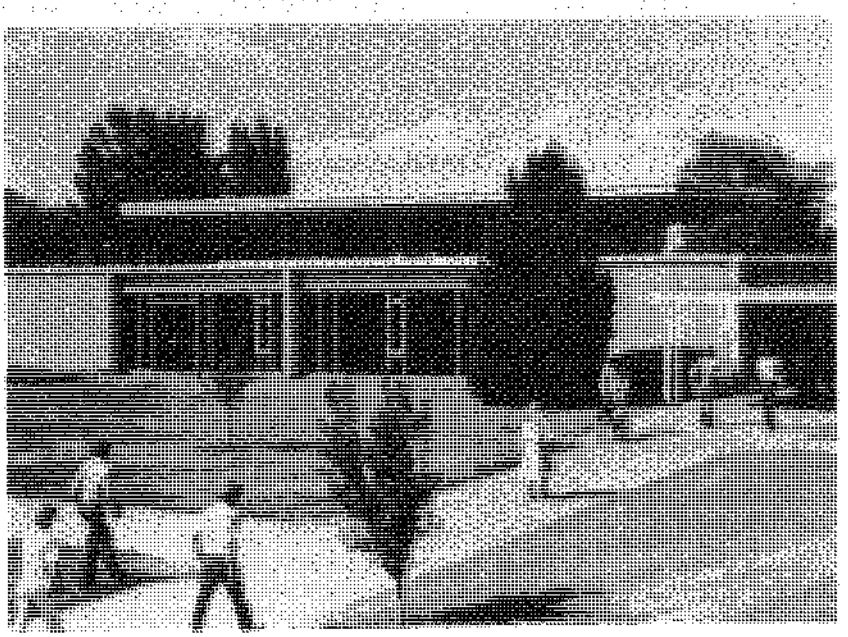
Fall Semester	Sem. Hrs.	Contact Hrs.
BIOL 241 (Pathophysiology)	4	64
ENGL 111 (English)	3	48
Social Science	3	48
NURS 210 (Nursing Concepts III)	10	320
	20	480

Spring Semester	Sem. Hrs.	Contact Hrs.
Social Science	3	48
ENGL 112 (English)	3	48
NURS 230 (Nursing Concepts IV)	10	320
NURS 273 (Issues in Nursing)	2	32
	18	448

Radiologic Technology

Associate in Applied Science

A two-year Associate in Applied Science program which continues through two summers. Admissions are limited because of the number of clinical facilities in the area. A pre-admission interview with the director is required. A special admissions committee chooses students who best meet the requirements. Applicants must be in good health and show aptitude for service



within the Radiologic Technology field. Both general college and program application forms must be received by the college by Feb. 25 in order for the applicant to be considered for admission. The program starts with the Summer Session.

Radiologic technologists enjoy a variety of career opportunities. Most are employed in hospital radiologic departments, where they perform duties of diagnostic x-ray, radiation therapy, and nuclear medicine. Others are employed in physicians' offices, public-health organizations, veterinary clinics, and industrial radiography. Other possibilities include teaching and commercial positions connected with the manufacture, sales and servicing of radiographic equipment.

Students are required to achieve a 2.0 grade average for each RADT course. A cumulative grade-point average of 2.0 is required to continue in the program.

A portion of the clinical experience is obtained in hospitals outside Grand Junction. Students will be responsible for the additional travel and living expenses. At the completion of the 24-month program and with the recommendation of the director, students are eligible to take the national registry examination.

RADIOLOGIC TECHNOLOGY CURRICULUM

FIRST YEAR

Summer Session	Sem. Hrs.	Contact Hrs.
~~CHEM 121 (General Chemistry)~~	~~5~~	~~112~~
Social Sciences	3	48
Physical Education	2	48
RADT 111 (Radiologic Orientation)	2	48
RADT 112 (Radiologic Physics)	2	32
	14	288

Fall Semester	Sem. Hrs.	Contact Hrs.
BIOL 141 (Human Anatomy and Physiology)	5	112
ENGL 111 (English)	3	48
Physical Education	2	48
RADT 123 (Clinical Experience I)	4	256
RADT 121 (Radiologic Technology I)	3	64
RADT 124 (Nursing Procedures)	1	16
RADT 122 (Radiologic Principles I)	3	48
	21	592

Spring Semester	Sem. Hrs.	Contact Hrs.
ENGL 112 (English)	3	48
Social Sciences	3	48
RADT 133 (Clinical Experience II)	4	256
RADT 131 (Radiologic Technology II)	3	64
RADT 132 (Radiologic Principles II)	2	32
	15	448

SECOND YEAR

Summer Session	Sem. Hrs.	Contact Hrs.
RADT 243 (Clinical Experience III)	10	640
RADT 241 (Radiologic Research)	1	32
RADT 242 (Radiologic Pathology)	1	16
	12	688

Fall Semester	Sem. Hrs.	Contact Hrs.
RADT 253 (Clinical Experience IV)	10	640
RADT 251 (Radiologic Technology III)	3	48
RADT 252 (Radiation Therapy/Nuclear Medicine)	3	192
	16	880

Spring Semester	Sem. Hrs.	Contact Hrs.
RADT 263 (Clinical Experience V)	10	640
RADT 261 (Radiologic Technology IV)	3	48
	13	688

School of Social and Behavioral Sciences

Donald A. MacKendrick, Dean

Faculty: Arosteguy, Beemer, Bergman, Fink, Graves, J. Harper, Hightower, Holloway, Humphries, Lachance, Meeker, Morton, Nelson, Nicholson, Perrin, Perry, Roberts, A. Sanders, Schakel, Shepherd, Starbuck, Swanson, Tiemann, Tooker, Wallace, Wiehe, Wignall.

DISCIPLINES

Anthropology
Archaeology
Dance
Early Childhood Education
Economics
Education
Geography
History
Human Services
Law Enforcement
Occupational Guidance
Physical Education
Political Science
Psychology
Recreation
Social Science
Sociology

Department of Human Services

Harry A. Tiemann, Jr., Department Head

Bachelor of Arts in Human Services

Pre-Professional Psychology/Sociology Emphasis

This curriculum is designed to serve the needs of students wishing to pursue a professional career in the fields of psychology, sociology, or social work. Since such professions normally require graduate study, it is the intent of this program to prepare students for such study.

PROGRAM REQUIREMENTS

	Sem. Hrs.
1. **Required Courses:**	
PSY 121, 122 (General Psychology)	6
SOC 260 (General Sociology)	3
SOC 264 (Social Problems)	3
ANTH 101 (Physical Anthropology)	3
ANTH 102 (Cultural Anthropology)	3
HS 301 (Introduction to Human Services)	3
STAT 200 (Introduction to Probability and Statistics)	3
SOCS 310 (Methods of Social Research)	3
	27

2. **Emphasis Area:** In addition to the above required courses, students must select either sociology or psychology as an emphasis area and earn at least 30 hours of upper-division credit in the emphasis area. Courses which will fulfill this requirement in the sociology emphasis area are: all upper-division sociology courses plus SOCS 351, 352 and HS 302, 310. Courses which will fulfill this requirement in the psychology emphasis area are: all upper-division psychology courses plus SOCS 351, 352 and HS 302, 310.

Bachelor of Arts in Human Services

Para-Professional Emphasis

This curriculum is designed to provide students with the knowledge and helping skills needed to qualify for work as para-professionals in (or with) crisis clinics, centers for the aging, youth shelters, detention homes, foster homes, schools, etc., under the direct supervision of professional psychologists, psychiatrists, sociologists and social workers.

PROGRAM REQUIREMENTS

1. **Required Courses:**

	Sem. Hrs.
PSY 121, 122 (General Psychology)	6
SOC 260 (General Sociology)	3
SOC 264 (Social Problems)	3
ANTH 101 (Physical Anthropology)	3
ANTH 102 (Cultural Anthropology)	3
HS 301, 302 (Introduction to Human Services)	6
STAT 200 (Introduction to Probability and Statistics)	3
HS 401 (Special Studies)	4
	31

2. **In addition** to the above required courses, students must earn 30 hours of upper-division course credits in human services, social science, psychology and sociology. These courses should be selected in consultation with faculty advisers.

Bachelor of Science in Occupational Guidance Specialist

Tom Graves, Program Director

The Occupational Guidance Specialist program offers a curriculum designed to:

1. Produce graduates with competencies to meet career-development guidance and personnel needs in three broad areas: (a) as guidance specialists in educational institutions assisting counselors and other education professionals with the career-development needs of students; (b) as counselors in a variety of governmental agencies; and (c) as personnel and industrial relations professionals in business and industry.

2. Provide the breadth and depth of learning opportunity necessary for students considering graduate studies for advanced degrees.

3. Recognize and award college credit for work experience properly presented and documented, thus enabling the student to complete the baccalaureate degree on an accelerated basis.

PROGRAM REQUIREMENTS

1. **Occupational studies:** Students entering the program without work experience must either develop, in consultation with the program director, a program of 30 hours of occupational studies or have completed a vocational-technical training program or business, management and/or accounting courses at Mesa College or

some other accredited post-secondary institution. In the latter case, up to 30 hours of occupational studies may be counted toward the degree. This requirement may be met in part (up to 24 hours) by approved work experience. Consult with the program director concerning the procedures that must be followed in gaining recognition for work experience.

2. Required Courses:	Sem. Hrs.
PSY 121, 122 (General Psychology)	6
ECON 201, 202 (Principles of Economics) or SOC 260 (General Sociology) and Sociology Elective	6
MATH 101 (Hand-Held Calculator)	1
MATH 110 (Finite Mathematics)	2
STAT 200 (Introduction to Probability and Statistics)	3
EDUC 251 (Introduction to Education)	3
BUMA 121 (Human Relations in Business)	3
BUMA 371 (Personnel Management)	3
OGSP 320 (Principles of Career Guidance and Job Development)	3
OGSP 322 (Testing for Career Counseling)	2
OGSP 324 (Career Information)	2
OGSP 420 (Counseling Processes and Techniques)	3
OGSP 422 (Personnel and Guidance Interviewing)	3
OGSP 424 (Group Guidance Processes and Techniques)	3
*OGSP 440 (Practicum—Business) (4 hrs.)	
*OGSP 442 (Practicum—Education) (4 hrs.)	8
*OGSP 444 (Practicum—Government) (4 hrs.)	
† Psychology	10
Occupational Studies	30
	91

** Select at least two of these courses after consulting with Program Director.*

† Courses for meeting this requirement should be selected in consultation with Program Director so that competencies consistent with individual program goals are developed.

Early Childhood Education

Associate in Applied Science

Virginia Beemer, Program Director

This curriculum is offered to meet the needs of those presently employed in nursery schools or day-care centers and those contemplating work in the field of early childhood education. Students majoring in this curriculum take courses designed to increase their understanding of the education and care of children. Students are required to have laboratory experience in Mesa College's Early Childhood Education Center and other community early childhood education facilities. Students successfully completing the course may find employment in private and co-operative day-care centers, nursery schools, children's homes, institutions for exceptional children, hospitals, etc. Placement is dependent upon individual maturity and professional growth.

PROGRAM SPECIFICATIONS

1. **Course distribution, not including electives:**

	Sem. Hrs.	Contact Hrs.
English Composition	6	90
Social Science and Literature	6	90
Psychology	6	90
Early Childhood Education	42	770
Physical Education Activity	4	96
	64	1136

(See course sequence on next page)

2. **Suggested Course Sequence:**

FIRST YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
ENG 111 (English Composition)	3	45	ENG 112 (English Composition)	3	45
PSY 121 (General Psychology)	3	45	PSY 122 (General Psychology)	3	45
ECED 110 (Toddler Curriculum)	2	30	HEC 238 (Child Development)	5	75
DRAM 213 (Creative Play Activities—Drama)	3	45	ECED 111 (Curriculum in Early Childhood Education)	3	45
ECED 121 (Introduction to Early Childhood)	2	30	MUS 135 (Music and Methods in Early Childhood)	2	30
ART 110 (Early Childhood Art)	3	45			
	16	240		16	240

SECOND YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.	Spring Semester	Sem. Hrs.	Contact Hrs.
SOC 144 (Marriage and the Family)	3	45	HEC 141 (Meal Management in Early Childhood)	4	60
HEC 211 (Nutrition)	3	45	EDUC 121 (Children's Literature: Pre-School, Primary to 3rd Grade)	3	45
SPCH 111 (Introduction to Speech Pathology)	3	45	ECED 260 (Child-Care Center Management)	3	45
PER 285 (First Aid)	2	30	ECED 252 (Student Teaching)	5	200
Literature	3	30	Physical Education Activity	2	48
Physical Education Activity	2	48			
	16	258		17	398

Certificate Program in Early Childhood Education

PROGRAM SPECIFICATIONS

1. **Courses Required for State Certification:**

	Sem. Hrs.	Contact Hrs.
PSY 121 (General Psychology)	3	45
HEC 211 (Nutrition)	3	45
HEC 238 (Child Development)	5	75
ECED 252 (Student Teaching)	5	200
ECED 260 (Child-Care Center Management)	3	45
ECED 111 (Curriculum in Early Childhood Education)	3	45
SOC 144 (Marriage and the Family)	3	45
	25	500

2. **First Aid Certificate:** Students must have a current Red Cross First Aid Certificate for certification in this program.

3. **Recommended Electives:**

	Sem. Hrs.	Contact Hrs.
ART 110 (Early Childhood Art)	3	45
EDUC 121 (Children's Literature: Pre-school, Primary to Third Grade)	3	45
DRAM 213 (Creative Play Activities—Drama)	3	45
MUS 135 (Music and Methods in Early Childhood)	2	30

Department of Physical Education and Recreation

Bachelor of Arts in Leisure and Recreation Services

Theodore E. Swanson, Program Director

PROGRAM REQUIREMENTS

		Sem. Hrs.
1.	**Core Courses:**	
	PER 210 (Introduction to Recreation and Leisure Services)	2
	PER 270 (Recreation and Special Populations)	3
	FA 101 (Man Creates)	3
	PER 380 (Planning and Design of Park and Recreation Facilities)	3
	PER 384 (Leisure in Contemporary Society)	3
	PER 480 (Organization and Administration of Recreation and Leisure Services)	3
	PER 484 (Programs in Recreation and Leisure Services)	3
	PER 486 (Recreation and Leisure Services Leadership and Supervision)	4
	PER 495 (Internship in Recreation and Leisure Services)	12
		36

2. **Emphasis areas:** In addition to the core courses listed above, each student must choose one emphasis area consisting of 20 hours of approved courses for concentrated study. These areas include:

   Municipal Parks and Recreation
   Therapeutic Recreation
   * The Arts (Dance, Drama, Music, Applied Arts)

   ** If dance is chosen as an emphasis area, a minimum of 16 hours of approved course work in dance, including four hours of dance technique courses and four hours of theory classes, will be required.*

3. **Internship:** Each major must complete an internship during the senior year or the summer preceding the senior year. Interns are placed with recreation agencies for one full semester. Normally, no other courses may be taken while serving the internship, which requires 40 or more hours of work a week while in service. Students must plan their course of study to accommodate this requirement.

Physical Education

Associate in Arts

Mesa College does not offer a baccalaureate-degree program in physical education. Students interested in this discipline may enroll in a two-year preparatory program in physical education which requires transfer to another institution of higher education at the end of the sophomore year. The Associate in Arts degree will be awarded at the end of the sophomore year, provided all requirements for the degree have been met. Consult your faculty adviser for details about this program and for assistance in program planning.

Department of Social Sciences

I. J. Nicholson, Department Head

Bachelor of Arts in Human Services

General Social Science Emphasis

PROGRAM REQUIREMENTS

1. General education courses: 40 hours
2. Three of the following 2-semester series courses (no more than one series from any single discipline)—18 hours:

ANTH 101, 102	HIST 125, 126
ANTH 221, 222	HIST 131, 132
ECON 201, 202	POLS 101, 102
GEOG 101, 102	POLS 261, 262
HIST 101, 102	SOC 260, 264
HIST 105, 106	

   One of the above series may be used to meet general education requirements.
3. Forty hours of courses (exclusive of course work used to meet requirements in 1 and 2 above) in one of the following emphasis areas. Twenty-four of these hours must be at the upper-division level:
   - Political Science and History
   - Economics and Political Science
   - Anthropology, Social Science and History
4. Electives to bring total course work to 122 hours of which at least 40 hours must be at the upper division level.

Bachelor of Arts in Selected Studies

Daniel J. Arosteguy, Program Director

This program is designed to allow students, in close consultation with faculty advisers, to design a curriculum not otherwise available at Mesa College—one that is best suited to individual needs, background, interests and goals. Early consultation with the program director is essential since the student must make a formal declaration of major and file a curricular plan before admission to the program is granted. Students wishing to consider this program should contact the program director in Room 312, Mary Rait Hall.

PROGRAM REQUIREMENTS AND LIMITATIONS

1. **Concentration Areas:** Students seeking a baccalaureate degree in this program must declare and submit a curricular plan for one major and two minor areas of concentration.
   a. A major area of concentration consists of not less than 30 semester hours of credit in a discipline or in two or more closely related disciplines. At least one-half of these hours must be at the upper division level.
   b. A minor area of concentration (two required) consists of not less than 16 semester hours of credit in a discipline or two or more closely related disciplines.
   c. Schools of the College may set higher requirements for majors and/or minors. In any case, the School offering the courses that a student pro-

poses to include in his/her program has final authority to determine whether a particular assortment of courses meets requirements.

d. If a vocational-technical minor area of concentration is selected, no more than 30 semester hours of credit in one area of study or more than 40 semester hours in two areas of study will count toward the degree. No more than one minor area of concentration may be in vocational-technical study. It is not possible to major in a vocational-technical area.

e. In addition, students must earn a total of 122 semester hours of credit and meet all general-education and other academic requirements for the Bachelor of Arts degree. A minimum of one-third of the total course work must be at the upper-division level.

2. **Program approval:** The degree program must be carefully planned and approved by a committee of faculty advisers, one adviser from each of the three concentration areas. To assure careful planning, a student must earn at least 48 hours of credit after admission to the program, and 24 semester hours of these credits must be in the student's major area of concentration, 16 semester hours at the upper division level.

Law Enforcement

Associate in Applied Science

Paul A. Lachance, Program Director

The rapid expansion of the law-enforcement field has created a critical need for college-trained professionals who want a challenging and socially significant career. This program is designed to provide students with the necessary background in law enforcement as well as to provide in-service personnel with opportunities to upgrade their education. Students completing this program successfully are awarded the Associate in Applied Science degree. To make the program more accessible to in-service personnel, Mesa College offers courses from time to time in the evening school and by extension in other communities in Colorado West.

PROGRAM SPECIFICATIONS

1. **Course Distribution:**

	Sem. Hrs.	Contact Hrs.
English Composition	6	90
Social Science	16	240
Psychology	6	90
Science	6	90
Speech	3	45
Physical Education Activity	4	96
Law Enforcement	26	390
Electives	3	45
	70	1086

2. **Suggested Course Sequence:**

FIRST YEAR

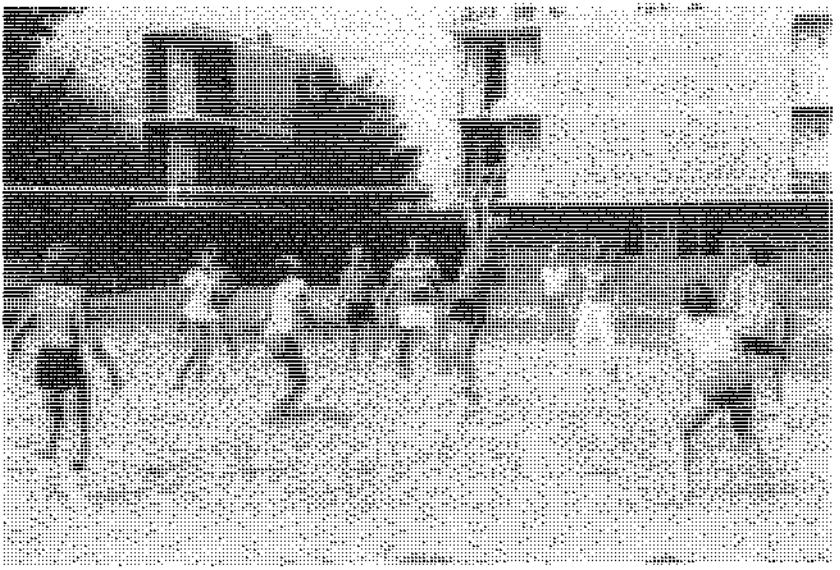
Fall Semester	Sem. Hrs.	Contact Hrs.
ENGL 111 (English Composition)	3	45
POLS 101 (American Government)	3	45
PSCI 111 (Survey of Physics) or PSCI 112 (Survey of Chemistry)	3	45
LEN 111 (Introduction to Administration of Justice)	3	45
LEN 121 (Criminal Law)	3	45
Physical Education Activity	2	48
	17	273

Spring Semester	Sem. Hrs.	Contact Hrs.
ENGL 112 (English Composition)	3	45
POLS 102 (American Government)	3	45
PSCI 113 (Survey of Earth Science)	3	45
LEN 112 (Police-Community Relations)	5	75
LEN 122 (Juvenile Delinquency and Procedures)	3	45
Physical Education Activity	2	48
	19	303

SECOND YEAR

Fall Semester	Sem. Hrs.	Contact Hrs.
PSY 121 (General Psychology)	3	45
SOC 260 (General Sociology)	3	45
POLS 256 (State and Local Government)	3	45
LEN 222 (Police Patrol Operations)	3	45
LEN 251 (Laws of Arrest, Search, and Seizure)	3	45
	15	225

Spring Semester	Sem. Hrs.	Contact Hrs.
PSY 122 (General Psychology)	3	45
SOC 264 (Social Problems)	3	45
SPCH 102 (Speechmaking)	3	45
LEN 261 (Criminal Investigations)	3	45
LEN 275 (Supervision of Public Safety Employees)	3	45
Electives	2-3	30-45
	17-18	255-270



Area Vocational School

Recognizing the national need for better-trained manpower, the Mesa College Area Vocational School provides a large variety of learning opportunities for students who wish to become skilled technicians. Thousands of jobs await those who have the skills and abilities demanded by business and industry.

Because the Area Vocational School's clientele represents many ethnic origins, disadvantaged and non-disadvantaged groups, and persons with a wide range of educational backgrounds, the programs and course offerings are structured to provide broad areas of learning opportunities.

The Area Vocational School provides the professional services of a vocational guidance specialist and a job development specialist. With offices located in the Counseling and Career Center, these counselors are available to assist students with information about vocational training opportunities and to aid them in their plans for employment after completion of their training.

The curriculum of each of the programs is designed to provide job-entry skills even though the student may not complete the program. The further the student progresses in each program, the greater the opportunity for skill development, and upon completion of the curriculum the student reaches the technician level. While the objective of each of the programs is to produce a skilled technician, the Area Vocational School also places emphasis upon general enrichment courses.

The courses and curricula may lead to the Associate in Applied Science or Associate in Science Degree, or a Certificate. High school graduates may enroll in any of these programs. High school dropouts and adults who have not completed their secondary requirements may enroll in many of the Area Vocational School offerings.

Students who wish to earn a degree must have a high school diploma or a General Education Development (GED) certificate and must take the tests of the American College Testing (ACT) Program. They must also meet the general requirements and follow the suggested curriculum for the skill training in which they enroll. Students who do not seek a degree may enroll in the individual courses that they desire and for whatever number of credit hours they wish.

OCCUPATIONAL EDUCATION PROGRAMS

School of Business

- Accounting
- Data Processing
- Business Job-Entry
- Medical Office Assisting
- Secretarial Programs
- Travel, Recreation and Hospitality Management

School of Industry and Technology

- Auto Body and Fender
- Auto Mechanics
- Electric Lineman
- Electronics Technology
- Graphic Communications
- Welding

(Listing continued on next page)

OCCUPATIONAL PROGRAMS (continued)

School of Natural Sciences and Mathematics

Production Agriculture	Engineering Technology

School of Nursing and Allied Health

Dental Assisting and Expanded Functions	Nursing, Associate Degree
	Nursing, Practical
Emergency Medical Technician	Radiologic Technology

School of Social and Behavioral Sciences

Early Childhood Education	Law Enforcement Technology

Each curriculum is described in the catalog section applicable to the school under which the program is listed.

Continuing Education

One of Mesa College's finest traditions is providing special opportunities for members of the community to participate in academic, vocational, cultural, and recreational activities according to their needs, interests, or desire to learn. The Office of Continuing Education serves thousands of residents each year through offerings that include cultural, informational, vocational, basic education, and general education courses, self-improvement and hobby classes, recreation groups, parent-education and preschool classes, and public forums and discussion groups concerned with timely topics.

Most of these offerings are provided in the evenings for either credit or no-credit and for varying lengths of time. Many regular students register for night classes to facilitate schedules or to provide free time during the day for part-time job opportunities. Learning activities are varied and include discussions, demonstrations, laboratories, shop work, and field trips. Members of the regular Mesa College faculty are utilized in the evening program along with many qualified guest instructors from business, industry, the arts, and other academic institutions who add new experience and lend greater interest to the various offerings.

Through the College's cultural programs, regular students have opportunity to participate with adults of the community in a variety of programs.

The College cooperates with various other colleges and universities of the state in providing facilities for on-campus and off-campus extension classes and other services. Most of the courses made available through this arrangement are at the upper-division or graduate level.

The Mesa College Continuing Education Outreach Program is part of a state-wide outreach education program sponsored by the Colorado Commission on Higher Education. The system, which is made up of public colleges and universities, encourages development of instructional programs to meet the needs of Colorado citizens who cannot regularly enroll in classes on a college campus. Mesa College's Outreach Program currently offers a number of non-credit classes and programs on campus and both credit and non-credit classes in several neighboring cities. The program is funded entirely by tuition and fees.

Summer Session

Mesa College offers a summer program based upon needs and wishes expressed by students and residents of the community. Typical offerings in previous summers have included courses in the areas of Biology and Home Economics, Business, Data Processing, Fine Arts, Humanities, Mathematics and Engineering, Physical Education, Physical Science, Social Science, and Occupational Education.

The 1979 session will include a twelve-week term and two six-week terms. Registration is scheduled May 21. Courses may be taken in more than one term if schedule permits. Classes are held during mornings only. Tentative bulletins on Summer Session offerings are usually available in early spring.

The following courses or equivalent were offered during the 1978 Summer Session and probably will be offered, along with others, during Summer 1979:

School of Business

BUAC 201
BUAC 202
BUAC 322
BUDP 232
BUGB 101
BUGB 135
BUGB 141
BUGB 221
BUGB 251
BUGB 252
BUJT 011
BUJT 021
BUJT 031
BUJT 041
BUJT 051
BUJT 071
BUMA 201
BUMA 361
BUMA 362
BUMA 471
BUTR 251

School of Humanities and Fine Arts

DRAM 114
DRAM 214
DRAM 314
DRAM 414
EDUC 251
ENGL 110
ENGL 111
ENGL 112
ENGL 113
ENGL 131
ENGL 132
ENGL 141
ENGL 142
ENGL 261
ENGL 262
ENGL 324
ENGL 335
ENGL 415
ENGL 451

School of Industry and Technology

ELIN 150
WELD 110
WELD 120
WELD 122
WELD 132
WELD 230
WELD 240

School of Natural Sciences and Mathematics

AG 421
AG 422
AG 423
AG 424
AG 425
BIOL 117
BIOL 422
BIOL 422L
BIOL 460
BIOL 461
BIOL 462
BIOL 463
BIOL 464
CHEM 121
CHEM 121L
CSCI 131
ENGR 105
GEOL 321
HEC 211
MATH 015
MATH 020
MATH 110
MATH 113
MATH 119
MATH 121
MATH 130
PSCI 101
STAT 200

School of Nursing and Allied Health

DENT 110
DENT 112
DENT 210
DENT 210L
NURS 141
NURS 142
NURS 143
NURS 144
RADT 111
RADT 111L
RADT 112
RADT 241
RADT 242
RADT 243L

School of Social and Behavioral Sciences

ANTH 101
HIST 101
HIST 120
HIST 122
HS 401
HS 402
LEN 121
LEN 251
OGSP 420
OGSP 422
OGSP 440
OGSP 444
PER 116
PER 121
PER 123
PER 130
PER 166
PER 177
PER 181
PER 184
PER 495
PER 498
PER 499
POLS 101
PSY 121
SOC 144
SOC 420

Course Descriptions

Courses offered by the various academic schools are listed in this section. The arrangement is alphabetical by course prefix. The school in which the course is offered appears in parentheses following each departmental or subject-matter heading.

The course numbers indicate the college year in which courses should ordinarily be taken. Courses numbered 1 through 99 are preparatory in nature and are not intended for transfer purposes or degree requirements. They may in some instances, however, be counted as electives.

100-199 ..... Freshman Year
200-299 ..... Sophomore Year
300-399 ..... Junior Year
400-499 ..... Senior Year

Credit for each course, in terms of semester hours, is indicated by a numeral in parentheses following the course title. In most instances, prerequisites for courses are stated in the course description.

DEPARTMENTAL ABBREVIATIONS (COURSE PREFIXES)

ABF	Auto Body and Fender
AG	Agriculture
AGPR	Production Agriculture
AMEC	Auto Mechanics
AMUS	Applied Music
ANTH	Anthropology
ART	Art
BIOL	Biology
BUAC	Accounting
BUDP	Business Data Processing
BUGB	General Business
BUJT	Job-Entry Training
BUMA	Business Management
BUOA	Office Administration
BUTR	Travel, Recreation, and Hospitality Management
CHEM	Chemistry
CSCI	Computer Science
DENT	Dental Assisting and Expanded Functions
DRAM	Drama
ECED	Early Childhood Education
ECON	Economics
EDUC	Education
ELEC	Electronics
ELIN	Electric Lineman
EMT	Emergency Medical Technician
ENGL	English
ENGR	Engineering
ETEC	Electronics Technology
FA	Fine Arts
FREN	French
GEOG	Geography
GEOL	Geology
GERM	German
GRCO	Graphic Communications
HEC	Home Economics
HIST	History
HLTH	Health
HS	Human Services
INDI	Interdisciplinary Study
ITAL	Italian
JOUR	Journalism
LEN	Law Enforcement
MATH	Mathematics
MUS	Music
NURS	Nursing
OGSP	Occupational Guidance Specialist
PER	Physical Education and Recreation
PERF	Performing Arts
PHIL	Philosophy
PHYS	Physics
POLS	Political Science
PSCI	Physical Science
PSY	Psychology
RADT	Radiologic Technology
READ	Reading
SOC	Sociology
SOCS	Social Science
SPAN	Spanish
SPCH	Speech
STAT	Statistics
WELD	Welding

Auto Body and Fender

(School of Industry and Technology)

ABF 100 APPLIED MATHEMATICS (3)
A brief review of the arithmetic, shop mathematics, and algebra needed to handle the mathematical aspects of auto mechanics.

ABF 110 AUTO BODY REPAIR AND REFINISHING I (8)
An introduction to theory and practices of auto body repair and refinishing, including metal conditioners, primers, sealers, surfacers, reducers, thinners, the different types of paints and the techniques used to apply them. Also metal work, filler work and adjustment of panels and replacement of panels.

ABF 120 AUTO BODY REPAIR AND REFINISHING II (8)
A continuation of ABF 110. Prerequisite: ABF 110 or consent of instructor.

ABF 130 AUTO RECONDITIONING (3)
Instruction in new-car preparation; glass removal and installation; minor panel repair and refinishing; spot painting; cleaning, dyeing and repair of upholstery; cleaning and airbrush painting; exterior-finish buffing and polishing; general automotive detail procedures.

ABF 140 OXYACETYLENE WELDING (3)
Theory and practice of oxyacetylene welding of mild steel; identification of base and filler metals and melting temperatures of various metals. Special emphasis on root penetration and fusion of welding materials.

ABF 150 ARC WELDING (2)
A beginning course in welding mild steel in down-hand position with electric arc welding equipment. Proper care, use of equipment, and safety precautions and practices are heavily stressed.

ABF 200 PANEL AND SPOT PAINTING (3)
Paint composition, refinishing products and their correct usage, color matching, and procedures to be used in making a lacquer or acrylic spot repair.

ABF 210 FRAME REPAIR (2)
Inspection, measurement and repair methods used to repair unitized and conventional frames.

ABF 220 SHOP MANAGEMENT (3)
Study of shop operation, expenditures, floor-plan design and equipment for the modern-day shop. Expectations and management of employees.

ABF 230 AUTO BODY REPAIR AND REFINISHING III (5)
A continuation of shop learning practices and severe collision repair procedures. Emphasis on metal work and spot painting. Concentration of shop and learning experiences in areas in which students wish to specialize. Prerequisite: ABF 120 or consent of instructor.

ABF 240 AUTO BODY REPAIR AND REFINISHING IV (5)
A continuation of ABF 230. Prerequisite: ABF 230 or consent of instructor.

ABF 250 ESTIMATING (3)
Study of parts catalogs, flat rate, remove-and-replace procedures, insurance appraisals, and the writing of collision repair bids.

Agriculture

(School of Natural Sciences and Mathematics)

AG 101 AGRICULTURAL PROFESSION (1)
A survey of the various fields of agricultural study and their occupational opportunities. Guidance in choosing major and minor fields of study. One lecture per week.

AG 112 FARM POWER (2)
AG 112L FARM POWER LABORATORY (1)
A theory and demonstration course on internal combustion engines, electrical systems, and power transfer, with special attention to operation and maintenance of farm equipment. Two lectures and one two-hour laboratory session per week.

AG 113 INTRODUCTORY ANIMAL SCIENCE (3)
AG 113L INTRODUCTORY ANIMAL SCIENCE LABORATORY (1)
An introduction to the livestock industry including production, management and marketing of livestock products. Three lectures and one two-hour laboratory session per week.

AG 142 ECONOMIC ORGANIZATION OF AGRICULTURE (3)
A study of economic principles as they apply to agriculture. Three lectures per week.

AG 201 ENVIRONMENTAL HORTICULTURE (3)
AG 201L ENVIRONMENTAL HORTICULTURE LABORATORY (1)
Principles of horticultural science as applied to the propagation and culture of horticultural crops, landscape design, and improvement of plants. Three lectures and one two-hour laboratory session per week.

AG 202 SOILS (3)
AG 202L SOILS LABORATORY (1)
A study of the formation, properties, and management of soils. Special attention is given to soil conditions that affect crop yields. Prerequisite: CHEM 121 or CHEM 131 for agriculture students, waived for forestry students. Three lectures and one two-hour laboratory session per week.

AG 203 ARTIFICIAL INSEMINATION (1)
AG 203L ARTIFICIAL INSEMINATION LABORATORY (1)
Principles and practices employed in artificial insemination with emphasis on planning and conducting a successful artificial breeding program. One lecture and one two-hour laboratory session per week.

AG 205 FARM AND RANCH MANAGEMENT (5)
Economics applied to management of a farm or ranch. Emphasis on keeping and interpreting records for management and income-tax purposes. Prerequisites: AG 142 or consent of instructor. Five lectures per week.

AG 211 INTRODUCTION TO RANGE SCIENCE (3)
AG 211L INTRODUCTION TO RANGE SCIENCE LABORATORY (1)
An introduction to ecological principles and management practices required for proper utilization of rangeland. Three lectures and one two-hour laboratory session per week.

AG 213 CROP PRODUCTION (3)
AG 213L CROP PRODUCTION LABORATORY (1)
A study of the principles of field-crop production with emphasis on cultural practices and botanical characteristics of crops grown in the intermountain region. Three lectures and one two-hour laboratory session per week.

AG 222 LIVESTOCK JUDGING AND SELECTION (1)
AG 222L LIVESTOCK JUDGING AND SELECTION LABORATORY (1)
Evaluation and selection of livestock. One lecture and one two-hour laboratory session per week.

AG 241 AGRICULTURAL PRACTICUM (2)
Work experience in a wide variety of agricultural fields. Hours of work required for credit will be determined by the department.

AG 248, 249 INDIVIDUAL PROBLEMS IN AGRICULTURE (1, 2)
A course which allows individualized study in some area of agriculture. Prerequisite: Approval of instructor and agricultural background.

AG 251 FORAGE CROPS (3)
AG 251L FORAGE CROPS LABORATORY (1)
Study of the important aspects of forage-crop production. Three lectures and one two-hour laboratory session per week.

AG 254 LIVESTOCK FEEDING (3)
Practical application of the analysis of feeds and requirements of various classes of livestock used in the formulation of balanced rations. Three lectures per week.

AG 260 FUNCTIONAL ANATOMY OF DOMESTIC ANIMALS (3)
A survey of systematic anatomy and physiology of domestic animals as related to production, reproduction and health. Emphasis is placed on systems unique to domestic animals. Three lectures per week.

AG 303 AGRICULTURE MARKETING (3)
A study of agricultural markets and the various techniques which can be used in marketing agriculture products. Also includes a general discussion of the commodity futures market and its use in agriculture. Prerequisite: AG 142 or consent of instructor. Three lectures per week.

AG 320 IRRIGATION AND DRAINAGE (3)
Principles of water conveyance, application, efficiency, consumptive use and drainage. Prerequisite: AG 202 or consent of instructor. Three lectures per week.

AG 321 FRUIT PRODUCTION (3)
Principles and practices utilized in the production, harvesting and marketing of tree and small fruits. Site selection, harvesting methods, marketing procedures and the cultural practices of planting, pollination, pruning, thinning, soil management, fertilizing and irrigation. Prerequisite: Five hours of plant science, AG 201, or consent of instructor. Three lectures per week.

AG 322 GREENHOUSE MANAGEMENT (2)
AG 322L GREENHOUSE MANAGEMENT LABORATORY (1)
Use of enclosed structures for manipulation of environment, effects on growth as applied to floricultural crops, methods of controls, production and marketing costs. Two lectures and one two-hour laboratory session per week.

AG 323 PLANT PROPAGATION (2)
AG 323L PLANT PROPAGATION LABORATORY (1)
A study of techniques used in propagation of plants. Two lectures and one two-hour laboratory session per week.

AG 332 WEED CONTROL (3)
Study of weed control through predators, parasites, pathogens, attractants, irradiation, chemosterilants, and integrated control. Three lectures per week.

AG 333 ANIMAL BREEDING (3)
Study of performance evaluation and prediction of genetic improvement in purebred and commercial livestock. Prerequisite: AG 113 or consent of instructor. Three lectures per week.

AG 334 ANIMAL HYGIENE (3)
AG 334L ANIMAL HYGIENE LABORATORY (1)
Principles of animal sanitation in relation to disease prevention and control. Prerequisite: AG 113 or consent of instructor. Three lectures and one two-hour laboratory session per week.

AG 343 ENVIRONMENTAL INSECTS (2)
AG 343L ENVIRONMENTAL INSECTS LABORATORY (1)
A study of insects with emphasis on major insect pests including anatomy, physiology, life cycles and recommended control procedures. Two lectures and one two-hour laboratory per week.

AG 345 BEEF PRODUCTION (3)
Study of the production of purebred, commercial, and slaughter cattle. Range, farm, and feedlot principles. Breeds, breeding, market grades, feeding and management. Prerequisite: AG 113 or consent of instructor. Three lectures per week.

AG 346 HORSE MANAGEMENT (3)
Study of the general principles and practices of stabling, training, and caring for horses. Three lectures per week.

AG 347 SHEEP PRODUCTION (3)
Management practices involved in commercial and purebred sheep enterprise. Marketing methods, performance testing, and carcass evaluation techniques. Wool grading, evaluation and merchandising of the wool clip. The application of nutritional, genetic, and physiological principles to the efficient production of sheep. Prerequisite: AG 113 or consent of instructor. Three lectures per week.

AG 352 APPLIED ANIMAL NUTRITION (2)
AG 352L APPLIED ANIMAL NUTRITION LABORATORY (1)
Composition, characteristics, and nutritive value of feeds and ration additivies; qualitative and quantitative nutrient requirements of each of the classes of livestock with some consideration of wildlife; formulation of rations for each of the classes of livestock. Prerequisites: AG 254, BIOL 106, BIOL 131, or consent of instructor. Two lectures and one two-hour laboratory per week.

AG 403 SOIL FERTILITY AND FERTILIZER (2)
AG 403L SOIL FERTILITY AND FERTILIZER LABORATORY (1)
A study of the principles of soil fertility and fertilizer practices. Two lectures and one two-hour laboratory per week.

AG 421, 422, 423, 424, 425
EXTERNSHIP IN PROFESSION (2, 4, 6, 8, 10)
A student may receive credit for work experience obtained on a job where the assignments are appropriately related to the Animal-Plant Management program. The number of credit hours assigned to the student will be determined by the school. No more than ten hours of externship credit will be counted toward satisfaction of graduation requirements. Prerequisites: Animal-Plant Management major, senior standing, or consent of instructor.

AG 451, 452 SEMINAR IN AGRICULTURE-NATURAL RESOURCES (1, 1)
Discussions of current problems, topics, and research procedures in biological science, agriculture, and medicine. Topics of the seminar announced each quarter. Prerequisite: Sophomore classification and consent of the instructor.

Production Agriculture

(School of Natural Sciences and Mathematics)

AGPR 112 IRRIGATION (3)
A study of current irrigation systems with emphasis on efficient use of water and control of salinity.

AGPR 114 WELDING (2)
Practice of gas and arc welding with emphasis on agricultural applications.

AGPR 115 INSECTS AND CONTROL (4)
A study of insect pests of both crops and livestock and their biological and chemical control.

AGPR 118 ROW CROPS (6)
A study of row-crop production with emphasis on crops produced in western Colorado.

AGPR 119 FRUIT CROPS (4)
A study of fruit production including planting, cultivation, irrigation, pruning and other cultural techniques.

AGPR 120 GREENHOUSE OPERATION (4)
A study of approved greenhouse management practices emphasizing building design and operation, plant-propagation practices and marketing.

AGPR 121 LANDSCAPING (2)
A study of landscaping practices with emphasis on the use of materials and plants available locally.

AGPR 122 TURF MANAGEMENT (2)
A study of turf production for commercial purposes and as a landscaping tool.

AGPR 123 HORSES (2)
An introduction to feeding, training, handling, and general management practices applicable to horse production.

AGPR 124 CATTLE (2)
An introduction to production systems and management practices used in the beef cattle industry.

AGPR 125 SHEEP (2)
An introduction to production systems and management practices used in the sheep industry.

AGPR 126 SWINE (2)
An introduction to production systems and management practices used in the swine industry.

AGPR 127 SOILS (3)
A study of soils with emphasis on efficient management of soils in agriculture.

AGPR 128 FERTILIZERS (2)
A study of fertilizers emphasizing efficient utilization of both commercial and natural fertilizers.

AGPR 130 DAIRY OPERATION (2)
An introduction to production systems and management practices used in the dairy industry.

AGPR 133 MARKETING (2)
An exploration of the methods, systems, and channels used in the marketing of farm products. Includes a study of the commodity futures market as a method of increasing marketing efficiency.

AGPR 135 FORAGE CROPS (2)
A study of approved practices in forage-crop production, particularly in western Colorado.

AGPR 136 VEGETABLE CROPS (2)
A study of approved practices in vegetable-crop production with emphasis on practices employed in western Colorado.

AGPR 137 ANIMAL HEALTH (4)
An introduction to the prevention and control of disease problems in horses, cattle, sheep, swine, and poultry.

AGPR 138 FARM FACILITIES (3)
Study in the layout and interrelations of such farm facilities as materials handling systems, fencing, corrals, grain and feed structures and the effects of O.S.H.A. and E.P.A. regulations on them.

AGPR 139 FARM EQUIPMENT (3)
Principles of safe operation, proper maintenance and efficient adjustment of tillage, planting, and harvesting equipment.

AGPR 140 GRAIN DRYING AND GRADING (2)
A study of grain drying systems, proper storing, and determining factors that affect the quality and grade of grain.

AGPR 141 FARM MECHANICS (4)
The study and practical application of skills required in farm carpentry, plumbing, electricity, and concrete.

AGPR 142 FARM MANAGEMENT I (3)
A study of farm record keeping methods and systems and their use in planning and budgeting. This will include farm credit sources, investment credit and methods of depreciation.

AGPR 143 FARM MANAGEMENT II (3)
This course is designed to develop record analysis procedures for farmers. It includes taxes, farm leases, farm law, types of ownership, services of governmental agencies and farm organization.

AGPR 144 FARM ENGINES (4)
Demonstration and application of approved tune-up, maintenance, repair, and trouble-shooting practices as applied to small engines and large gas and diesel engines.

Auto Mechanics

(School of Industry and Technology)

AMEC 110 BEGINNING WELDING FOR AUTO MECHANICS (2)
A beginning course in gas and arc welding designed to help the auto mechanic develop basic skills for maintenance and repair welding on cars and trucks.

AMEC 111 APPLIED MATH FOR AUTO MECHANICS (2)
A brief review of the arithmetic, shop math, and algebra needed to handle the mathematical aspects of auto mechanics.

AMEC 113 INTERNAL COMBUSTION ENGINES (3)
A basic study of internal-combustion engines, dealing with types, design, construction, principles of operation, and application of engine components. Includes the disassembly and assembly of the four-cycle gasoline engine, measuring of parts, and the recognition of damaged and worn parts.

AMEC 114 ENGINE REBUILDING AND REPAIRS [6]

Designed to develop basic skills in the specialized field of automotive engine rebuilding. Includes cylinder reboring, reconditioning of connecting rods, pistons, pins, valve seats and guides, surface grinding, and general engine rebuilding and repair. Prerequisite: AMEC 113.

AMEC 121 CLUTCHES, STANDARD TRANSMISSIONS AND OVERDRIVES [3]

Designed to give a working knowledge of the pressure-plate assembly, clutch disk, clutch pedal and linkage, release bearing, pilot bearing, gears, gear ratios and synchromesh transmissions.

AMEC 122 DRIVELINES AND DIFFERENTIALS [3]

A comprehensive study of U-joints, drive shafts, engine mounts, and conventional or limited-slip differentials. Nomenclature, gear and bearing failure, repair, and adjustment of components are included in the instruction.

AMEC 123 CARBURETORS [3]

A study of the chemical properties of fuels, fuel and air ratios, metering, atomizing, vaporizing and mixing. Single-, dual- and four-barrel carburetors, single- and double-action fuel pumps of all popular makes are included in a thorough study of the fuel system.

AMEC 124 ELECTRICAL SYSTEMS [3]

Starters, generators, alternators, voltage regulators, solenoids, switches, relays, lights, wiring and cables. A complete lab for the servicing and adjustment of these units uses the latest equipment.

AMEC 125 AUTOMOTIVE BRAKE SYSTEMS [3]

Servicing and repair of the hydraulic brake system. Includes the basic principles of hydraulics; servicing the linings, drums, cylinders, lines, and power-booster units; adjusting and bleeding the system.

AMEC 127 AUTOMATIC TRANSMISSIONS [3]

The principles of operation of planetary-gear sets, fluid couplings, torque converters, servo bands, clutch packs and control circuits.

AMEC 133 AIR CONDITIONING [3]

An introduction to the principles of refrigeration; the methods of operation and control; assembly of connections and components; proper handling of refrigerants; use of testing equipment; conducting efficiency tests; and general maintenance work.

AMEC 138 IGNITION SYSTEMS [3]

All units comprising the ignition system, including primary and secondary circuits, distributor and related parts, coil, ignition switch, resistors, spark plugs, cables and wiring, ignition timing, and all adjustments and service procedures.

AMEC 139 EMISSION CONTROL [3]

A comprehensive study of emission-control systems dealing with types, design, and principles of operation; problems encountered with these systems; and the necessary adjustments and repairs.

AMEC 140 ALIGNMENT AND WHEEL BALANCE [3]

The alignment section includes pre-alignment inspection and the theory and practice of the five basic angles of front-end geometry. The strobelight on-car method is studied in the wheel-balancing section.

AMEC 141 SUSPENSION REPAIR [3]

Shocks, springs, axles, suspension components, and steering gears. Theory and practice.

Applied Music

(School of Humanities and Fine Arts)

AMUS 111, 112; 211, 212; 311, 312; 411, 412	VOICE	(Arr.)
AMUS 114, 115; 214, 215; 314, 315; 414, 415	PIANO	(Arr.)
AMUS 117, 118; 217, 218; 317, 318; 417, 418	ORGAN	(Arr.)
AMUS 121, 122; 221, 222; 321, 322; 421, 422	VIOLIN	(Arr.)
AMUS 124, 125; 224, 225; 324, 325; 424, 425	CELLO	(Arr.)
AMUS 127, 128; 227, 228; 327, 328; 427, 428	BASS	(Arr.)
AMUS 130, 131; 230, 231; 330, 331; 430, 431	GUITAR	(Arr.)
AMUS 133, 134; 233, 234; 333, 334; 433, 434	TRUMPET	(Arr.)
AMUS 136, 137; 236, 237; 336, 337; 436, 437	TROMBONE	(Arr.)
AMUS 139, 140; 239, 240; 339, 340; 439, 440	FRENCH HORN	(Arr.)
AMUS 142, 143; 242, 243; 342, 343; 442, 443	TUBA	(Arr.)
AMUS 145, 146; 245, 246; 345, 346; 445, 446	CLARINET	(Arr.)
AMUS 148, 149; 248, 249; 348, 349; 448, 449	OBOE	(Arr.)
AMUS 151, 152; 251, 252; 351, 352; 451, 452	FLUTE	(Arr.)
AMUS 154, 155; 254, 255; 354, 355; 454, 455	PERCUSSION	(Arr.)
AMUS 161, 162; 261, 262; 361, 362; 461, 462	SAXOPHONE	(Arr.)

Individual music lessons in piano, voice, and most of the orchestral and band instruments. The credit earned is to be determined for each student by the music staff. Students who register for one lesson per week may receive one semester hour of credit. Two semester hours of credit will be granted only by permission of the music staff. See Department of Music section for fee and scholarship information.

Anthropology

(School of Social and Behavioral Sciences)

ANTH 101 PHYSICAL ANTHROPOLOGY (3)

A survey of the basic concepts of physical anthropology such as: the biological nature of man, the evolution of man, and human variation.

ANTH 102 CULTURAL ANTHROPOLOGY (3)

A survey of basic concepts of cultural anthropology such as: the nature of culture, the development and history of culture, cultural institutions and the process of cultural change.

ANTH 221 OLD WORLD ARCHAEOLOGY (3)

A survey of the archaeology of Eurasia and Africa emphasizing the emergence of early man up to and including the Iron Age. Basic archaeological concepts such as excavation procedures and modern dating methods are discussed.

ANTH 222 NEW WORLD ARCHAEOLOGY (3)

A survey of the archaeology of North, Middle and South America emphasizing origin of inhabitants, distribution and development of prehistoric cultures. The course will deal with such topics as: Paleo-Indian, Archaic and early agricultural traditions; the rise of Inca, Mayan and Aztec civilizations; and Southwestern archaeology.

ANTH 251, 252 INDEPENDENT STUDY IN ANTHROPOLOGY (1, 2)

Prerequisites: six hours of anthropology, sophomore standing, and permission of the instructor.

ANTH 261, 262 ARCHAEOLOGICAL EXCAVATION (3, 6)
Training in archaeological field methods, including excavations of prehistoric sites, record-keeping, care of artifacts, mapping, and data analysis. Prerequisite: consent of instructor.

ANTH 301 THE NORTH AMERICAN INDIAN (3)
A survey of the cultural systems of the North American Indians; major cultural areas, languages and behavior patterns. Case studies of selected groups. Prerequisites: ANTH 101, 102.

Art

(School of Humanities and Fine Arts)

The Mesa College Art Department maintains and displays a collection of student art work and reserves the right to retain one piece of work from each student in every studio class.

ART 110 EARLY CHILDHOOD ART (3)
Theory and practice of art education for young children. Lecture, laboratory, and practice teaching culminate in resources for teaching. Lecture: 2 hours; laboratory: 1 hour, arranged.

ART 115 CRAFTS SURVEY (3)
Media covered are metal, clay, and fiber in a studio situation which emphasizes craft processes and design appropriate for each medium. Lecture: 1 hour; studio; 5 hours.

ART 120 JEWELRY (1)
An elective studio course, covering basic art-metal processes of cutting, joining, polishing, and casting. Functional and esthetic considerations of jewelry design are emphasized. A tool kit deposit is required and a fee is charged for materials. Studio: 2 hours.

ART 140 CERAMICS (1)
An elective studio course dealing with the design and making of clay objects. Most hand-building processes are covered; pieces are fired and glazed. Fee charged for clay and glaze materials. Studio: 2 hours.

ART 150 SKETCHING (1)
An elective studio course for people who want to learn the basic skills of drawing what they see. Media used are graphite, pen and ink, and pastels. Studio: 2 hours.

ART 151, 152 ART FOUNDATION (3, 3)
An introduction to the visual arts consisting of creative problems in drawing, two-and-three dimensional design concepts, and theory of esthetic expression. Lecture: 1 hour; studio: 5 hours.

ART 170 PRINTMAKING (1)
An elective studio course in beginning multiple image making. Students learn how to design for relief printing and what tools and papers are effective in producing good prints. Fee charged for materials. Studio: 2 hours.

ART 180 SCULPTURE (1)
An elective studio course for students who want to make one or two objects in clay or wood. Forms appropriate to the materials and processes are emphasized. Fee charged for materials. Studio: 2 hours.

ART 190 PAINTING (1)
An elective studio course in watercolor. Paintings are done indoors and outdoors in a variety of techniques and subjects. Basic composition and color-mixing. Studio: 2 hours.

ART 211, 212 HISTORY OF ART (3, 3)

A chronological study of art periods and comparative analysis of styles in western art from prehistory to the present. Lecture: 3 hours.

ART PROCESSES AND MEDIA (200 Level)

The following courses are introductory studies in the traditional materials of the visual arts. These are Studio experiences with some lectures on theory and history of the media. Fees are charged for some materials; other materials are obtained by the student. Lecture: 1 hour; studio: 5 hours.

ART 221	Jewelry/Metalsmithing (3)		ART 271, 272	Printmaking	(3, 3)
ART 231	Fibers	(3)	ART 281, 282	Sculpture	(3, 3)
ART 241	Ceramics	(3)	ART 291, 292	Painting	(3, 3)

ART 245 CERAMIC WORKSHOPS (3)

Specially scheduled intensive experiences in such processes as raku, primitive pottery, decoration and others, to be arranged with guest or resident faculty.

ART 251 FIGURE DRAWING (3)

Academic studio drawing emphasizing the tradition of the human figure. Contemporary concepts of composition and technique, using quality drawing tools and surfaces. Nude models, bones and anatomy charts as well as reproductions of the work of figurative artists are utilized. Lecture: 1 hour; studio: 5 hours. Prerequisite: ART 151, 152 or permission of instructor.

ART 302 INDEPENDENT STUDY IN ART (2)

By arrangement with instructor.

ART 311 EXHIBITIONS AND MANAGEMENT (2)

Preparation and presentation of exhibitions, including matting, framing and pedestals, as well as exhibit design, installation, shipment, scheduling, insurance and other responsibilities of gallery management. Preparation of a professional portfolio is part of the laboratory work. Lecture: 2 hours; laboratory: 2 hours.

ART 315 TWENTIETH CENTURY ART HISTORY (3)

A study of the sequence of movements and schools of art in the present century. The conditions and influences which have affected modern art are analyzed and the works of major artists are surveyed thru slides and reading. Lecture: 3 hours. Prerequisite: ART 211, 212 or permission of instructor.

ADVANCED STUDIOS (300 LEVEL)

Scheduled on an irregular basis, these courses may be concerned with specific media or projects to be studied in a structured class, or a general studio may include a variety of media and individually contracted work. Prerequisites: ART 151, 152; 211, 212; and at least 3 hours of the same Processes and Media (200 level) Studio.

ART 321, 322	Metalsmithing	(3, 3)	ART 371, 372	Printmaking	(3, 3)
ART 341	Pottery Production	(3)	ART 381, 382	Sculpture	(3, 3)
ART 342	Ceramic Sculpture	(3)	ART 391	Figure Painting	(3)
ART 351, 352	Drawing	(3, 3)	ART 392	Landscape Painting	(3)

ART 402 INDEPENDENT STUDY IN ART (2)

By arrangement with instructor.

ART 415 ART HISTORY SEMINAR (3)

A reading and seminar course for depth study of individually selected areas of world art history and the relationships of various periods to the art of today. Seminar: 3 hours. Prerequisites: ART 211, 212; 315.

ADVANCED STUDIOS (400 LEVEL)

Specialized studio problems contracted by senior-level students preparing for graduate schools. The work culminates in a faculty examination of each student's portfolio and an exhibition of the student's work.

ART 421, 422 Metalsmithing (3, 3)
ART 441 Glaze Calculation (3)
ART 442 Kiln Construction (3)
ART 451, 452 Drawing (3, 3)
ART 471, 472 Printmaking (3, 3)
ART 481, 482 Sculpture (3, 3)
ART 491, 492 Painting (3, 3)

Biology

(School of Natural Sciences and Mathematics)

BIOL 010 SURVEY OF BIOLOGY (2)

The origin of life and its relation to chemistry and physics. The student is introduced to the structural concepts of life, beginning with the cell and progressing through the tissue, organ-system, organism, and population levels. Classification allows one to explore the living and non-living interactions which direct life. The role of energy as it affects cell divisions, growth, development, and diversity is studied. An introductory course for students with limited background in the sciences.

BIOL 101, 102 GENERAL BIOLOGY (2, 2)
BIOL 101L, 102L GENERAL BIOLOGY LABORATORY (1, 1)

Lectures and laboratory work on such topics as ecology, pollution, drugs, sex education, behavior, disease problems, body structure and function, phylum relationships, plant growth and development, and organic gardening. Fulfills general education requirement in life sciences for students of subjects other than biology. Biology majors will not receive graduation credit for this course. Two lectures and one two-hour laboratory session per week.

BIOL 105 ATTRIBUTES OF LIVING SYSTEMS (3)

A study of organization, stability and change in living systems. Three lectures per week.

BIOL 106 PRINCIPLES OF ANIMAL BIOLOGY (3)
BIOL 106L PRINCIPLES OF ANIMAL BIOLOGY LABORATORY (2)

The broad morphological, physiological, and ecological features of the principal phyla of animals and the relationships between them. Prerequisite: BIOL 105 or consent of instructor. Three lectures and two two-hour laboratory sessions per week.

BIOL 107 PRINCIPLES OF PLANT BIOLOGY (3)
BIOL 107L PRINCIPLES OF PLANT BIOLOGY LABORATORY (2)

Survey of plant cells and the plant kingdom. Includes fundamental concepts about roots, stems, leaves, and reproductive structures as well as the morphology, reproduction, and phylogeny of all plant phyla. Prerequisite: BIOL 105 or consent of instructor. Three lectures and two two-hour laboratory sessions per week.

BIOL 110 NATURAL RESOURCE OCCUPATIONS (1)

An orientation program designed to acquaint the student with the varied natural resource professions and job characteristics. One lecture per week.

BIOL 111 CONSERVATION OF THE ENVIRONMENT (2)

A survey of natural resources including forests, range, minerals, water, and wildlife as well as national, state and local policies and programs for the use of such resources. Two lectures per week.

BIOL 113 OUTDOOR SURVIVAL (3)

A course involving vigorous physical activity which covers survival in many different situations. Requires memorization and recognition of poisonous and non-poisonous plants, snow camping, and eating unusual items. Personal camping equipment required. Two three-hour lectures each week and four overnight weekend field trips.

BIOL 141 HUMAN ANATOMY AND PHYSIOLOGY (3)
BIOL 141L HUMAN ANATOMY AND PHYSIOLOGY LABORATORY (2)

A general introduction to human physiology for the student who has little or no training in the biological and physical sciences at the college level. For the general student as well as students of nursing, physical education, and paramedical fields. Three lectures and two two-hour laboratory sessions per week.

BIOL 143 HUMAN ANATOMY AND PHYSIOLOGY FOR DENTAL ASSISTANTS AND MEDICAL OFFICE ASSISTANTS (3)

Intended to provide a basic knowledge of anatomy and physiology with emphasis on the structures and functions which are important in treating dental and medical patients. Three one-hour lectures per week.

BIOL 201 DEVELOPMENTAL BIOLOGY (4)
BIOL 201L DEVELOPMENTAL BIOLOGY LABORATORY (1)

Study of the embryonic growth and development of both plants and animals. Errors in normal development, cancer, aging, and related topics are presented. Four lectures and one two-hour laboratory session per week.

BIOL 202 CELLULAR BIOLOGY (3)
BIOL 202L CELLULAR BIOLOGY LABORATORY (1)

The form, function, and bioenergetics of the cell. Prerequisite: BIOL 105 and BIOL 106 or consent of instructor. Three lectures and one two-hour laboratory session per week.

BIOL 211 ECOSYSTEM BIOLOGY (4)
BIOL 211L ECOSYSTEM BIOLOGY LABORATORY (1)

A course to provide an elementary understanding of ecology utilizing the population-biology concepts of population genetics, energetics, dynamics, distribution, and sociology. Four lectures and one two-hour laboratory session per week.

BIOL 220 PLANT CLASSIFICATION (2)
BIOL 220L PLANT CLASSIFICATION LABORATORY (2)

Systematics of the flowering plants, chiefly of this region. Emphasis is on family characteristics and use of keys in identification. Assumes a knowledge of basic principles of botany. Two lectures and two two-hour laboratory sessions per week.

BIOL 231 INVERTEBRATE ZOOLOGY (3)
BIOL 231L INVERTEBRATE ZOOLOGY LABORATORY (1)

A study of the invertebrate phyla; their structure, physiology, classification and life histories. The insects and parasitic worms are introduced but not emphasized. Work on independent project is required. Three lectures and one two-hour laboratory session per week.

BIOL 241 PATHOLOGICAL PHYSIOLOGY (4)

A study of the functions of the human body with emphasis on interpretation of those functions in relation to disease processes. Prerequisite: BIOL 141 or BIOL 341. Four lectures per week.

BIOL 250 GENERAL MICROBIOLOGY (2)
BIOL 250L GENERAL MICROBIOLOGY LABORATORY (2)

An introductory program covering the general biology of the microorganisms. Two lectures and two two-hour laboratory sessions per week.

BIOL 261 INDEPENDENT STUDY IN BIOLOGY (1)

A course which allows a student to pursue individual study in some area of biology. Prerequisites: consent of instructor and biology background in the area of study.

BIOL 262 INDEPENDENT STUDY IN BIOLOGY (2)
See description and prerequisites under BIOL 261.

BIOL 301 PRINCIPLES OF GENETICS (3)
BIOL 301L PRINCIPLES OF GENETICS LABORATORY (1)
A study of variation; breeding and evolution, emphasizing the physical basis of heredity, independent inheritance and linkage, as related to human, plant, and animal inheritance. Three lectures and one two-hour laboratory session per week.

BIOL 311 MULTIPLE RESOURCE MANAGEMENT (3)
BIOL 311L MULTIPLE RESOURCE MANAGEMENT LABORATORY (1)
A broad study of natural resources and their management, especially various mineral and biological resources, land uses and personal resources. Prerequisites: BIOL 105, BIOL 106, BIOL 107, and BIOL 211. Three lectures and one three-hour laboratory session per week.

BIOL 321 TAXONOMY OF GRASSES (1)
BIOL 321L TAXONOMY OF GRASSES LABORATORY (2)
A study of the grass family, its relationships and identification. Emphasis will be placed on the floristic composition, distribution of grass communities, and field identification in the forest and range related environments. One lecture and two two-hour laboratory sessions per week.

BIOL 340 COMPARATIVE VERTEBRATE ANATOMY AND PHYSIOLOGY (3)
BIOL 340L COMPARATIVE VERTEBRATE ANATOMY AND PHYSIOLOGY LABORATORY (2)
An exploration and comparison of the structure and function of the vertebrates. The laboratory work consists of dissections of selected animals; lectures include the explanation of function. Prerequisites: BIOL 105 and BIOL 106. Three lectures and two two-hour laboratory sessions per week.

BIOL 341 GENERAL PHYSIOLOGY (3)
BIOL 341L GENERAL PHYSIOLOGY LABORATORY (1)
A study of the functions of the circulatory, nervous, respiratory, digestive, urinary, reproductive and endocrine systems of the human body. Three lectures and one two-hour laboratory session per week.

BIOL 342 HISTOLOGY (2)
BIOL 342L HISTOLOGY LABORATORY (2)
Microscopic study of tissues and organs. Prerequisites: BIOL 105 and BIOL 106 or BIOL 107 and consent of instructor. Two lectures and two two-hour laboratory sessions per week.

BIOL 361 INDEPENDENT STUDY IN ANIMAL-PLANT MANAGEMENT (1)
See description and prerequisites under BIOL 261.

BIOL 362 INDEPENDENT STUDY IN ANIMAL-PLANT MANAGEMENT (2)
See description and prerequisites under BIOL 261.

BIOL 401, 402 SEMINAR (1)
Discussions of current problems, topics, and research procedures in biological sciences and medicine. Topics of the seminar announced each semester. Prerequisites: sophomore classification and consent of instructor. One one-hour session per week.

BIOL 411 MAMMALOGY (2)
BIOL 411L MAMMALOGY LABORATORY (1)
The classification, life histories, and ecology of mammals together with practice in the preparation of skins for study. Two lectures and one two-hour laboratory session or three-hour field trip per week.

BIOL 412 ORNITHOLOGY (2)
BIOL 412L ORNITHOLOGY LABORATORY (1)
The classification and life histories of birds, including identification in the field. Two lectures and one two-hour laboratory session or three-hour field trip per week.

BIOL 413 FAUNA OF WESTERN COLORADO (2)
BIOL 413L FAUNA OF WESTERN COLORADO LABORATORY (1)
A field course to investigate the ecological, behavioral, and environmental physiology of all classes of western Colorado animals. Offered summer sessions only. Prerequisite: one year of biology or consent of instructor. Two lectures and twenty hours of field work per week.

BIOL 414 AQUATIC BIOLOGY (2)
BIOL 414L AQUATIC BIOLOGY LABORATORY (1)
Classification, life history, and ecology of aquatic animals. Two lectures and one two-hour laboratory session per week.

BIOL 421 PLANT PHYSIOLOGY (3)
BIOL 421L PLANT PHYSIOLOGY LABORATORY (2)
Study of plant growth and development at the molecular and cellular level to understand plant growth at the organismic level. Three lectures and two two-hour laboratory sessions per week.

BIOL 430 PENNED ANIMAL HYGIENE (2)
BIOL 430L PENNED ANIMAL HYGIENE LABORATORY (1)
Study of management and care of laboratory animals and wild animals kept in captivity. Field trips are required. Two lectures and one two-hour laboratory session per week.

BIOL 431 ANIMAL PARASITOLOGY (3)
BIOL 431L ANIMAL PARASITOLOGY LABORATORY (1)
Study of the most common and important parasites of domestic animals and man. Included are their ecology, epidemiology, diagnosis, and control. Three lectures and one two-hour laboratory session per week.

BIOL 441 ENDOCRINOLOGY (3)
BIOL 441L ENDOCRINOLOGY LABORATORY (1)
Lectures cover the anatomy and physiology of the endocrine system of vertebrates while the laboratory emphasizes its normal and abnormal functions. Three lectures and one two-hour laboratory session per week.

BIOL 442 PHARMACOLOGY (3)
Principles underlying absorption, distribution, metabolism, and excretion of drugs. Special emphasis is given to the interaction between chemical substances or drugs and living organisms at all levels of organization. Prerequisite: BIOL 141 or consent of instructor. Three lectures per week.

BIOL 460, 461, 462, 463, 464 EXTERNSHIPS (2, 4, 6, 8, 10)
A student may receive credit for work experience obtained on a job where the assignments are primarily biological projects. The number of credit hours awarded to the student is determined by the school. Prerequisites: biology major and senior standing with either a 2.6 grade-point average in major courses or consent of faculty.

Mesa College reserves the right to withdraw from its schedule any course which the enrollment does not justify offering during any particular term. In some programs certain courses may be offered on an alternate-year basis or as determined by demand.

Accounting

(School of Business)

BUAC 201 PRINCIPLES OF ACCOUNTING I **(3)**

Suitable for all business and accounting majors and individuals interested in obtaining the basic skills necessary to understand an accounting system and financial statements. Includes the development of fundamental principles of double-entry bookkeeping, balance sheet, profit and loss statement, controlling accounts and partnership accounting. (Fall, Spring.)

BUAC 202 PRINCIPLES OF ACCOUNTING II **(3)**

A continuation of BUAC 201. Expands on the principles presented in BUAC 201 and introduces corporate accounting, accounting for bonds and interest, cost accounting, and managerial accounting. Prerequisite: BUAC 201. (Fall, Spring.)

BUAC 211 MANAGERIAL ACCOUNTING **(3)**

A course designed to apply accounting information to managerial decision-making. Major topics are financial statement analysis, budgeting for planning or control, cost-volume-profit relationships, and capital budgeting. (Not open to accounting majors.) Prerequisite: BUAC 202. (Fall.)

BUAC 264, 265 RELATED WORK EXPERIENCE **(1, 2)**

Working in a business at a position approved by the School of Business, the student receives practical experience and an opportunity to apply academic knowledge in a work situation. The student is responsible for securing the position and arranging work hours. Written papers are required as part of the course. Student must meet with adviser at least once every three weeks during the semester of work experience. Credit is awarded on the basis of one semester hour for each five hours of work performed weekly throughout the semester. A maximum of three semester hours (requiring 15 hours of work weekly) may be earned in this manner. Prerequisite: Nine semester hours of course work in a field chosen for work experience; cumulative grade-point average of 2.50 or higher; and permission of the instructor. Students must apply for this course through their advisers at least three weeks prior to end of the semester preceding the semester in which they wish to take the course. A maximum of three credit hours of Related Work Experience may apply toward an associate degree. Credit not available through competency or challenge. (Fall, Spring.)

BUAC 321 INTERMEDIATE ACCOUNTING I **(3)**

Designed to help develop a deeper understanding of accounting theory and methods for non-accounting and accounting majors. Provides foundation necessary for specialized accounting courses. Prerequisite: BUAC 202. (Fall.)

BUAC 322 INTERMEDIATE ACCOUNTING II **(3)**

Continuation of Intermediate Accounting I. Prerequisite: BUAC 321. (Spring.)

BUAC 331 COST ACCOUNTING I **(3)**

A course which gives the student a better understanding of costs and their relationship to planning, controlling and inventory valuation. Major topics are cost-volume-profit relationships, job-order accounting, budgeting, and standard cost systems. Prerequisite: BUAC 202. (Fall.)

BUAC 332 COST ACCOUNTING II **(3)**

A continuation of BUAC 331. Major topics are capital budgeting, cost allocation, process cost accounting, and internal control. Prerequisite: BUAC 331. (Spring.)

BUAC 361, 362 INDEPENDENT STUDY IN ACCOUNTING **(1, 2)**

Students must apply for this course through their adviser at least three weeks prior to the end of the semester preceding the semester in which they wish to take Independent Study. Only students who have completed 12 credit hours of work in the field chosen for Independent Study and who have a cumulative grade-point average of 2.75 or higher will be allowed to enroll for credit in this upper-division course. Consent of instructor required in all cases. (Fall, Spring, Summer.)

BUAC 401 ADVANCED ACCOUNTING I (5)
This course is broken into two sections. The first section covers accounting procedures related to governmental and non-profit institutions. The second section covers accounting theory as it relates to financial statements. Prerequisite: BUAC 322. (Fall.)

BUAC 402 ADVANCED ACCOUNTING II (5)
Accounting principles relating to partnerships, home-office and branch accounting, parent and subsidiary accounting, consolidated statements, mergers, bankruptcies, receiverships, and estates and trusts. Prerequisite: BUAC 401. (Spring.)

BUAC 411 AUDITING I (3)
Study of the scope and purpose of the work of a certified public accountant. An in-depth study of the theory of auditing, the professional ethics of the profession, the legal liability of the auditor, the theory of accounting systems, and internal control. Prerequisites: BUAC 322 and STAT 214. (Fall.)

BUAC 412 AUDITING II (3)
A continuation of BUAC 411. This course concentrates on the application of auditing theory to the financial statements. Examines the audit programs and procedures used in each phase of the audit, the use of audit workpapers, and completion of the audit report. Prerequisite: BUAC 411. (Spring.)

BUAC 421 CPA REVIEW (3)
A course designed to help accounting students review and prepare for the CPA examination and the profession of public accounting through a study of difficult problems typical of those that appear on the CPA exam. Prerequisite: consent of instructor. Does not count toward the 34 hours of Accounting-major requirements. (Arr.)

BUAC 423 CONTROLLERSHIP (3)
Deals with problems related to the job of corporate controller. Major topics covered: accounting controls, cash flow projections, budgets, inventory control, accounts-receivable control, accounting systems. Prerequisites: BUAC 322, BUAC 332. (Spring.)

BUAC 441 INCOME TAX (5)
This course, designed for accounting majors, covers the Federal Income Tax Law and filing requirements for individual taxpayers, partnerships, and estates and trusts. Prerequisites: BUAC 322 or consent of instructor. (Fall.)

BUAC 442 ADVANCED TAX AND TAX RESEARCH (5)
Covers the Federal Income Tax Law and filing requirements for corporations and various other areas of taxation. Also includes comprehensive and complex tax problems requiring the use of various tax-reference sources and emphasizing research methods and techniques. Prerequisite: BUAC 441. (Spring.)

BUAC 461, 462, 463 INTERNSHIP IN ACCOUNTING (2, 3, 5)
Supervised accounting work experience in business and industry. Prerequisites: junior status and consent of the Dean of the School of Business. (Arr.)

BUAC 464, 465 RELATED WORK EXPERIENCE (1, 2)
Prerequisites: Minimum of 12 hours of course work completed in the field chosen for work experience; cumulative grade-point average of 2.75 or higher; junior or senior standing. A maximum of six semester hours of Related Work Experience (three lower-division and three upper-division) may apply toward a baccalaureate degree. See BUAC 264, 265 course description for additional information. (Fall, Spring.)

Data Processing

(School of Business)

BUDP 101 BUSINESS DATA PROCESSING (3)

An introduction to computers and business data processing systems. Fundamentals of computer programming are developed by writing programs in BASIC. An opportunity to investigate this rapidly growing area. (Fall, Spring.)

BUDP 111 BASIC PROGRAMMING KEYPUNCH (1)

An introductory five-week course in the basic operations and applications of the keypunch with special emphasis on keypunching computer-programming languages. Not recommended for data processing majors or those seeking keypunch job-entry skills. Offered only upon sufficient demand.

BUDP 112 KEYPUNCH AND VERIFIER (2)

A preliminary course in the fundamentals of the keypunch and verifier to develop the necessary operational skills for job entry. Includes IBM Sorter operation. Recommended for data processing majors and those interested in job-entry skills. Prerequisite: Typing or consent of the instructor. Offered only upon sufficient demand.

BUDP 113 PRODUCTION KEYPUNCH (1)

An advanced course in the operation of the keypunch, verifier, and sorter. Speed and efficiency are developed through application of business problems and community business experience. Includes methods of using companion equipment. Offered only upon sufficient enrollment. Prerequisite: typing or consent of instructor.

BUDP 121 COMPUTER OPERATIONS (3)

Students learn to operate the computer and compile programs written by programmers. Emphasis is placed on knowledge of the operating system of the computer and the control language used to run it. Hands-on running of the computer offers opportunity to solve problems arising from operation of the equipment. Prerequisite: BUDP 101 or consent of instructor. Night course. (Spring.)

BUDP 131 COBOL PROGRAMMING I (3)

Students write programs in COBOL using modern methods of top-down, structured design. Emphasis is placed on traditional business applications such as payroll, accounts receivable, and inventory control. Students learn to debug and document their programs. Prerequisite: BUDP 101 or consent of instructor. (Spring.)

BUDP 231 ASSEMBLER LANGUAGE (3)

A beginning course in IBM-360 assembler language programming. Includes data representation concepts, instruction formats, core dump analysis, basic assembler language instructions, and register usage. Students write programs in IBM-360 Assembler. Prerequisite: at least one programming course. (Fall.)

BUDP 232 COBOL PROGRAMMING II (3)

A continuation of BUDP 131. Disk processing, including sequential, indexed-sequential, and random processing; sub-routines; overlays; and use of operating system resources for systems development. Prerequisite: BUDP 131. (Fall.)

BUDP 233 FORTRAN IV (3)

An introductory course in FORTRAN programming. Emphasis is placed on development of programming logic, flow-charting, input and output routines. Prerequisite: BUDP 101 or consent of instructor. (Fall, Spring.)

BUDP 234 RPG PROGRAMMING (3)

Writing business programs in RPG, with emphasis on learning the internal logic cycle of RPG. Development of programming logic through use of decision tables. Prerequisite: BUDP 101 or consent of instructor. (Spring.)

BUDP 241 COMPUTERS IN MANAGEMENT (3)
Explores effective use of computer systems in the management function, including computer data-base information helpful in management decision-making. Also includes audit and control features. Prerequisite: BUDP 101. May also count as a Management course. (Fall.)

BUDP 281, 282 INDEPENDENT STUDY IN DATA PROCESSING (1, 2)
Students must apply for this course through their adviser at least three weeks prior to the end of the semester preceding the semester in which they wish to take Independent Study. Only students who have completed nine credit hours of work in the field chosen for Independent Study and who have a cumulative grade-point average of 2.5 or higher will be allowed to enroll for credit in this course. Consent of instructor required in all cases. (Fall, Spring.)

BUDP 264, 265 RELATED WORK EXPERIENCE (1, 2)
See BUAC 264, 265 course description.

BUDP 291 AUTOMATED SYSTEMS (3)
Students analyze actual business applications and convert them to a computerized system, gaining an in-depth knowledge of systems-design procedures and an appreciation of the intricacies and detail involved in designing a complete system. Prerequisite: BUDP 131 or consent of instructor. (Spring.)

General Business

(School of Business)

BUGB 101 INTRODUCTION TO BUSINESS (3)
How the American bnsiness system operates and its place and role in the economy. American business-system survey with emphasis on business functions and interrelations between the businessman and his environment. Required of freshman Management majors. (Fall, Spring.)

BUGB 135 SALESMANSHIP (3)
The salesperson is viewed as a counselor whose role is to help buyers make better decisions, and professional salesmanship is recognized as an integral function in modern society. Basic sales techniques are studied and practiced in sales presentations. (Fall.)

BUGB 141 BUSINESS MATHEMATICS (3)
Begins with a fundamental review of whole numbers, decimals and fractions. Emphasis is placed on percentage applications to solving various business problems in the areas of buying and selling merchandise; inventory computations; interest computations on notes and savings; consumer credit and installment computations; home mortgage loans; business depreciation computations; and tax and payroll computations. Electronic calculators are utilized in solving problems. Not for baccalaureate-degree students. (Fall, Spring.)

BUGB 211 BUSINESS COMMUNICATIONS (3)
Development of creative, logical, and critical thinking applied to the preparation and planning of written and oral communications in the business organization. Attention is given to the process of applying for employment. Prerequisite: ENGL 111. (Fall, Spring.)

BUGB 221 INSURANCE (3)
A study of the common types of protection offered by insurance, including fire, theft, comprehensive, life, automobile, accident, and health. Emphasis will be on the application of insurance to individuals and small business firms. (Spring.)

BUGB 241 INCOME TAX (3)
Covers the following areas of personal income tax: filling out personal tax returns, exemptions, determining taxable income, adjustments to gross income, itemized deductions, rental income, depreciation, capital gains and losses. Not for Accounting majors. (Spring.)

BUGB 249 PERSONAL FINANCE (3)
Managing personal finances, including: income, personal budgeting, taxes, securing loans, consumer credit, insurance, buying a home, introduction to investment. (Spring.)

BUGB 251 BUSINESS LAW I (3)
Covers contracts (formation, requirements, interpretation, discharge, and enforcement); agency law; other contracting parties. Includes analysis of the concepts of real and personal property and an introduction to the partnership form of ownership. (Fall.)

BUGB 252 BUSINESS LAW II (3)
Explores the corporate form of ownership as artificial persons doing business, and introduces the Uniform Commercial Code as the primary law covering: sales (terms of sales contracts, product liability, performance and breach); commercial paper (instruments used as a monetary substitute, such as checks, drafts, and promissory notes); credit (security interests in real and personal property). Prerequisite: BUGB 251. (Spring.)

Job-Entry Training

(School of Business)

NOTE: All BUJT courses are restricted to students enrolled in the Job-Entry Training Program. Any exception must be approved by the Job-Entry Training professor.

BUJT 11 GREGG SHORTHAND AND STENOSCRIPT (3)
Beginning theory to advanced shorthand is programmed in both methods. Kits with theory workbooks, tapes, and records are available for practice at home and school. Student may cover the equivalent of a year of college shorthand. Transcription skills are taught. Goal: 80 wpm. The student may select either Gregg Shorthand or Stenoscript. (Fall, Spring, Summer.)

BUJT 21 BOOKKEEPING (3)
Clerical record-keeping: Sales slips, invoices, simple routine office tasks are studied as an introduction to bookkeeping. Bookkeeping: Twenty-six chapters in double-entry bookkeeping help the student learn basic procedures in payroll accounts, taxes, and financial reports. Workbook materials, special problems, and supplementary projects are used. (Fall, Spring, Summer.)

BUJT 31 BUSINESS MATHEMATICS AND OFFICE MACHINES (3)
Includes basic mathematics, as needed, and opportunity to develop mathematics and machine skills on the 10-key adding machine and electronic calculator. Reviews fractions, decimals, interest, percentage, mark-up and other business applications. Tests must be passed covering basic computations on the machines. Additional materials are available for the development of speed. (Fall, Spring, Summer.)

BUJT 41 BUSINESS ENGLISH
A comprehensive review of functional grammar and punctuation, followed by work in various types of business communications such as employment letters, sales letters, or social business letters. Emphasis is placed on mailable copy for written work and on following instructions for all work. (Fall, Spring, Summer.)

BUJT 51 TYPEWRITING (3)
The student may cover the equivalent of a year of college typewriting. Gregg-programmed texts, keyboard learning tapes, skill development materials, centering, tabulation, letter forms, business forms, reports, manuscripts, medical forms, composing and answering business letters, workbooks, self tests and related office problems are taught and practiced. Duplicating machines and transcribing machines are used in the instruction program. Goal: 50 words per minute. (Fall, Spring, Summer.)

BUJT 81 WORD STUDY (3)
This course combines spelling and vocabulary-building. It also allows opportunity to combine knowledge acquired in Business English and Word Study in an office-practice setting. (Fall, Spring.)

BUJT 71 SPEECH (3)

Directed toward giving the student confidence in dealing with people in an office. Job interviews, telephone manners, receptionist techniques, and short speeches before the classroom are techniques employed. (Summer.)

BUJT 81 PERSONAL DEVELOPMENT AND FILING (2)

Includes instruction in human relations, personal development, clothing for offices, hair care, hygiene, and basic rules accepted in most businesses. Actual practice in filing. (Arr.)

BUJT 91 OFFICE PROCEDURES AND WORK EXPERIENCE (Arr.)

Course covers basic techniques of finding, applying for, and securing a job; how to get along with people; improving typing skills; working with office forms and supplies (qualities of paper, carbon, etc.); knowledge of postal and shipping services; handling mail; telephone techniques; communication equipment available for modern office use; how to handle banking and credit services; financial transaction; and mechanizing office operations. Helps the student understand the modern office. Selected students are given an opportunity to receive actual work experience while in training. Job assignments, many on campus, depend on student's ability and positions available. (Arr.)

Management

(School of Business)

BUMA 121 HUMAN RELATIONS IN BUSINESS (3)

Explores the human side of organizations: morale, motivation, human needs, minorities as working partners, leadership styles, organizational environment and other human forces having an impact on business structures. (Fall, Spring.)

BUMA 201 PRINCIPLES OF MANAGEMENT (3)

An in-depth study of management as the process of achieving organizational goals or objectives by and through others. Emphasis will be placed on the functions performed by managers and how they are influenced by forces both within and outside the organization. Managers' use of resources will be investigated. Required of all Management majors. (Fall, Spring.)

BUMA 221 SUPERVISORY CONCEPTS AND PRACTICES (3)

Designed for practicing or potential supervisors and managers who hold or will hold first-line to middle-level management positions. Focuses on the management functions of planning, organizing, staffing, directing, and controlling and their relation to the daily job of the supervisor. (Spring.)

BUMA 231 PRINCIPLES OF MARKETING (3)

The use and development of marketing strategy and the effects of buyer motivation are the overall theme as the major functions of marketing are explored: buying, selling, distribution, pricing, advertising and storage. Also a contrast is made between the two marketing institutions, wholesaling and retailing. Required of all Management majors. (Fall.)

BUMA 232 ADVERTISING (3)

An introductory course in modern advertising principles, including a study of advertising practices, terminology, the communication process, advertising agencies, media, and methods. The course looks at advertising from the business viewpoint but also emphasizes its importance to the consumer and the economy. (Spring.)

BUMA 264, 265 RELATED WORK EXPERIENCE (1, 2)

See BUAC 264, 265 course description.

BUMA 301 ORGANIZATION THEORY (3)

Study of essential elements necessary to any business' organizational structure from the point of view of both management theory and practice. Case studies of business organizations are included. Prerequisite: BUMA 201 or consent of instructor. (Fall.)

BUMA 302 PROBLEMS IN SMALL BUSINESS OPERATIONS (3)

Analysis of managerial problems of the small business. Case studies, outside speakers, and individual reports of local small business enterprises supplement class discussions. Students must have an understanding of elementary accounting, finance, and business law, or have experience in small business operation. Prerequisites: BUMA 201, BUMA 231 and three hours of BUAC courses beyond 202. Required of all Management majors. (Spring.)

BUMA 332 ADVANCED MARKETING (3)

An in-depth study of the complex marketing problems which confront modern business and the development of marketing strategy which will allow the firm to progress toward its corporate objectives. Prerequisite: BUMA 231. (Fall.)

BUMA 333 MARKETING RESEARCH (3)

A study of marketing research theory and techniques. Specific objectives are to educate the student in the use of the scientific method, to develop the student's analytical ability, to familiarize the student with basic marketing research tools, and to develop the student's proficiency in the art of writing research reports. Cases and actual research projects will be utilized. Prerequisites: BUMA 332, STAT 214. (Spring.)

BUMA 339 MANAGERIAL FINANCE (3)

Acquisition, allocation, and management of funds within the business enterprise. Financial goals, funds flows, capital budgeting, and financing strategies. Prerequisites: BUAC 201, MATH 121, STAT 214. Required of all Management majors. (Fall.)

BUMA 351 PREPARING FOR JOB PLACEMENT (3)

A study of the principles and techniques involved in a successful job search. Emphasis is placed on conducting a career research, identification of goals, preparing a successful job campaign and elements of a successful job interview. The student prepares a job kit including a prospect list, resume, cover letter, advertisements, prospect letters, and sales and follow-up letters which can be used in a job search. Prerequisite: junior or senior standing or permission of the instructor. (Fall.)

BUMA 361, 362 INDEPENDENT STUDY IN MANAGEMENT (1, 2)

An opportunity for a student with a previously developed interest in and knowledge of a specialized subject to continue his work. Students must apply for this course through their advisers at least three weeks prior to the end of the semester preceding the semester in which they wish to take the Independent Study. Only students who have completed 12 credit hours of work in the field chosen for the study and who have a cumulative grade-point average of 2.75 or higher will be allowed to enroll for credit in this upper-division course. Consent of instructor required. (Fall, Spring.)

BUMA 371 PERSONNEL MANAGEMENT (3)

A study of the effective use of and adaptation to the human resources of an organization through the management of people-related activities. Emphasis will be placed on the interface activities forming the core of personnel management: work, staffing, compensation, appraisal, training and development, organizational maintenance, and unions. Offered even years only. (Spring.)

BUMA 401 ADVANCED PROBLEMS IN SMALL BUSINESS OPERATIONS I (6)

Sponsored by the Mesa College School of Business and the Small Business Administration, a Small Business Institute program enables upper-division business students to furnish management assistance to members of the small business community. The program provides students practical training which supplements academic theory by permitting them to handle problems in a real business environment. Students must apply to the School of Business at least three weeks before the end of the semester preceding the semester in which they wish to participate. Prerequisite: BUMA 302 and/or permission of instructor. Credit not available through competency or challenge. (Fall.)

BUMA 402 ADVANCED PROBLEMS IN SMALL BUSINESS OPERATIONS II (6)

Continuation of Advanced Problems in Small Business Operations I. Prerequisites: Application as in BUMA 401, BUMA 401 and permission of the instructor. (Spring.)

BUMA 421 CREDIT AND COLLECTION MANAGEMENT (3)

The various kinds of consumer and commercial credit are studied in relationship to the management of credit by business firms. The legal aspects of credit extension as well as current legislation are investigated. Provides information and understanding of credit operations of business for both students of business and practicing businessmen. Prerequisites: BUAC 202 and BUMA 201 or permission of instructor. (Spring.)

BUMA 431 QUANTITATIVE DECISION-MAKING (3)

Includes application of inferential statistics to realistic business situations and use of quantitative tools to enhance business decision-making ability. Covers such areas as descriptive statistics for data summarization, probability theory, distributions, estimation, and index numbers. Particular emphasis is given to hypothesis testing. Analysis of variance, regression/correlation analysis, and time-series analysis. Introduction to operations research and linear programming. Prerequisites: MATH 121, STAT 214. (Spring.)

BUMA 439 PROBLEMS IN MANAGERIAL FINANCE (3)

Case studies and readings in financial management involving concepts, practices, and techniques introduced and developed in BUMA 339. Prerequisite: BUMA 339. (Fall.)

BUMA 451 MANAGEMENT INTERNSHIP (15)

An opportunity for the student to learn more about management functions and activities through an exposure to actual business or agency environment. Students observe and participate in management activities which enable them to relate classroom theory to on-the-job experiences. Students must apply for this course at least five weeks prior to the end of the semester preceding the semester in which they wish to take the course. Credit not available through competency or challenge. Prerequisites: Management major and permission of the instructor. (Fall, Spring.)

BUMA 464, 465 RELATED WORK EXPERIENCE (1, 2)

See BUAC 264, 265, 464, 465 course descriptions.

BUMA 471 PRODUCTION MANAGEMENT (3)

Use of resources in producing goods and services. Concepts of planning, scheduling, and controlling productive activities and physical resources. Prerequisites: BUMA 301 and 339. Offered odd years only. (Spring.)

BUMA 491 BUSINESS POLICIES AND MANAGEMENT (3)

Duties and responsibilities of top management in establishing policies, objectives and future plans for business organizations. Study of complex cases and actual experience in real situations involving policy decisions. Required of all Management majors during the last semester of the senior year. Prerequisites: All required management and accounting courses. (Spring.)

Office Administration

(School of Business)

BUOA 101 SECRETARIAL ACCOUNTING (3)

For persons required to keep accounting records in a legal, medical, or other professional office or for those who will work in the accounting department of a small retail firm. Includes fundamental accounting principles from opening a set of books through the closing process. This one-semester course is not advised for those who plan to take Principles of Accounting. No credit allowed if credit already established in Principles of Accounting. (Fall, Spring.)

BUOA 111 BEGINNING SHORTHAND (3)

For students with no previous knowledge of Gregg shorthand. A presentation of the theory of Gregg shorthand with a limited amount of dictation given at rates of 40 to 60 words per minute. No credit will be given if student has high school credit in Gregg shorthand. (Fall.)

BUOA 112 INTERMEDIATE SHORTHAND (3)

Review of principles of shorthand, application of office standards for mailable transcripts, dictation at rate of 70 to 90 words a minute and transcription at the rate of 20 to 35 words a minute. Prerequisite: one semester of shorthand theory or the equivalent plus BUOA 152, concurrent enrollment in BUOA 152, or permission of the instructor. (Fall, Spring.)

BUOA 151 BEGINNING TYPEWRITING (3)

For students with no previous training in typing. No credit will be given if student has received one year of high school credit. Introduction to the keyboard and parts of the machine and development of minimum skill. Instruction and practice on simple business letters, tabulation and manuscripts. (Fall.)

BUOA 152 INTERMEDIATE TYPEWRITING (3)

Emphasis on typing mailable letters, manuscripts, and business forms. Development of speed required in the average office. Prerequisite: BUOA 151 or one year of high school typing or equivalent. (Fall, Spring.)

BUOA 201 OFFICE MANAGEMENT (3)

Functions of the office and office organization; work in the office, office layout, equipment, supplies and forms, personnel problems, costs and control of office work. Methods of recognizing and solving office communication problems; awareness of successful human relations; changing technologies and philosophies of business; technical terminology used in business. (Spring.)

BUOA 211 ADVANCED SHORTHAND (3)

A dictation speed of 100 to 120 words a minute is the goal, with emphasis on mailable transcripts. Prerequisite: BUOA 112 or permission of instructor. (Spring.)

BUOA 221 TRANSCRIPTION MACHINES (3)

Fundamental skills on various types of dictation and transcription machines. Emphasis is placed on machine operation and speed and accuracy of transcription on the typewriter. Prerequisites: One year of high school typing, BUOA 152, or concurrent enrollment in BUOA 152. (Fall, Spring.)

BUOA 231 MEDICAL TRANSCRIPTION (4)

Helps develop competency with transcribing machines through use of medical correspondence and professional records. Prerequisites: BUOA 152, concurrent enrollment in BUOA 152 or permission of instructor, and HLTH 147 (Medical Terminology) or equivalent. Individualized course. (Spring.)

BUOA 244 LEGAL PROCEDURES I (3)

Helps prepare student for work as secretary in a law office through study of American court systems, branches of civil and criminal law, and secretarial procedures relating to ethical behavior and office-management techniques. Includes practice in preparing legal forms and documents with emphasis on speed, accuracy, and mailability, along with procedures to help develop confidence and poise necessary in a professional office. Prerequisites: Shorthand and typing proficiency and permission of instructor. (Fall.)

BUOA 245 LEGAL PROCEDURES II (3)

Continuation of BUOA 244, which is a prerequisite. (Spring.)

BUOA 251 ADVANCED TYPEWRITING (3)

Skill development for rapid, mailable production of all typing jobs encountered in the business office. Prerequisite: BUOA 152. (Spring)

BUOA 281, 282 INDEPENDENT STUDY IN SECRETARIAL SCIENCE (1, 2)

Students must apply for this course through their adviser at least three weeks prior to the end of the semester preceding the semester in which they wish to take Independent Study. Only students who have completed nine credit hours of work in the field chosen for Independent Study and who have a cumulative grade-point average of 2.5 or higher will be allowed to enroll for credit in this course. Consent of instructor required in all cases. (Arr.)

BUOA 285 ELECTRONIC WORD PROCESSING (3)

An introduction to electronic typing equipment. Basic proficiency in recording, editing, and storing documents. Provides an understanding of the utilization of such equipment in business and stresses the terminology unique to word processing. Consists of both classroom and laboratory instruction. Prerequisite: BUOA 152 or permission of instructor. (Fall, Spring.)

BUOA 271 OFFICE SIMULATION (3)

The interrelationship of typing, shorthand, transcription, office machines and filing skills in the office environment. Concepts of personal development, interpersonal relations, and business ethics are also emphasized. Prerequisites: BUOA 112 and 152. (Spring.)

BUOA 281 SECRETARIAL CO-OP (8)

On-the-training for a minimum of 20 hours a week at an approved work station in the business community. Job placement is on the basis of the student's program of study and employment goals. Prerequisite: Sophomore status and/or approval of instructor. (Fall, Spring.)

BUOA 282 SECRETARIAL CO-OP (15)

On-the-job training for a minimum of 40 hours a week at an approved work station in the business community. Job placement is on the basis of the student's program of study and employment goals. Prerequisites: Sophomore status and approval of the instructor. (Fall, Spring.)

BUOA 285, 286 RELATED WORK EXPERIENCE (1, 2)

See BUAC 264, 265 course description.

Travel, Recreation, and Hospitality Management

(School of Business)

BUTR 101 TRAVEL INDUSTRY I (5)

An introductory course in tourism and its relationship to the business world. Provides an overview of all sectors of business and the components of the travel, tourism, and hospitality industry. Travel methods, destination resorts, and other businesses which serve the traveler are evaluated. A requirement for all Travel, Recreation, and Hospitality Management majors. (Fall.)

BUTR 102 TRAVEL INDUSTRY II (5)

A continuation of BUTR 101. Includes evaluation of job opportunities in the travel, recreation, and hospitality fields. Travel trends, feasibility studies, and marketing techniques are analyzed. Students are provided an opportunity to make preparations and acquire skill instructions for work in the student's career objective. Field trips and visiting lecturers are included in the course. Prerequisite: BUTR 101. (Spring.)

BUTR 201 MANAGEMENT IN THE TRAVEL INDUSTRY I (3)

Provides an opportunity for the student to explore operating techniques and problems of the major industries involved in tourism, travel, and hospitality through the eyes of the operating manager. Specific skills used within the various industries are developed. Prerequisite: BUTR 102. (Fall.)

BUTR 202 MANAGEMENT IN THE TRAVEL INDUSTRY II (3)
Continuation of BUTR 201, which is a prerequisite. (Spring.)

BUTR 251 WORK EXPERIENCE (15)
Combines classroom studies with salaried work in an experience which relates to the student's career goal. Normally offered in summer only. For Travel, Recreation, and Hospitality majors only. Credit not available through competency or challenge. Prerequisite: BUTR 202. (ATT.)

BUTR 261, 262 INDEPENDENT STUDY IN TRAVEL, RECREATION, AND HOSPITALITY MANAGEMENT (1, 2)
Students must apply for this course through their adviser at least three weeks prior to the end of the semester preceding the semester in which they wish to take Independent Study. Only students who have completed nine credit hours of work in the field chosen for Independent Study and who have a cumulative grade-point average of 2.5 or higher will be allowed to enroll for credit in this course. Consent of instructor required. (Fall, Spring.)

BUTR 264, 265 RELATED WORK EXPERIENCE (1, 2)
See BUAC 264, 265 course description.

Chemistry

(School of Natural Sciences and Mathematics)

CHEM 121 GENERAL CHEMISTRY (4)
A lecture course in fundamental principles of chemistry and their application. Includes atomic structure, bonding, periodic law, gas laws, mass relationships, solution theory, oxidation-reduction, electrochemistry, and ionic equilibrium. Designed for students in liberal arts, nursing, homemaking, and agriculture. Prerequisite: high school algebra or satisfactory entrance examination scores. Four lectures per week. (CHEM 121 usually offered also in Summer Session.)

CHEM 121L GENERAL CHEMISTRY LABORATORY (1)
Laboratory work designed to acquaint the student with procedures and techniques of basic chemistry. Work involves measurement and observation of physical properties and chemical changes. One three-hour session per week. (CHEM 121L usually offered also in Summer Session.)

CHEM 122 INTRODUCTORY ORGANIC CHEMISTRY (4)
A lecture course in fundamental principles of organic chemistry. Included are nomenclature and chemical and physical properties of selected classes of compounds. Carbonium ion and acid-base theories are introduced. Intended to be a continuation of CHEM 121. Four lectures per week. Prerequisite: CHEM 121 or CHEM 131.

CHEM 122L INTRODUCTORY ORGANIC CHEMISTRY LABORATORY (1)
Laboratory work designed to acquaint the student with several fundamental organic laboratory procedures, properties of selected classes of compounds, and some of the methods of preparative organic chemistry. One three-hour session per week.

CHEM 131, 132 GENERAL INORGANIC CHEMISTRY (4, 4)
A lecture course in fundamental principles of general inorganic chemistry. Included are atomic structure, bonding, periodic law, kinetic theory, gas laws, stoichiometry, solution theory, oxidation-reduction, electrochemistry. Ionic equilibrium in solution is emphasized. Intended for students of chemistry, engineering, pre-medicine, pre-veterinary medicine, and other sciences. Corequisite: MATH 113. Prerequisites: high school chemistry and satisfactory ACT scores or CHEM 121. Four lectures per week.

CHEM 131L, 132L GENERAL INORGANIC CHEMISTRY LABORATORY (1, 1)
Experiments in descriptive chemistry, gas laws, equilibrium, electrochemistry, and inorganic qualitative analysis. One three-hour session per week.

CHEM 151 ENGINEERING CHEMISTRY (4)

Selected fundamentals of chemistry. Included are stoichiometry, periodic law, chemical bonding, gas laws, thermodynamics, equilibrium, oxidation and reduction, and electrochemistry. Not recommended for non-engineering students or chemical engineering students. Corequisites: MATH 113 or higher mathematics course. Prerequisites: high school chemistry and satisfactory ACT scores or CHEM 121. Four lectures per week.

CHEM 151L ENGINEERING CHEMISTRY LABORATORY (1)

Experiments in descriptive chemistry, gas laws, equilibrium, electrochemistry, and inorganic qualitative analysis. One three-hour session per week.

CHEM 201 LIFE SCIENCE ORGANIC CHEMISTRY (4)

A lecture course on the chemical and physical properties of the major classes of organic compounds. Nomenclature, structure, stereoisomerism, and reactions are stressed. Particular emphasis is placed on biological applications. Prerequisite: CHEM 132 or consent of instructor. Four lectures per week.

CHEM 201L LIFE SCIENCE ORGANIC CHEMISTRY LABORATORY (1)

Laboratory work providing experience with fundamental techniques as well as with reactions and properties of organic compounds. Selected synthetic and analytical methods are introduced. Particular emphasis is placed on life science applications. One three-hour session per week.

CHEM 202 BIOCHEMISTRY (4)

A lecture course on metabolism in its broadest sense and the parts played in it by carbohydrates, lipids, proteins, and enzymes. Prerequisites: CHEM 132 and CHEM 201 or CHEM 212. Four lectures per week.

CHEM 202L BIOCHEMISTRY LABORATORY (1)

Laboratory work providing experience with fundamental biochemical techniques as well as with enzymatic reactions and some reactions of carbohydrates, lipids, and proteins. One three-hour session per week.

CHEM 211, 212 ORGANIC CHEMISTRY (3, 3)

A lecture course on the chemical and physical properties of the major classes of organic compounds. Mechanistic, stereochemical, acid-base, and related theories are used throughout to relate types of reactions and unify the study. Prerequisite: CHEM 132 or consent of instructor. Three lectures per week.

CHEM 211L, 212L ORGANIC CHEMISTRY LABORATORY (2, 2)

Laboratory work providing experience with fundamental techniques as well as with reactions and syntheses of many classes of compounds. Classical qualitative analysis is introduced. Some experience with methods used to establish theoretical principles is also obtained. Two three-hour sessions per week.

CHEM 221 INSTRUMENTAL METHODS OF ANALYSIS (1)

A lecture course in fundamental principles of instrumental analysis. Prerequisite: CHEM 132 or consent of instructor. One lecture per week. Not offered every year.

CHEM 221L INSTRUMENTAL METHODS OF ANALYSIS LABORATORY (2)

Laboratory work providing experience in instrumental analytical methods. Because of the instruments available emphasis is on inorganic analyses by spectroscopic methods. Two three-hour sessions per week. Not offered every year.

CHEM 248 INDEPENDENT STUDY IN CHEMISTRY (1)

A course in which a student with a previously developed interest in and knowledge of a specialized subject can continue his or her work. It is expected that most such work will be original; however, studies of a non-original nature but not in the established curriculum will also satisfy the requirements of this course. Prerequisite: consent of instructor. Work schedule by arrangement.

CHEM 249 INDEPENDENT STUDY IN CHEMISTRY (2)
See Independent Study course description under CHEM 248.

Computer Science

(School of Natural Sciences and Mathematics)

CSCI 100 COMPUTERS IN OUR SOCIETY (3)
An introduction to the organization of computer systems. Study of the techniques and applications of computing in non-technical disciplines. Application of computational techniques to problems in such fields as art, education, economics, political science, literature, archaeology, history and medicine. Discussion of the role of the computer in society. Emphasis is upon recognizing and understanding both the power and limitations of the computer in various fields. Topics will include physical and logical aspects of computing; flowcharting and programming in high-level languages; data bases and information retrieval; numerical and nonnumerical computation; simulation. Three lectures per week.

CSCI 111 INTRODUCTION TO COMPUTING (3)
History of computers, descriptions of a typical computer, computer elements and symbolism, computer control and data flow, peripheral components, memory devices, problem-solving using a programming language. Three lectures per week.

CSCI 131 INTRODUCTION TO FORTRAN PROGRAMMING (3)
Various mathematics, science and engineering problems are put in FORTRAN language and then run on the high-speed computer. Problems using function subprograms; external statements; transferring data to and from tape; name-list statements; computer solution of engineering problems. Prerequisite: MATH 113 or equivalent. Three lectures per week.

CSCI 131L INTRODUCTION TO FORTRAN PROGRAMMING LABORATORY (1)
Various FORTRAN programs are run on the high-speed computer. Laboratory work consists of running and debugging them. It also includes operating the console, printer, and reader as well as using the disk and tape drives connected with the computer. Prerequisite: MATH 113. Two one-hour sessions per week.

CSCI 132 INTRODUCTION TO PL/I PROGRAMMING (3)
An introduction to PL/I and the concepts of structured programming. Various programming topics and techniques such as character manipulation, arrays, modular programming, searching and sorting techniques, files and records, data structures. Prerequisite: CSCI 131 or ENGR 114. Three lectures per week.

CSCI 132L INTRODUCTION TO PL/I PROGRAMMING LABORATORY (1)
Various PL/I programs are run on the high-speed computer. Work consists of running and debugging them. It also includes operating the console, printer, and reader as well as using the disk and tape drives connected with the computer. Corequisite: CSCI 230. Prerequisite: CSCI 131. Two one-hour sessions per week.

CSCI 135 COBOL PROGRAMMING (3)
See the BUDP 131 course description. Computer science students normally enroll in BUDP 131 but are offered this course upon demand when BUDP is not being taught. Three lectures per week.

CSCI 230 ASSEMBLY LANGUAGE PROGRAMMING (3)
Computer structure and machine language; addressing techniques; digital representation of data; symbolic coding and assembly systems; selected programming techniques. Prerequisite: At least one high-level language or consent of instructor. Three lectures per week.

CSCI 230L ASSEMBLY LANGUAGE PROGRAMMING LABORATORY (1)

Various Assembly Language programs are run on the high-speed computer. Work consists of running and debugging them. It also includes operating the console, printer, and reader as well as using the disk and tape drives connected with the computer. Corequisite: CSCI 132. Two one-hour sessions per week.

CSCI 240 COMPUTER ARCHITECTURE (4)

A survey of computer architectures, memory structures and addressing, arithmetic schemes, data channels, order codes, microprogramming, and multiprocessors. Prerequisite: CSCI 230. ENGR 251 recommended. Four lectures and one one-hour laboratory session per week.

CSCI 250 INFORMATION STRUCTURES (3)

A study of information representations and relationships between forms of representations and processing techniques. Transformation between storage media; referencing of information as related to the structure of its representation. Concepts of arrays, records, files, trees, list and list structure, sorting and search techniques. Corequisite: CSCI 230. Three lectures per week.

CSCI 330 PROGRAMMING LANGUAGES (3)

Algorithmic languages, declarations, storage allocation, subroutines, coroutines and tasks. Principles and concepts which characterize various classes of high-level computer-programming languages. List-processing language development and use. Analysis of strengths and weakness of list processors: SNOBOL, IPL-V, LISP, etc. Prerequisites: CSCI 111, 230, 250. Three lectures per week.

CSCI 341 ANALOG AND DIGITAL COMPUTER ELECTRONICS (3)

Basic elements and technologies used to fabricate analog and digital computers; laboratory experience in constructing simple computer subsystems. Theory and application of hybrid computers. Prerequisite: MATH 260. Three lectures per week.

CSCI 361 NUMERICAL ANALYSIS (4)

Elementary numerical analysis using the high-speed computer. Taylor's theorem, truncating errors, iteration processes, least square methods, numerical solution of algebraic and transcendental equations, systems of equations, ordinary and partial differential equations and integral equations, interpolation, finite differences, eigenvalue problems, relaxation techniques, approximations and error analysis. Prerequisite: ENGR 114 and MATH 270. Four lectures per week.

CSCI 373 COMPUTER SOFTWARE SYSTEMS (3)

Assembly systems, macros, I/O programming, executive systems, protection techniques, generation and maintenance, priority and scheduling techniques for batch-processing. Prerequisite: CSCI 230. Three lectures per week.

CSCI 380 OPERATIONS RESEARCH (3)

Methods of linear and dynamic programming; inventory and replacement models; queuing theory; game theory; PERT and CPM and simulation. Prerequisites: MATH 152, STAT 200, CSCI 131. Three lectures per week.

CSCI 450 COMPILER STRUCTURE (3)

A review of major problem-oriented languages; bootstrapping techniques and metacompilers; languages for compiler writing, storage allocation and mapping, dynamic allocations, scanners, code emitters, one pass and multi-pass systems, code optimization. Prerequisites: CSCI 330, 373. Three lectures per week.

CSCI 460 DATA BASE DESIGN (3)

An introduction to the design and implementation of data base systems. The network, hierarchial, and relational approaches to design will be discussed. Also, the problems of security and integrity will be described. Prerequisite: CSCI 230. Three lectures per week.

CSCI 470 OPERATING SYSTEMS DESIGN (3)
Aspects of computer operating system design and implementation including memory management, processor management, device management, information management. Performance evaluation methods. Prerequisite: CSCI 370. Three lectures per week.

CSCI 491, 492 INDEPENDENT STUDY (1, 2)
Provides the student a means to pursue an area of interest which is not in the normal curriculum. The assistance and direction of a department faculty member and the consent of the instructor are requisites.

CSCI 495, 496, 497 SEMINAR (1, 1, 1)
Seminars conducted by faculty, students and visiting professors. A total of fifteen hours needed for one seminar credit.

Dental Assisting and Expanded Duty

(School of Nursing and Allied Health)

DENT 110 ORIENTATION TO DENTISTRY (2)
An introduction to the dental health team, including the specialties. The study of the history of dentistry and the organization and function of the professional organizations of the ADA and the ADAA. Emphasis on ethics, professionalism, and communication.

DENT 112 DENTAL SCIENCE I (3)
Study of tooth anatomy and surrounding tissues. Identification of individual teeth, descriptions of individual teeth, (externally and internally), occlusion and eruption. Tooth drawings.

DENT 120 DENTAL SCIENCE II (3)
Study of the growth and development of the face and nose, tongue, palate and teeth. Head and neck anatomy includes bones, muscles and nerves. Course includes microbiology and sterilization techniques. Beginning tooth carving.

DENT 122 ORAL PATHOLOGY (3)
An introduction to oral disease, its causes, its process, and its effects.

DENT 130 CHAIRSIDE I (2)
DENT 130L CHAIRSIDE I LAB (1)
Introduction to basic chairside procedures, dental equipment, laboratory procedures, and preventive dentistry. Students will gain knowledge of instruments, tray set-ups and procedures, and basic public relations in dealing with dental patients during reception, operative procedures, and education.

DENT 140 DENTAL MATERIALS I (2)
DENT 140L DENTAL MATERIALS I LAB (1)
Comprehensive study of all materials used in the practice of dentistry. This includes cements, amalgams, impression materials, gypsum compounds, waxes, gold and its alloys, basic metal alloys, plastics for prosthetic applications, porcelain, direct anterior esthetic materials, and sealants.

DENT 150 RADIOLOGY I (2)
DENT 150L RADIOLOGY I LAB (1)
The history, basic principles of radiation, biological effects of radiation, radiation protection, basic intra-oral techniques, film-processing techniques, normal anatomical landmarks, and mounting and storage of processed films.

DENT 160 CHAIRSIDE II (2)
DENT 160L CHAIRSIDE II LAB (1)
Clinical experience in community offices and clinics augmented by classroom instruction in dental specialties—armetarium and procedures for each—and advanced chairside procedures.

DENT 170 DENTAL MATERIALS II (1)
DENT 170L DENTAL MATERIALS II LAB (1)

Application of dental restorative materials and laboratory techniques. Placement of temporary restorations, bases, and liners. Also fabrication of custom trays, temporary bridges, and temporary crowns.

DENT 180 RADIOLOGY II (1)
DENT 180L RADIOLOGY II LAB (1)

Introduction to extra-oral radiographs, continued laboratory and clinical experience in exposing intra-oral films, as well as introduction to abnormal anatomical landmarks and pathological findings.

DENT 190 DENTAL OFFICE PROCEDURES (2)
DENT 190L DENTAL OFFICE PROCEDURES LAB (1)

This course is designed to give the student sufficient knowledge to maintain appointment control and recall system, place and receive telephone calls, record financial transactions, maintain a bookkeeping system (pegboard, computer), complete insurance forms, and maintain a supply inventory.

DENT 200 INTRODUCTION TO EXPANDED-DUTY DENTAL ASSISTANT (2)
DENT 200L INTRODUCTION TO EXPANDED-DUTY DENTAL ASSISTANT LAB (1)

Advanced study of Odontography (external features, descriptions of individual teeth), including carving individual teeth. Course will include a review of concepts of occlusion and restorative materials.

DENT 210 EXPANDED-DUTY DENTAL ASSISTANT (4)
DENT 210L EXPANDED-DUTY DENTAL ASSISTANT LAB (5)

Review of tooth morphology and occlusion and restorative materials. Clinical practice in placement, carving, and finishing composite and amalgam restorations.

Drama and Dance

(School of Humanities and Fine Arts)

DRAM 114 SUMMER THEATRE (3)

Introduces the student to a professional summer theatre experience. The student is expected to participate in all phases of the theatre operation including acting, technical work, directing, box office management, etc. It is advisable for a student enrolled in summer theatre not to enroll in any other class. Four plays are presented in a six-week period.

DRAM 115 PROBLEMS IN MODERN THEATRE (2)

A cultural-enrichment course which involves a tour to a theatrical center such as New York, London, and other cities for the observance of professional productions of dramas, musicals, dance concerts, operas, or other forms of stage entertainment. Papers and discussions are used for evaluation.

DRAM 117, 118 PLAY PRODUCTION (1, 1)

A practical course in stagecraft concerned with the production of plays. The student works in all phases of production. Hours are arranged for the laboratory sessions.

DRAM 121, 122 BEGINNING BALLET (1, 1)

Basic elements of ballet concerned with body control and technique.

DRAM 123, 124 MODERN DANCE (1, 1)

Practical experience with movement technique in modern dance. Problem-solving in shape, force, space, time and relationship.

DRAM 125 BEGINNING TAP DANCE (1)
Basic course in a popular rhythmic American dance form that combines movement and sound.

DRAM 127 BEGINNING MODERN JAZZ (1)
The concept of jazz as a dance form.

DRAM 141 INTRODUCTION TO THEATRE (3)
This course introduces the student to the theatre and the business of play production and audience responsibility. Types of plays, styles of production, and audience critique are all considered. Required of all drama majors.

DRAM 142 MAKE-UP AND COSTUMING (3)
All types of make-up for the stage are studied in this class. Students do straight and character make-up and learn the use of crepe hair, prosthesis, and other materials. The course includes basic outline of costume design, construction and history of costumes.

DRAM 147, 148 DRAMA PERFORMANCE (1, 1)
To receive credit for this course a student must appear in a major production on the campus. The grade will be dependent upon the preparatory work on the play's character and upon the final performance.

DRAM 211 CREATIVE PLAY ACTIVITIES—DANCE (3)
A course in movement designed for students who will be working with children. Emphasis is placed on creative-movement exploration through the Laban theories of body, effort, space, and relationship.

DRAM 213 CREATIVE PLAY ACTIVITIES—DRAMA (3)
The use of creative dramatics in a learning situation. Includes subject matter of interest to anyone in early childhood education, general education, social work, religious education and/or recreation. The State of Colorado requires this course for all elementary education majors.

DRAM 214 SUMMER THEATRE (3)
See DRAM 114.

DRAM 217, 216 PLAY PRODUCTION (1, 1)
See DRAM 117, 118.

DRAM 221 REPERTORY DANCE (1)
Provides opportunity for student to participate in dance productions.

DRAM 222 IMPROVISATION AND COMPOSITION DANCE (1)
Theory and practice in the basic principles of dance composition.

DRAM 235 DEVELOPMENT OF WORLD CINEMA (2)
Through the study of various foreign films, the student is exposed to the development of the cinema as an art, propaganda, and educational media. (Offered alternate years.)

DRAM 236 DEVELOPMENT OF AMERICAN CINEMA (2)
Through the study of various American films, the student is exposed to the development of American cinema as an art, educational, and propaganda media. (Offered alternate years.)

DRAM 243 THEATRE PRACTICE: SCENE CONSTRUCTION, PAINTING, AND DESIGN (3)
Techniques of construction and painting of scenery and properties for the theatre and basic principles of scene design.

DRAM 244 THEATRE PRACTICE: LIGHT AND SOUND (3)
A basic course in the use of light and sound in various stage productions.

DRAM 247, 248 DRAMA PERFORMANCE (1, 1)
See DRAM 147, 148.

DRAM 251 STAGE MOVEMENT (3)
Basic techniques of gesture, mime and pantomime. Emphasis is placed upon developing an awareness of the use of the body as a means of expression.

DRAM 252 BEGINNING ACTING (3)
Improvisation and various acting techniques are used in this study of the fundamentals of acting. Students perform solo, duo, and group scenes. Laboratory work includes student-directed plays. Prerequisite: SPCH 112 or permission of the instructor.

DRAM 314 SUMMER THEATRE (3)
See DRAM 114.

DRAM 315 PROBLEMS IN MODERN THEATRE (2)
See DRAM 115.

DRAM 317, 318 PLAY PRODUCTION (1, 1)
See DRAM 117, 118.

DRAM 321 REPERTORY DANCE (1)
See DRAM 221.

DRAM 324 DANCE PRODUCTIONS (1)
Analysis and practice in the elements of publicity, lighting, costuming, and make-up for dance. Emphasis is placed on the non-traditional forms in dance production.

DRAM 331 HISTORY OF THEATRE (3)
A historical study of the theatre as an institution and its relationship to the other arts and to the social and economic environment. (Offered alternate years.)

DRAM 343 SCENE DESIGN (3)
Gives the student experience in designing scenery for various types of productions.

DRAM 344 STAGE LIGHTING (3)
Advanced training in the design and execution of lighting for the stage.

DRAM 347, 348 DRAMA PERFORMANCE (1, 1)
See DRAM 147, 148.

DRAM 351 DIALECTS IN ACTING (3)
An introduction to the use of dialects in performance. Prerequisite: SPCH 112 or permission of instructor. (Offered alternate years.)

DRAM 352 STYLES IN ACTING (3)
Introduces the student to the various styles of acting used for the Classical, Elizabethan, Romantic, melodrama and realistic periods. (Offered alternate years.)

DRAM 414 SUMMER THEATRE (3)
See DRAM 114.

DRAM 417, 418 PLAY PRODUCTION (1, 1)
See DRAM 117, 118.

DRAM 445, 446 SENIOR PROJECTS IN TECHNICAL THEATRE (3, 3)
Work experience in various aspects of theatre such as scene design and construction, lighting design, sound and/or costume design.

DRAM 447, 448 DRAMA PERFORMANCE (1, 1)
See DRAM 147, 148.

DRAM 451 BEGINNING DIRECTING (3)
As an introduction to the fundamentals of play production, the student directs scenes for projects. To receive credit for this course, the student must also complete DRAM 452. (Offered alternate years.)

DRAM 452 ADVANCED DIRECTING (3)
The student directs and produces a one-act play for public viewing. Prerequisite: DRAM 451 or permission of instructor. (Offered alternate years.)

DRAM 453, 454 INDEPENDENT STUDY (3, 3)
An in-depth study of some phase of theatre chosen by student under the guidance of a staff member of the Drama Department.

DRAM 457 ADVANCED ACTING (3)
A course for the serious acting student. The student presents a recital or program upon completion of the course. Prerequisites: DRAM 351, 352 or permission of instructor.

DRAM 461 EXPERIMENTAL DIRECTING (3)
The student produces and directs a play using experimental methods of staging. Prerequisites: DRAM 451, 452 or permission of instructor.

Early Childhood Education

(School of Social and Behavioral Sciences)

ECED 110 TODDLER CURRICULUM (2)
Includes curriculum for the one- to three-year-old age group. Emphasis on maintaining healthful, safe environment activities to stimulate social, language, intellectual, and motor development.

ECED 111 CURRICULUM IN EARLY CHILDHOOD EDUCATION (3)
A course in the philosophy and theory of preschool education, including laboratory experiences for learning about children and the philosophy, goals, and operation of the nursery school. Students spend time in assigned laboratory and participate in group meetings for discussion and evaluation.

ECED 121 INTRODUCTION TO EARLY CHILDHOOD (2)
To acquaint new students with the field of early childhood, to gain knowledge of the facilities and programs offered for young children, and to observe young children at work and play. The history and philosophy of the child-welfare movement; local, state, and national agencies offering family and child welfare services. Licensing and health regulations for children's centers are considered in this course.

ECED 252 STUDENT TEACHING (5)
Students spend a minimum of three hours per day working in licensed centers under a qualified teacher. Supervised by college instructor with conference periods and evaluation of student's progress.

ECED 258 INDEPENDENT STUDY IN EARLY CHILDHOOD EDUCATION (1)
ECED 259 INDEPENDENT STUDY IN EARLY CHILDHOOD EDUCATION (2)

ECED 260 CHILD-CARE CENTER MANAGEMENT (3)
A study of record-keeping, budgeting, personal relations, and administrative techniques required in the operation of a child-care center.

Economics

(School of Social and Behavioral Sciences)

ECON 201, 202 PRINCIPLES OF ECONOMICS (3, 3)
A survey of basic concepts of economics. Not open to freshmen. Must be taken in sequence.

ECON 301 LABOR-MANAGEMENT RELATIONS (3)
A study of the organized labor movement, employer labor policies, collective bargaining, wages and wage regulation, social insurance, and public labor policy. Prerequisites: ECON 201, 202 or equivalent. Counts as a Management course for Management majors and minors.

ECON 310 MONEY AND BANKING (3)
A study of monetary, credit and banking systems in the United States. Prerequisites: ECON 201, 202 or equivalent. Counts as a Management course for Management majors and minors.

ECON 320 HISTORY OF ECONOMIC IDEAS (3)
The development of economic analysis, thought, theories and doctrines from the ancient world to recent times. Prerequisites: ECON 201, 202 or equivalent.

ECON 351 INDEPENDENT STUDY IN ECONOMICS (1)
ECON 352 INDEPENDENT STUDY IN ECONOMICS (2)
Prerequisites: six hours of economics and permission of the instructor.

ECON 401 GOVERNMENT AND BUSINESS (3)
A study of structure, conduct and performance in relevant markets including competitive and non-competitive behavior in relation to anti-trust activities and federal regulations. Prerequisites: ECON 201, 202 or equivalent. Counts as a Management course for Management majors and minors.

ECON 410 PUBLIC FINANCE (3)
A study of revenue and expenditure policies of governments and their relation to the national economy. Prerequisites: ECON 201, 202 or equivalent. Counts as a Management course for Management majors and minors.

ECON 420 INTERNATIONAL ECONOMICS (3)
An introductory study of international trade theory and policy such as: balance of payments analysis, international investment flows, and the position of the dollar in foreign exchange transaction. Prerequisites: ECON 201, 202 or equivalent.

ECON 431, 432 TOPICS IN NATURAL RESOURCES ECONOMICS (3, 3)
Selected topics relating to the theories, concepts and institutions in natural resource use and economic analysis designs for evaluating alternative resource-use patterns, private and public. Prerequisites: ECON 201, 202 or equivalent.

Education

(School of Social and Behavioral Sciences)

EDUC 121 CHILDREN'S LITERATURE (PRE-SCHOOL, PRIMARY TO THIRD GRADE) (3)
History of children's literature; introduction to authors and illustrators of picture books, stories, and poetry for pre-school and early primary; field project.

EDUC 122 CHILDREN'S LITERATURE (UPPER ELEMENTARY-EARLY ADOLESCENT) (3)
Reading and evaluating classic and contemporary literature for grades 4-6 and 7-9; children's magazines; problems in reading guidance.

EDUC 251 INTRODUCTION TO EDUCATION (3)
Survey of the field of education. Aspects considered: history of American education, philosophies of education, problems in education, the school as a social institution. Required for Education majors.

EDUC 252 INTRODUCTION TO THE CLASSROOM (3)
A basic course for the future educator. Objectives include: role of a teacher; professional methods; school problems; participation in classroom situations; self-understanding; to relate past, present, and future educational experiences. Prerequisite: EDUC 251.

Electronics Technology

(School of Industry and Technology)

ELEC 117 BASIC CIRCUITS I (6)
Basic properties of electricity, resistors, capacitors and inductors; circuit analysis of DC and AC circuits containing resistors, capacitors and inductors. Taken in conjunction with ETEC 101.

ELEC 118 BASIC CIRCUITS II (6)
Continuation of Basic Circuits I with further emphasis on basic tube and solid-state amplifiers.

ELEC 121, 122 RADIO AND TELEVISION FUNDAMENTALS (2)
Basic principles and repair of radio and television.

ELEC 251 PULSE and VIDEO CIRCUITS I (3)
Electronic circuits dealing with pulse and video circuits designed to produce non-sinusoidal waveshapes to include analysis of multivibrators, blocking oscillators and sweep generator circuits.

ELEC 252 PULSE AND VIDEO CIRCUITS II (3)
Continuation of ELEC 117 with emphasis on the analysis of pulse-shaping circuits as applies to television and radar.

ELEC 253 BASIC CIRCUITS III (4)
Continuation of ELEC 118 with emphasis on solid state circuit analysis to include design and troubleshooting.

ELEC 254 INDUSTRIAL ELECTRONICS (2)
Fundamental building blocks in industrial electronics technology including rectifiers and their control systems, relays and other control devices, electronic supplies, and waveshaping circuits. Prerequisite: ELEC 117, 118 or the consent of the instructor.

ELEC 255 MOTORS, GENERATORS, AND CONTROLS (4)
Basic motor and generator action with control circuits and preventive maintenance.

ELEC 256 COMMUNICATIONS THEORY I (3)
Amplitude and frequency modulation, to include radio frequency oscillators, power amplifiers, modulators, antennas, and radio-frequency measurements.

ELEC 257 COMMUNICATIONS THEORY II (3)
Continuation of ELEC 256.

ELEC 258 HYDRAULICS AND PNEUMATICS (4)
Provides experiences pertaining to the transmission of energy through hydraulics and pneumatics which include a study of valves, cylinders, pumps, and simple hook-up.

ELEC 259 ULTRA HIGH FREQUENCIES AND MICROWAVES (3)
Wave guides, cavities, line sections; UHF oscillators, klystrons, magnetrons and traveling-wave tubes; microwave antennas; principles of radar and microwave systems.

ELEC 260 FUNDAMENTALS OF DIESEL ENGINES (6)
Introduction diesel engine design, its application, advantages and differing sizes and types. Emphasis on principle, terms, application, intake and exhaust systems, and governors.

ELEC 261 CALIBRATION AND MAINTENANCE OF TEST EQUIPMENT (3)
Basic theory and principles of the construction and operation of instruments most often used by industry. Emphasis is placed on the standardization, calibration and maintenance of the test instruments.

ELEC 265 DIGITAL ELECTRONICS (4)
Digital circuits and their applications in digital computers and instruments to include Boolean algebra, design of digital circuits from truth tables and the properties of different logic families.

ELEC 266 MICROPROCESSORS (3)
An overview of microprocessor systems, design, programming, and applications.

Electric Lineman

(School of Industry and Technology)

ELIN 111 APPLIED MATHEMATICS (5)
A basic review of arithmetic plus ratios, percentages and problems in electrical mathematics as encountered by linemen.

ELIN 120 FUNDAMENTALS OF ELECTRICITY (5)
A study of how electricity is produced; current magnetic fields; measuring devices; circuits; AC circuits; capacitors; generators; current; voltages.

ELIN 131 ELECTRICAL DISTRIBUTION THEORY I (4)
Electrical systems, nomenclature of equipment, pole-setting and framing, hardware, tools and riggings, stress and strain, splicing, energizing lines, protective grounding conductors and connections.

ELIN 132 ELECTRICAL DISTRIBUTION THEORY II (4)
Protective devices, voltage-regulation inspection and testing, preventive maintenance, hot-line tools, capacitor installation.

ELIN 136 RELATED FUNDAMENTALS I (4)
First aid, safety code, operation of line trucks, record-keeping, electric test meters, transformers, national electric safety code.

ELIN 137 RELATED FUNDAMENTALS II (4)
First aid, voltmeters and ammeters, lighting, human relations, watt-hour meters, blasting.

ELIN 140 UNDERGROUND PROCEDURES (5)
Terminology, installation, protective equipment switching procedures, maintenance and inspection.

ELIN 145 HOT LINE PROCEDURES (2)
Each student participates in 40 contact hours of overhead and underground hotline procedures. Training includes actual job experience in an outdoor school laboratory, enabling student to perform work required by the electrical industry.

ELIN 150 APPLIED THEORY AND FUNDAMENTALS (10)
Field training. Summer only.

Emergency Medical Technician

(School of Nursing and Allied Health)

EMT 141, 142 EMERGENCY MEDICAL TECHNICIAN I AND II (2, 2)
The EMT role and responsibility, anatomy and physiology, vital signs, physical condition assessment, airway obstruction, pulmonary arrest, mechanical aids to breathing, cardiac arrest, cardiopulmonary resuscitation, bleeding and shock, wounds and bandaging, fractures and splinting. Injuries of the head, neck, face and spine; practical lab on handling spine injuries, injuries of the eye, chest and abdomen; Medical Emergencies I; Medical Emergencies II; water safety; childbirth; medical-legal consideration. Lifting and moving patients, auto extrication with field practice; environmental emergencies; crises intervention; driving an emergency vehicle; radio communications; intravenous therapy. Student spends a minimum of 20 hours working in an emergency room at a local hospital.

English

(School of Humanities and Fine Arts)

ENGL 101, 102, 103 ENGLISH SKILLS (MODULAR CONCEPT)
Designed for students who have specific deficiencies in one or more of the following:

MODULE 1 (ENGL 101):	**Basic Grammar**	(1)
MODULE 2 (ENGL 102):	**The Sentence**	(1)
MODULE 3 (ENGL 103):	**Punctuation**	(1)

ENGL 110 ENGLISH GRAMMAR (3)
Review of grammar and usage. Students with low ACT scores should take ENGL 110 before ENGL 111. All students must take ENGL 111, 112 to meet general education requirements.

ENGL 111, 112 ENGLISH COMPOSITION (3, 3)
First semester: grammar, formal and informal writing; second semester: research paper, study of the novel, critical writing.

ENGL 115 TECHNICAL WRITING (3)
Designed for potential scientists, engineers, technologists, vocational-technological specialists, and nurses.

ENGL 117 VOCATIONAL COMMUNICATIONS I (3)
Designed primarily for students enrolled in occupational programs. ENGL 117 and 118 meet requirements for the AAS degree.

ENGL 118 VOCATIONAL COMMUNICATIONS II (3)
Continuation of ENGL 117.

ENGL 121 ENGLISH: SPELLING/VOCABULARY (3)
Spelling and vocabulary study for the college-level students.

ENGL 126, 127 HONORS ENGLISH (3, 3)
Designed for students whose high school records and ACT scores are in the 85th percentile or higher.

ENGL 131, 132 WORLD LITERATURE (3, 3)
Survey of ancient, medieval, and modern literature.

ENGL 134 MYTHOLOGY (CLASSICAL) (3)
Survey of Greek and Roman mythology.

ENGL 135 MYTHOLOGY (MEDIEVAL) (3)
Survey of Ancient, Norse, Oriental, and Medieval mythology.

ENGL 141 INTRODUCTION TO LITERATURE—FICTION (3)
ENGL 142 INTRODUCTION TO LITERATURE—POETRY (3)
ENGL 143 INTRODUCTION TO LITERATURE—DRAMA (3)
ENGL 145 INTRODUCTION TO LITERATURE—ORIENTAL LITERATURE (3)
ENGL 146 INTRODUCTION TO LITERATURE—AFRO-AMERICAN (3)

ENGL 251, 252 CREATIVE WRITING (3, 3)
Short fiction: style and technique.

ENGL 254, 255 ENGLISH LITERATURE (3, 3)
From Beowulf to the present.

ENGL 256 INTRODUCTION TO SHAKESPEARE (3)

ENGL 261, 262 UNITED STATES LITERATURE (3, 3)
Development of American literature from 17th century to the present.

ENGL 311 SEMINAR: ADVANCED WRITING (3)
Professional fiction and non-fiction writing. Prerequisites: ENGL 111, 112.

ENGL 316 AMERICAN NOVEL (3)
Distinctive American novels, from beginning to present.

ENGL 318 FRONTIER AMERICAN LITERATURE (3)
Regional literature of U.S. frontier.

ENGL 322 ADVANCED VOCABULARY (3)
To help broaden working vocabulary through usage, readings, and specific study. Offered on demand.

ENGL 324 SHORT STORY (3)
Introduction to the short story.

ENGL 326 WORLD DRAMA I (3)
Survey of drama: Greek through Elizabethan. ENGL 326 and 327 may count for either Humanities or Fine Arts requirement for the Bachelor of Arts degree in Liberal Arts.

ENGL 327 WORLD DRAMA II (3)
Continuation of ENGL 326.

ENGL 330 WOMEN IN WORLD THOUGHT AND LITERATURE (3)
Contributions of women in politics, philosophy, literature, arts, drama, and the advancement of cultural and humanitarian concepts.

ENGL 335 THE BIBLE AS LITERATURE (3)
Survey of literary achievements as represented by the King James version.

ENGL 340 CLASSICAL LITERATURE IN TRANSLATION: THE GREEK TRADITION (3)
Readings in English of the works of Greek writers.

ENGL 341 CLASSICAL LITERATURE IN TRANSLATION: THE LATIN TRADITION (3)
Readings in English of the works of Roman writers.

ENGL 350 CHAUCER (3)
A study of the major works of the 14th century poet.

ENGL 360 MILTON (3)
Survey of thought and poetry of John Milton.

ENGL 410 BRITISH NOVEL (3)
Survey of representative novelists of British literature.

ENGL 411 AMERICAN DRAMA (3)
Development of American drama to present.

ENGL 413 CONTEMPORARY DRAMA (3)
Recent development of the realistic and absurd playwrights.

ENGL 415 AMERICAN FOLKLORE (3)
Introduction to American folklore.

ENGL 416 CONTEMPORARY AMERICAN POETRY (3)
Survey of contemporary American poets since 1940.

ENGL 421 SEMINAR: HISTORY OF LITERARY CRITICISM (3)
Development of literary criticism from the Classical period through the 19th century.

ENGL 422 SEMINAR: FORCES IN CONTEMPORARY CRITICISM (3)
Twentieth century critics and critical theories. Prerequisite: ENGL 421 or consent of instructor.

ENGL 424 LITERATURE AND SCIENCE IN THE MODERN AGE (3)
Study of literature's relations with science affecting the fine arts, social thought, and value theory. Meets the literature requirement for Bachelor of Science degree.

ENGL 430 ADVANCED SHAKESPEARE (3)

ENGL 435 LITERARY MASTERWORKS OF THE 17th CENTURY (3)
Survey of prose and poetry of the 17th century, excluding the major works of Milton.

Engineering

(School of Natural Sciences and Mathematics)

ENGR 105 BASIC ENGINEERING DRAWING (3)
This course in fundamentals of drawing includes instrumental drawing; lettering; geometric constructions; sketching and shape description; multiview projection; sectional views; auxiliary views, revolutions; dimensioning; tolerancing; axonometric projection and oblique projection. Three lectures and three one-hour laboratory sessions per week.

ENGR 111 ENGINEERING GRAPHICS AND DESIGN (3)
A course in engineering design which covers the design process from the project conception to the completion of working drawings. It emphasizes drawing techniques such as freehand sketching, projection system, dimensioning, descriptive geometry, and vectors as applied to the design process. Prerequisite: ENGR 105 or one year high school drafting; corequisite: MATH 102. Three lectures and three one-hour laboratory sessions per week.

ENGR 114 INTRODUCTION TO FORTRAN PROGRAMMING (3)
Various math, science and engineering problems are put in FORTRAN language and then run on the high-speed computer. Problems using function subprograms; external statements; transferring data to and from tape; namelist statements; computer solution of engineering problems. Prerequisite: MATH 113 or equivalent. Three lectures and one one-hour laboratory session per week.

ENGR 115 INTRODUCTION TO PL/I PROGRAMMING (3)
An introduction to PL/I and the concepts of structured programming. Various programming topics and techniques such as character manipulation, arrays, modular programming, searching and sorting techniques, files and records, data structures. Prerequisite: CSCI 131 or ENGR 114. Three lectures and one one-hour laboratory session per week.

ENGR 230 TOPOGRAPHICAL SURVEYING (3)
The fundamentals of map-making. Includes use of plane table and alidade, basic control, contour mapping, map reading. Taught primarily for non-engineers who are students in related fields, i.e., forestry, geology, archaeology, etc. Offered only if sufficient demand. Prerequisite: MATH 113 or equivalent. Two lectures and two two-hour laboratory sessions per week.

ENGR 231 SURVEYING I (3)
An introduction to the principles of surveying and mapping; familiarization with the basic instruments and their use. Includes calculations and field procedures for surveying circular, spiral, and parabolic curves and route planning. Prerequisite: MATH 119 or MATH 130. Two lectures and two two-hour laboratory sessions per week.

ENGR 232 SURVEYING II (3)
Topics include location and design; measurement and computation of earthwork quantities; and slope staking. Celestial observations to determine latitude, longitude, and true azimuth, photogrammetry, triangulation, state plane coordinate systems, and computer applications in surveying. Prerequisite: ENGR 231. Two lectures and two two-hour laboratory sessions per week.

ENGR 240 STATICS (3)
Topics include principles of statics, study of vectors, forces and couples, force systems and their resultants, force systems of equilibrium (truss analysis, flexible cables, cranes), static friction (pivot and belt), centroids, radii of gyration of areas and masses, and moments of inertia. Prerequisite: MATH 152 and PHYS 221, and to be taken concurrently with MATH 253. Three lectures per week.

ENGR 241 DYNAMICS (3)
Principles of dynamics. Topics include angular and linear displacement, velocity and acceleration of particles and rigid bodies in motion, simple vibrations, and applications of principles of force-mass-acceleration, work-kinetic energy, the impulse-momentum to solution of problems of force systems acting on moving particles and rigid bodies. Prerequisite: ENGR 240 and MATH 253. Three lectures per week.

ENGR 251, 252 CIRCUIT ANALYSIS I, II (3, 3)
ENGR 251L, 252L CIRCUIT ANALYSIS I, II LABORATORY (1, 1)
An introduction to the fundamental principles of electrical engineering. Basic analysis techniques as applied to linear, lumped parameter, time invariant circuits. Principles of electronics, electromechanics and instrumentation. Prerequisite: MATH 152 and PHYS 221 with concurrent enrollment in MATH 253 and PHYS 222. Three lectures and two two-hour laboratory sessions per week.

ENGR 255 INTRODUCTION TO THERMAL SCIENCES (3)
Energy systems and processes, conservation of energy, environmental applications, pollution, heat transfer, laws of thermodynamics. Prerequisite: MATH 253 and PHYS 222. Three lectures per week.

ENGR 259 INTRODUCTION TO ENERGY (3)
A survey of energy and modern energy production technology for nonengineering students. Topics include elementary treatments of mechanics, heat transfer, chemical energy, electrical energy, nuclear energy and the energy producing devices which utilize these principles. Prerequisite: MATH 020 or equivalent. Three lectures per week.

ENGR 291, 292 INDEPENDENT STUDY (1, 1)
Provides the student a means to pursue, with the assistance and direction of a department faculty member, an area of interest which is not in the normal curriculum.

Engineering Technology

(School of Natural Sciences and Mathematics)

ETEC 101 TECHNICAL MATHEMATICS I (4)

A review of algebra including fundamental concepts and operations, functions and graphs, systems of linear equations, determinants, factoring and fractions, quadratic equations, exponents and radicals. A concentrated study of trigonometry and additional topics of algebra with emphasis on applications in technical fields. Logarithms, trigonometric functions of angles, radian measure, vectors and oblique triangles. Prerequisite: MATH 020 or high school algebra. Four lectures per week.

ETEC 102 TECHNICAL MATHEMATICS II (4)

Graphs of trigonometric functions, complex numbers and the j-operator, inequalities and variation. Electronic calculators used in problem solution. Advanced topics in algebra and trigonometry with an introduction to analytic geometry. Matrix algebra, graphical solutions of non-algebraic equations of higher degree, progressions and the binomial theorem, trigonometric identities, inverse functions, straight lines, conic sections, parametric forms, introduction to statistics and empirical curve fitting. Four lectures per week.

ETEC 123 CONCRETE (2)
ETEC 123L CONCRETE LABORATORY (1)

An introduction to cement, aggregates, selection and design of concrete mixtures, and sampling and testing procedures. Three lectures and two one-hour laboratory sessions per week.

ETEC 125 SOILS ENGINEERINC (2)
ETEC 125L SOILS ENGINEERINC LABORATORY (1)

Properties of soils with compaction, consistency, classification, moisture, frost-action, permeability, strength, lateral pressures, bearing capacity, piling foundations, soil exploration, spread-footings, subgrades and pavements. Earth dams. Three lectures and two one-hour laboratory sessions per week.

ETEC 162 DRAFTING AND DESIGN—TECHNICAL ILLUSTRATING (2)
ETEC 162L DRAFTING AND DESIGN—TECHNICAL ILLUSTRATING LABORATORY (1)

The study of techniques used to prepare illustrations for advertising, marketing, and educational purposes. Basic rendering, airbrush, and scratchboard techniques are applied to pictorial, exploded, and orthographic views resulting in a variety of illustrations and transparencies. Three lectures and three one-hour laboratory sessions per week.

ETEC 220 SPECIFICATIONS AND COST ESTIMATES (3)

Preparation of specifications and contract documents. Quantity estimating of excavation work, construction materials and labor. Prerequisite: ENGR 105 or equivalent and concurrent enrollment in ETEC 101. Three lectures per week.

ETEC 241 STATICS AND STRENGTH OF MATERIALS I (3)

Basic principles of statics involving the application of equilibrium equations to coplanar, noncoplanar, concurrent and nonconcurrent force systems. Stress and strain of members in tension, compression, shear and torsion. Properties of riveted and welded joints. Prerequisite: ETEC 102. Three lectures per week.

ETEC 242 STRENGTH OF MATERIALS II (3)

Centroids and moments of inertia. Beam and column deflection and design. Design of rotating shafts and couplings. Prerequisite: ETEC 241. Three lectures per week.

ETEC 245 FLUID MECHANICS AND HYDRAULICS (2)
ETEC 245L FLUID MECHANICS AND HYDRAULICS LABORATORY (1)

Properties of fluids, viscosity, steady, laminar and turbulent flow. Reynolds number. Hydrostatic pressure on submerged plane surfaces. Bernoulli's energy theorem. Pitot tube, venturi, orifice nozzles and weirs. Critical velocity in pipes. Head loss in pipe fittings, valves, friction coefficients. Hydraulic turbo machinery. Flow in pipe nets and open channels. Prerequisite: ETEC 102. Three lectures and three one-hour laboratory sessions per week.

ETEC 251 DRAFTING AND DESIGN—ELECTRICAL/ELECTRONIC (2)
ETEC 251L DRAFTING AND DESIGN—ELECTRICAL/ELECTRONIC LABORATORY (1)

A course in the basic principles of drafting as applied to electricity and electronics. Included are techniques and lettering, projections, device symbols, component outlines, printed circuit boards, integrated circuits, block and schematic diagrams. Prerequisite: ENGR 105 or equivalent. Three lectures, three one-hour laboratory sessions per week.

ETEC 252 DRAFTING AND DESIGN—STRUCTURAL (2)
ETEC 252L DRAFTING AND DESIGN—STRUCTURAL LABORATORY (1)

Principles of design are applied in arriving at solutions to structural problems. These solutions are presented in the form of detailed drawings using proper drafting techniques. Prerequisite: ETEC 241 or consent of instructor. Three lectures and three one-hour laboratory sessions per week.

ETEC 253 DRAFTING AND DESIGN—TOPOGRAPHICAL (2)
ETEC 253L DRAFTING AND DESIGN—TOPOGRAPHICAL LABORATORY (1)

A study of the history, fundamentals, and methods of mapmaking. Prerequisite: ENGR 105 or equivalent. Three lectures and three one-hour laboratory sessions per week.

ETEC 254 DRAFTING AND DESIGN—PIPING (2)
ETEC 254L DRAFTING AND DESIGN—PIPING LABORATORY (1)

This course helps develop skills in designing and drawing piping and plumbing systems ranging from an industrial to a residential scope. Prerequisite: ENGR 105 or equivalent. Three lectures and three one-hour laboratory sessions per week.

ETEC 255 DRAFTING AND DESIGN—HEATING, VENTILATING AND AIR CONDITIONING (2)
ETEC 255L DRAFTING AND DESIGN—HEATING, VENTILATING AND AIR CONDITIONING LABORATORY (1)

The basic principles of refrigeration and psychrometrics are explored and used in the design of various types of air conditioning systems. Ventilation air-handling and heating are covered. Modern techniques in energy conservation and solar heating also considered. Prerequisite: ENGR 105 or equivalent. Three lectures and three one-hour laboratory sessions per week.

ETEC 256 DRAFTING AND DESIGN—MACHINE (2)
ETEC 256L DRAFTING AND DESIGN—MACHINE LABORATORY (1)

Applying design principles to machine members. Drawing designed members to standards of industry. Utilizing standard joining techniques and available stock items in designs. Prerequisite: ENGR 105 or equivalent. Three lectures and three one-hour laboratory sessions per week.

ETEC 257 DRAFTING AND DESIGN—ELECTRICAL SYSTEMS (2)
ETEC 257L DRAFTING AND DESIGN—ELECTRICAL SYSTEMS LABORATORY (1)

Introduction to electricity. Planning of feeder and branch circuits for commercial buildings and residences. Interpretation of National Electric Code. Lighting fundamentals and design. Prerequisite: ENGR 105 and ETEC 102. Three lectures and three one-hour laboratory sessions per week.

ETEC 258 DRAFTING AND DESIGN—ARCHITECTURAL (2)
ETEC 258L DRAFTING AND DESIGN—ARCHITECTURAL LABORATORY (1)
Architectural fundamentals of perspective drawings, shadows and architectural rendering. Symbols, use of templates and special equipment. Working drawings and specifications. Three lectures and three one-hour laboratory sessions per week.

ETEC 291, 292 INDEPENDENT STUDY (1, 2)
With the assistance and direction of a department faculty member and the consent of the instructor, a student may pursue an area of interest which is not in the normal curriculum.

ETEC 293 INDEPENDENT STUDY IN ENGINEERING TECHNOLOGY (1)
Qualified students conduct an in-depth study of a problem of their choice related to engineering technology. Prerequisite: approval of instructor.

Fine Arts

(School of Humanities and Fine Arts)

FA 101, 102 MAN CREATES (3, 3)
An inter-disciplinary survey of the creative efforts of people as they relate to each other. Art, drama, and music are compared, with similarities stressed.

FA 301, 302 CIVILIZATION AND THE ARTS (3, 3)
A history course bringing together the viewpoints of social scientists, the historian, humanist, writer, performer, and artist.

FA 401 SEMINAR IN CRITICAL ANALYSIS OF THE ARTS (3)
Theory and practice of evaluating the arts.

FA 402 ARTS MANAGEMENT (3)
The business aspects of producing a play, concert, or exhibition: publicity, dealing with agents, artists, union representatives, tickets, accounting, and scheduling. Practical experience gained from college productions.

FINE ARTS, PRACTICUM IN THE (4)
Visual and Performing Arts majors are required to take a minimum of four hours from this group. Students with a strong background in one of the arts areas will be required to take qualifying classes outside their strength area, preferably three hours in each of the other two disciplines.
Practicum requirements may be met by selecting four hours from the following freshman and sophomore classes:
ART 110, 115, 120, 140, 150, 151, 152, 170, 180, 190, 221, 231, 241, 271, 281, 291.
DRAM 114, 117, 118, 119, 121, 122, 123, 124, 125, 126, 129, 142, 143, 147, 148, 149, 214, 215, 217, 218, 222, 244, 245, 246, 247, 248, 249, 251, 252, 253.
MUS 127, 128, 137, 138, or any course carrying the prefix AMUS or PERF.

French

(School of Humanities and Fine Arts)

FREN 111, 112 FIRST-YEAR FRENCH (5, 5)
An introduction to the French language and culture.

FREN 251, 252 SECOND-YEAR FRENCH (3, 3)
Grammar review, vocabulary distinction, readings in the French language. Prerequisites: Two years of high school French: FREN 111, 112; or permission of instructor.

Geography

(School of Social and Behavioral Sciences)

GEOG 101, 102 INTRODUCTION TO GEOGRAPHY (3, 3)
A survey of the essentials of college geography including vocabulary, basic principles, and techniques.

GEOG 251, 252 INDEPENDENT STUDY IN GEOGRAPHY (1, 2)
Prerequisites: six hours of geography, sophomore standing, and permission of the instructor.

Geology

(School of Natural Sciences and Mathematics)

GEOL 101, 102 INTRODUCTORY GEOLOGY (4, 4)
A lecture course dealing with the earth and its origin, structure, composition, atmosphere and hydrosphere. In a general approach to geology and closely related fields, physical changes and evolution of life through the history of the earth are included. Recommended for students of disciplines other than the sciences. Four lectures per week.

GEOL 101L, 102L INTRODUCTORY GEOLOGY LABORATORY (1, 1)
Laboratory work with rocks, minerals, fossils, and topographic maps. Problems in astronomy, meteorology, and earth history. One two-hour session per week.

GEOL 111 PRINCIPLES OF PHYSICAL GEOLOGY (4)
A lecture course dealing with the earth, its materials, the processes producing its landforms, and the interaction between its surface and interior. Intended for Environmental Geoscience majors and others wishing to obtain an understanding of their physical world. Four lectures per week.

GEOL 111L PRINCIPLES OF PHYSICAL GEOLOGY LABORATORY (1)
Laboratory studies of rocks, minerals, landforms, topographic maps, earthquakes, mountain building, the sea floor, and plate tectonics. One two-hour session per week.

GEOL 112 PRINCIPLES OF HISTORICAL GEOLOGY (4)
A lecture course dealing with the origin of the earth, the geologic time scale, the evolution of life forms as revealed in the fossil record, physical changes in the earth, and predictions that can be based on such studies. Intended to be a continuation of GEOL 111. Prerequisite: GEOL 111. Four lectures per week.

GEOL 112L PRINCIPLES OF HISTORICAL GEOLOGY LABORATORY (1)
Laboratory work employing topographic and geologic maps, reconstruction exercises, and fossils to interpret regional and general geologic history. One two-hour session per week.

GEOL 201 STRATIGRAPHY AND PALEONTOLOGY (4)
Lectures on the fundamentals of sedimentary rock classification, correlation; sedimentary environments, and regional stratigraphic column. Included are taxonomy and geologic value of corals, bryozoans, bachiopods, trilobites, echinoderms, mollusks, and several types of microfossils. Prerequisite: consent of instructor. Four lectures per week.

GEOL 201L STRATIGRAPHY AND PALEONTOLOGY LABORATORY (1)
Laboratory work in fossil identification and sedimentary rock description. Included are field procedures with local sedimentary outcrops. Two one-day field trips required. One two-hour session per week.

GEOL 203 INTRODUCTION TO ENVIRONMENTAL GEOLOGY (3)
A lecture course on the relationship of man and his geological environment. Such current and future factors as pollution, waste disposal, mineral and fuel depletion, and governmental policy are studied. Geologic hazards are emphasized. Prerequisite: consent of instructor. Three lectures per week.

GEOL 270, 271 INDEPENDENT STUDY IN GEOLOGY (1, 2)
Courses in which a student with a previously developed interest in and knowledge of a specialized subject can continue his or her work. Combinations of conferences, reading, laboratory work, and field work.

GEOL 301 EARTH TECTONICS (2)
Lectures on the nature and origin of rock structures. Included are both local and large-scale deformation. Prerequisite: GEOL 111. Two lectures per week.

GEOL 301L EARTH TECTONICS LABORATORY (1)
Structural problems solved by graphical, geometrical, and stereographic methods. Included is work with maps and cross-sections. One two-hour session per week.

GEOL 302 MINERAL AND ENERGY RESOURCES (5)
Lectures on metallic and non-metallic mineral deposits as well as fuels. Includes locations, minerals involved, ore genesis, alteration, associations, zonation, and extraction methods of mining. Students are expected to participate in an overnight field trip. Prerequisite: consent of instructor. Five lectures per week.

GEOL 315 MINE MAPPING AND GEOLOGIC ILLUSTRATION (3)
Lectures on transit and plane table surveying as well as basic drafting. Included are geologic maps, cross sections, contours, profiles, rock symbols, and lettering aids. One off-campus mine is surveyed. Prerequisite: consent of instructor. Three lectures per week.

GEOL 315L MINE MAPPING AND GEOLOGIC ILLUSTRATION LABORATORY (2)
Surveying with transit and plane table and preparation of geologic illustrations. Two two-hour sessions per week.

GEOL 321 FIELD METHODS (6)
Methods of mapping and gathering field data, including section measuring, use of aerial photographs, and preparation of geologic maps and reports. Regional geologic features studied from field camps. Conducted the first six weeks of the summer session. Prerequisites: GEOL 111, GEOL 112, GEOL 201, GEOL 301, GEOL 331. Four eight-hour field sessions and one eight-hour laboratory session per week.

GEOL 331 MINERAL STUDIES (3)
Lectures on the morphology and classification of crystals, the chemistry of minerals and their genesis, and modern laboratory techniques. Prerequisite: consent of instructor. Three lectures per week.

GEOL 331L MINERAL STUDIES LABORATORY (1)
Laboratory work in identification of crystals, simple determination tests, some modern identification equipment, and identification of minerals in hand specimen. One two-hour session per week.

GEOL 340 PETROLOGY (3)
Lectures on the origin, composition, and classification of igneous, metamorphic, and sedimentary rocks. Prerequisite: GEOL 331. Three lectures per week.

GEOL 340L PETROLOGY LABORATORY (1)
Laboratory work on the composition and identification of igneous, metamorphic, and sedimentary rocks in hand specimen and occasionally thin section. One two-hour session per week.

GEOL 351 APPLIED GEOCHEMISTRY (2)

Lectures on the principles of geochemistry and their relationship to weathering and soils. Included are discussions of geochemical surveys and prospecting techniques. Prerequisites: GEOL 112 and CHEM 122 or CHEM 132, or consent of instructor. Two lectures per week.

GEOL 370, 371 INDEPENDENT STUDY IN GEOLOGY (1, 2)

See Independent Study course description under GEOL 270, 271.

GEOL 401 ADVANCED TOPICS IN GEOSCIENCE (3)

Discussions of recent ideas, concepts, and data relating to petroleum, mineral deposits, plate tectonics, and other topics of current interest. Three one-hour sessions per week.

GEOL 402 APPLICATIONS OF GEOMORPHOLOGY (4)

Lectures on landforms and land-forming processes with applications to problem solving. Predictions of hazards and other problems from study of past active processes. Emphasis on local soils, slopes, rivers and erosional surfaces. Included are statistical and computer techniques of data analysis. Participation in at least two field trips is required. Prerequisite: consent of instructor. Four lectures per week.

GEOL 402L APPLICATIONS OF GEOMORPHOLOGY LABORATORY (1)

Laboratory and field studies of such factors as streams, frost, slope movement, ground water, wind, and glaciers which have affected the local environment. Emphasis on techniques of measurement and interpretation. One two-hour laboratory session or one four-hour field trip per week.

GEOL 404 GEOPHYSICAL PROSPECTING (4)

Lectures on the principles and applications of refraction and reflection seismic, gravity, magnetic, and electric methods in hydrocarbon and mineral exploration and preliminary construction site investigations. Prerequisites: GEOL 111, GEOL 112, PHYS 212 (Calculus is recommended but not required) or consent of instructor. Four lectures per week.

GEOL 404L GEOPHYSICAL PROSPECTING LABORATORY (1)

Field work employing geophysical instruments and laboratory work interpreting data from various sources. One two-hour session per week.

GEOL 405 SOLID EARTH GEOPHYSICS (3)

Lectures on application of classical physics to the study of the earth. Included are origin of the earth, its gravitational, geomagnetic, and geothermal characteristics, seismicity, and the dynamics of the earth's crust, plate tectonics, and continental drift. Field trips are required. Prerequisite: GEOL 404 or consent of instructor. Three lectures per week.

GEOL 445, 446, 447, 448, 449 FIELD EXPERIENCE IN GEOLOGY (2, 4, 6, 8, 10)

A student may receive credit for work experience obtained on a job where the assignments are primarily geological projects. The number of credit hours awarded to the student is determined by the School. No more than ten hours of credit for field experience will count for credit toward satisfaction of requirements for graduation. Prerequisites: geology major and senior standing or consent of faculty.

GEOL 470, 471 INDEPENDENT STUDY IN GEOLOGY (1, 2)

See Independent Study course description under GEOL 270, 271.

German

(School of Humanities and Fine Arts)

GERM 111, 112 FIRST-YEAR GERMAN (5, 5)

An introduction to the German language.

GERM 251, 252 SECOND-YEAR GERMAN (3, 3)
Grammar review, vocabulary distinction, readings in the German language. Prerequisites: Two years of high school German; GERM 111, 112; or permission of instructor.

GERM 281, 282 INDEPENDENT STUDY (1, 2)
Offered on demand and in consultation with instructor.

Graphic Communications

(School of Industry and Technology)

GRCO 110 INTRODUCTION TO GRAPHIC COMMUNICATIONS (2)
Introduction to graphic arts technology as related to reproduction through various printing techniques, including choice of printing method, type selection, paper selection, quantity and quality desired, and special finishing techniques.

GRCO 120 GRAPHIC ART LAYOUT AND DESIGN (3)
Study of fundamental principles and techniques of pattern and design concepts, typography, and preparation of art work in both black-and-white and color media.

GRCO 130 BASIC PHOTOGRAPHY (2)
Development of skills in the production of black and white photography, including camera and printmaking techniques.

GRCO 140 TYPESETTING (3)
Study of cold-type composing machines with emphasis on operation and production. Four hours laboratory per week.

GRCO 230 PROCESS PHOTOGRAPHY I (3)
Basic techniques of process camera work and darkroom procedures, including calibration, line work, photo mechanical transfer, flat preparation and platemaking. Four hours laboratory per week.

GRCO 231 PROCESS PHOTOGRAPHY II (3)
Advanced techniques of process camera and darkroom techniques, including halftone, duotone, special effects, advanced flat preparation, and an introduction to 4-color separation and mask-up. Prerequisite: GRCO 230.

GRCO 240 IMAGE PREPARATION I (3)
Basics of camera-ready copy preparation for reproduction using composing machines and paste-up techniques. Four hours laboratory per week. Prerequisite: GRCO 140.

GRCO 241 IMAGE PREPARATION II (3)
Advanced techniques of preparing camera-ready copy, including multiple-forms, two or more opaque color-printing requirements, four-color transparency printing requirements, and newspaper copy preparation. Four hours laboratory per week. Prerequisite: GRCO 240.

GRCO 250 OFFSET PRESS I (3)
Basic offset press operation; principles of offset including inks, fountain solutions, and plates; and maintenance of presses. Four hours laboratory per week.

GRCO 251 OFFSET PRESS II (3)
Advanced offset press operation, multiple-color printing, basics of paper-press relationships, and a web offset press operation. Four hours laboratory per week. Prerequisite: GRCO 250.

GRCO 260 PRINTING COST ESTIMATING (3)
For Graphic Communications majors only. A study of costs and cost-estimating techniques specifically related to the printing industry.

Home Economics

(School of Natural Sciences and Mathematics)

HEC 101 CAREERS IN HOME ECONOMICS (1)
Lectures exploring the opportunities in the branches of home economics. One lecture per week.

HEC 110 CLOTHING CONSTRUCTION (1)
HEC 110L CLOTHING CONSTRUCTION LABORATORY (2)
Lectures and laboratory work in the use of commercial patterns in the construction of garments. One lecture and two 2½-hour laboratory sessions per week.

HEC 111 CLOTHING SELECTION AND THE CONSUMER (2)
Principles of line and design in the selection of clothing; consumer problems and guidelines in connection with clothing the family. Two lectures per week.

HEC 115 TEXTILES (3)
HEC 115L TEXTILES LABORATORY (1)
Textile fibers and fabrics, with emphasis on selection, care, finishes, and wearing qualities. Three lectures and one two-hour laboratory per week.

HEC 136 HOME FURNISHING AND HOUSE PLANNING (3)
HEC 136L HOME FURNISHING AND HOUSE PLANNING LABORATORY (1)
Functional and aesthetic considerations affecting the selection and arrangement of furnishings for the home. Lectures on design principles and laboratory work consisting of designing and making simple furnishings. Three lectures and one two-hour laboratory per week.

HEC 141 MEAL MANAGEMENT IN EARLY CHILDHOOD (2)
HEC 141L MEAL MANAGEMENT IN EARLY CHILDHOOD LABORATORY (2)
Principles of food preparation and meal service for pre-school children and laboratory work on their application. Two lectures and two two-hour laboratories per week.

HEC 211 NUTRITION (3)
Nutrients and their relation to physical and mental health. Three lectures per week.

HEC 212 INFANT AND CHILD NUTRITION (2)
Principles of nutrition for maternal, infant, and child health. Prerequisite: HEC 211. Two lectures per week.

HEC 233 MANAGEMENT FOR EFFECTIVE LIVING (2)
Values, goals, and standards and their relation to personal decision-making. Two lectures per week.

HEC 238 CHILD DEVELOPMENT (5)
Physical, emotional, intellectual, and social growth and development of young children; the effect of prenatal maternal behavior on fetus development; behavior and guidance of the child from birth to six years of age. Five lectures per week.

HEC 251 FOOD SELECTION AND PREPARATION (2)
HEC 251L FOOD SELECTION AND PREPARATION LABORATORY (2)
Lectures and laboratory work dealing with the principles and practices of selecting and preparing foods, with emphasis on retention of nutrients, color, and texture. Prerequisite: CHEM 121 or consent of instructor. Two lectures and two two-hour laboratories per week.

HEC 252 PREPARATION AND SERVICE OF MEALS (2)
HEC 252L PREPARATION AND SERVICE OF MEALS LABORATORY (2)
Planning, preparation and service of meals, with emphasis on cost, time management, and selection of table appointments. Prerequisite: HEC 251. Two lectures and two two-hour laboratories per week.

HEC 261 TAILORING (1)
HEC 261L TAILORING LABORATORY (2)
Lectures on and laboratory execution of planning and construction of a tailored garment. Prerequisite: HEC 110 or consent of instructor. One lecture and two two-and-one-half-hour laboratories per week.

HEC 264 PATTERN DESIGNING (2)
HEC 264L PATTERN DESIGNING LABORATORY (1)
Lectures on dress design and how knowledge of it contributes to understanding of pattern alterations and fitting. Laboratory work consists of changing basic commercial patterns to create new designs. Two lectures and one two-hour laboratory per week.

History

(School of Social and Behavioral Sciences)

HIST 101, 102 WESTERN CIVILIZATIONS (3, 3)
A study of the political, social, economic and cultural history of Western mankind from ancient times to modern times.

HIST 105, 106 EASTERN CIVILIZATIONS (3, 3)
A survey of the history of the Asian world both before and after Western penetration.

HIST 120 HISTORY OF COLORADO (3)
A survey of the history of the State of Colorado from pre-historic times to modern times.

HIST 125, 126 HISTORY OF LATIN AMERICA (3, 3)
A survey of Latin American history from pre-Columbian times to modern times.

HIST 131, 132 UNITED STATES HISTORY (3, 3)
A survey of United States history from the Colonial period to modern times.

HIST 136 AFRO-AMERICAN HISTORY (3)
A survey of the history of Black Americans from beginnings in Africa to the present.

HIST 251, 252 INDEPENDENT STUDY IN HISTORY (1, 2)
Prerequisites: 6 hours of history and permission of the instructor.

HIST 300 HISTORY OF ENGLAND (3)
A survey of English history from ancient times to the opening of the Modern period. Recommended prior courses: HIST 101, 102.

HIST 320 HISTORY OF THE SOUTHWEST (3)
A history of Southwestern United States from pre-Columbian times to 1912 with special attention to the interrelationships among Indian, Spanish, Mexican and Anglo-American influences. Recommended prior courses: HIST 131, 132 or HIST 125, 126.

HIST 330 NINETEENTH CENTURY EUROPE (3)
History of Europe in the 19th Century from the Congress of Vienna (1814). Recommended prior courses: HIST 101, 102.

HIST 332 TWENTIETH CENTURY EUROPE (3)
A study of the political, diplomatic, economic, social, cultural and intellectual history of Europe from 1914 through modern times. Recommended prior courses: HIST 101, 102.

HIST 400 THE RUSSIAN REVOLUTION AND THE SOVIET REGIME (3)
A history of Russia since 1917 emphasizing the revolution, the rise of communism and the development of the Soviet state in the 20th Century. Recommended prior courses: HIST 101, 102.

HIST 401 IMPERIAL CHINA (3)
A study of the history of China before Western penetration. Recommended prior courses: HIST 105, 106.

HIST 402 MODERN CHINA (3)
A study of China under assault from Western economic, military and social forces; the rise of nationalism and the evolution of communism. Recommended prior courses: HIST 105, 106.

HIST 410 ENVIRONMENTAL HISTORY OF THE U.S. (3)
A course designed to trace historically the evaluation of public attitudes and governmental policies and practices relative to the wilderness, natural-resource development, and the natural environment from colonial times to the present. Recommended prior courses: HIST 131, 132.

Health

(School of Nursing and Allied Health)

HLTH 147 MEDICAL TERMINOLOGY (2)
Basic medical terminology as applied to major systems of the body and related diseases. Special applications as related to medical practice, with emphasis on spelling.

HLTH 154 LABORATORY TECHNIQUES (2)
The student becomes acquainted with basic laboratory procedures such as blood counts, urinalysis, EKG, etc. Actual laboratory experiences are provided.

HLTH 159 MEDICAL OFFICE PROCEDURES (3)
A study of medical office management, patient reception, record-keeping, care of equipment and supplies, communication skills, and assisting the physician and patient including examination-room techniques.

Human Services

(School of Social and Behavioral Sciences)

HS 301, 302 INTRODUCTION TO HUMAN SERVICES (3, 3)
A survey of a wide range of material relating to the human services such as: human services agencies, the place of the paraprofessional, basic counseling and interviewing techniques, views of abnormal behavior and its treatment. Prerequisites: PSY 121, 122; SOC 260 or permission of the instructor.

HS 310 SEX ROLE IDENTIFICATION AND HUMAN SEXUALITY (3)
An interdisciplinary study of sex role differences (stereotypes), sexual biology, cross-cultural comparisons of attitudes toward sexuality, trends in sexual moralities, sexual deviance, and sexual dysfunctions and their treatment. Prerequisites: 6 hours of social science or consent of instructor.

HS 401, 402 SPECIAL STUDIES **(4, 4)**
A course allowing social and behavioral science students to pursue special interests or to gain knowledge of topics not otherwise provided for in the curriculum. Credit for senior year human services internships will be granted through registration in this course. Prerequisites: senior status in a Bachelor of Arts program in the social sciences.

Interdisciplinary Study

(School of Social and Behavioral Sciences)

INDI 400 SAN JUAN SYMPOSIUM **(6)**
An interdisciplinary study of regional biology, geology and history, combining classroom study on campus with field study in the San Juan Mountains of Colorado. Elective credit only. May not be used to meet requirements of a discipline in Mesa College degree programs. Prerequisites: upper-division standing and permission of instructors. Not open to freshmen and sophomores.

Italian

(School of Humanities and Fine Arts)

ITAL 110 CONVERSATIONAL ITALIAN **(3)**
Introduction to the Italian language. Recommended for music and art majors. Offered on demand with sufficient class enrollment.

Journalism

(School of Humanities and Fine Arts)

JOUR 131, 132 INTRODUCTION TO JOURNALISM **(3, 3)**
Fundamentals of news and feature writing, broadcasting, news writing, advertising, copyreading.

JOUR 231 JOURNALISM: REPORTING **(3)**
Fundamentals of newsgathering and writing. Prerequisites: JOUR 131, 132 or permission of instructor.

JOUR 232 JOURNALISM: BROADCAST NEWS WRITING **(3)**
Techniques and practice in preparation of news for broadcasting. Prerequisites: JOUR 231 or permission of instructor.

JOUR 331, 332 PUBLICATIONS PRACTICUM **(1, 1)**
Experience with campus publications under faculty supervision. Prerequisites: JOUR 131, 132.

JOUR 431, 432 PUBLICATIONS PRACTICUM **(1, 1)**
Experience with campus publications under faculty supervision. Prerequisites: JOUR 231, 232.

Law Enforcement

(School of Social and Behavioral Sciences)

LEN 111 INTRODUCTION TO THE ADMINISTRATION OF JUSTICE (3)

A study of the history and philosophy of the administration of justice in America. A recapitulation of the system identifying the various sub-systems, the ethics, education and training for professionalism in the system.

LEN 112 POLICE-COMMUNITY RELATIONS (5)

The development of the professional image of the criminal-justice practitioners; the citizen's involvement in the criminal-justice system; tactics designed to reduce personal and proprietary losses due to the incidence of crime.

LEN 121 CRIMINAL LAW (3)

An analysis of the origin and history of common-law crimes, distinction between civil and criminal laws, and the distinction between federal and state laws and municipal ordinances. The recognition of criminal acts and their respective elements.

LEN 122 JUVENILE DELINQUENCY AND PROCEDURES (3)

A survey of the various federal and state statutes and court decisions involved in the juvenile justice procedures. A discussion of the causes and effects of juvenile crime.

LEN 141 BREATH-EXAMINER SPECIALIST (3)

Designed to develop practical skills related to the drinking-driver counter measures, basis of chemical testing, suspect processing, courtroom presentations and breath-equipment theory, operation and laboratory.

LEN 222 POLICE PATROL OPERATIONS (3)

Responsibilities, techniques, and methods of police patrol in the protection of life and property; includes an examination of reporting systems, communication systems, and law enforcement equipment; highway traffic management, accident investigation, crowd control and disaster operations.

LEN 251 LAWS OF ARREST, SEARCH AND SEIZURE (3)

Constitutional and procedural considerations affecting arrest, search and seizure, constitutional basis of evidence, kinds and degrees of evidence and rules governing admissibility; focus upon the case-study approach.

LEN 261 CRIMINAL INVESTIGATIONS (3)

Fundamentals of investigation; crime scene search and recording; collection and preservation of physical evidence; scientific aids; modus operandi; sources of information; follow-up investigation and case preparation.

LEN 275 SUPERVISION OF PUBLIC SAFETY EMPLOYEES (3)

The responsibility of the first-level supervisor in management, employee morale, discipline, selection and placement, training and performance ratings, and the techniques of leadership.

LEN 281, 282 INDEPENDENT STUDY IN CRIMINAL JUSTICE (1, 2)

Designed for in-service students completing approved criminal-justice seminars sponsored by approved institutions of higher learning. Permission to enroll must be obtained from the coordinator of Law Enforcement Program. The coordinator will determine the number of credit hours to be awarded. As many as two credit hours may be approved.

Mathematics

(School of Natural Sciences and Mathematics)

MATH 015 BASIC MATHEMATICS (3)

Helps students reinforce knowledge and, as needed, relearn the basic arithmetic processes. Includes a review of addition, subtraction, multiplication and division, followed by a careful treatment of decimals and fractions. Also may be taken in three two-week modules as follows: Three lectures per week.

MATH 014 (Module 1) ..... (1)
MATH 016 (Module 2) ..... (1)
MATH 017 (Module 3) ..... (1)

MATH 020 BASIC ALGEBRA (3)

An introduction to algebra for the student having no algebra background or who is not sufficiently prepared to undertake college algebra. A study is made of basic algebraic processes: operations with signed numbers and literal expressions, linear equations, fractions, factoring, simultaneous equations, graphs, and quadratic equations. Three lectures per week.

MATH 101 HAND-HELD CALCULATORS (1)

Theory and operation of calculators as applied to problems in mathematics, business, psychology, electronics, vocational-technical studies, physical sciences, and biological sciences. One lecture per week.

MATH 105, 106 ELEMENTS OF MATHEMATICS I, II (3, 3)

A course for prospective teachers in the elementary schools. Presents some of the basic principles which underlie mathematical processes and mathematical reasoning. Includes some areas of classical mathematics which are necessary for a working knowledge of the subject. Topics include logic and mathematical reasoning, number systems, some fundamental properties of geometric forms, the concept of a function, linear and quadratic functions, and some characteristics of modern mathematics. Prerequisite: consent of instructor. Three lectures per week.

MATH 108 AGRICULTURAL MATHEMATICS (3)

Mathematical problems and examples in agricultural production, management, marketing, and mechanization. Problems in agriculture as they relate to environmental quality are also included. Three lectures per week.

MATH 110 FINITE MATHEMATICS (2)

Presents essential concepts of algebra to students in social science, sociology, guidance and others. Topics include graphing, equations, sets, binomial theorem, permutations and combinations, and difference equations. Two lectures per week.

MATH 113 COLLEGE ALGEBRA (4)

The systems of integers, rational numbers, real numbers, and complex numbers are studied. Sets and set theory, linear and quadratic relations, exponential and logarithmic functions are included. Also included are functions and graphs, systems of equations, matrices, complex numbers, higher-degree equations, inequalities, progressions and the binomial theorem. Prerequisite: MATH 020 or one year of high school algebra. Five lectures per week.

MATH 119 PRECALCULUS MATHEMATICS (5)

A course in freshman mathematics for the mathematics or science student. Topics include polynomial, exponential, circular functions, inverse circular functions and conditional equations, matrices and determinants, systems of equations, complex numbers and vectors, sequences, series, mathematical induction, binomial theorem, rational and trigonometric functions, and some probability. Prerequisite: MATH 113 or three years of high school mathematics and a good mathematics entrance exam score. Trigonometry recommended. Five lectures per week.

MATH 121 MATHEMATICAL FOUNDATIONS OF BUSINESS (3)

Designed to provide business students with basic quantitative tools and methods for solving business problems. Includes an intuitive study of functions and their graphs, linear programming, and differential and integral calculus techniques important to development of analytical competence in administrative decision-making. Prerequisite: MATH 113 or two years of high school algebra. Three lectures per week.

MATH 127 MATHEMATICS OF FINANCE (3)

Discussions of mathematical methods in the solution of business problems. The topics range from simple interest and simple discount to compound interest, annuities, perpetuities, bonds, and depreciation. Prerequisite: MATH 113. Three lectures per week.

MATH 130 TRIGONOMETRY (3)

Emphasizes the circular and trigonometric functions and methods of solving right and oblique triangles. The inverse trigonometric functions, conditional equations, and trigonometric identities are included. Complex numbers are covered through DeMoivre's theorem. Prerequisite: MATH 113 or equivalent. Trigonometry may also be taken in one-hour modules. Three lectures per week.

MATH 131	Logarithms	(2)
MATH 132	Right and Oblique Triangles	(1)
MATH 133	Conditional Equations and Trigonometric Identities	(1)

MATH 134, 135 ADVANCED TRIGONOMETRY (1, 1)

A modularized continuation of MATH 130. Includes inverse functions and vectors. One lecture per week.

MATH 146 CALCULUS FOR BIOLOGICAL SCIENCES (5)

Topics include elementary set theory, functions and relations, derivatives, trigonometry, series and sequences, integration, exponential and logarithmic function, multiple integration, and partial derivatives. Taught from an intuitive point of view and with many examples from the biological sciences. Prerequisite: MATH 113 or consent of instructor. Five lectures per week.

MATH 151 ANALYTIC GEOMETRY WITH CALCULUS (5)

A combined course of analytic geometry and calculus. Fundamental principles of beginning analytic geometry, including different forms of the equations of straight line, circles and parabolas. Elementary phases of limits, continuity, derivations, and various applications of these topics are considered. Differential and integral calculus combined with analytic geometry, together with applications. Prerequisite: MATH 119 or equivalent. Five lectures per week.

MATH 152 CALCULUS (5)

Special emphasis in calculus on the transcendental functions and polar coordinates, conic sections, hyperbolic functions and vectors in a plane. The formulas and methods of integration and applications of integration are included. Prerequisite: MATH 151. Five lectures per week.

MATH 161 PROGRAMMABLE CALCULATOR (1)

Theory and operation of the programmable calculator. Prerequisite: MATH 130 or consent of instructor. One lecture per week.

MATH 253 CALCULUS (4)

The last course in the sequence of courses in analytic geometry and calculus. Covers the topics of vectors in three-dimensions, partial derivatives of functions of several variables, multiple integration, and infinite series. Prerequisite: MATH 152. Four lectures per week.

MATH 260 INTRODUCTION TO DIFFERENTIAL EQUATIONS (3)

An introduction to the formal study of differential equations with applications. Some of the topics covered are: equations of order one, elementary applications, nonhomogeneous equations, variation of parameters, inverse differential operators, Laplace transforms, and nonlinear equations. Prerequisite: MATH 253 or consent of instructor. Three lectures per week.

MATH 265 INTRODUCTION TO LINEAR ALGEBRA (3)

This course is designed to give students a foundation so that they can apply the notions and techniques of the algebra and geometry of vector spaces, linear transformations and matrices, linear equations, quadrant forms and symmetric matrices, and elementary eigenvalue theory. Also prepares the student for advanced work by developing his powers of abstract reasoning. Prerequisite: MATH 253. Three lectures per week.

MATH 291, 292 INDEPENDENT STUDY (1, 1)

Provides the student a means to pursue an area of interest which is not in the normal curriculum. The assistance and direction of a faculty member of the department and the consent of the instructor are requisites.

MATH 381 NUMERICAL ANALYSIS (4)

Elementary numerical analysis using the high-speed computer. Taylor's theorem, truncating errors, iteration processes, least square methods, numerical solution of algebraic and transcendental equations, systems of equations, ordinary and partial differential equations and integral equations, interpolation, finite differences, eigenvalue problems, relaxation techniques, approximations and error analysis. Prerequisites: ENGR 115 and MATH 152. Four lectures per week.

MATH 370 MATHEMATICAL LOGIC AND THEORY (2)

Mathematical logic, algebra of sets, equivalence and order relations, functions, cardinal and ordinal numbers, and the paradoxes of naive set theory. Prerequisite: MATH 265. Two lectures per week.

MATH 380 HISTORY OF MATHEMATICS (2)

A survey of the history of mathematics from antiquity to the present with emphasis upon both the development of mathematics concepts and the people involved in this development. Prerequisite: MATH 253. Two lectures per week.

MATH 385 MODERN GEOMETRY I, II (2, 2)

Courses designed to prepare the prospective teacher of high school geometry in the way the subject matter will be covered in a modern course. The structure of geometry will be emphasized through the axiomatic approach. The basic ideas of points, lines and planes will be given along with primitive concepts and axioms needed to structure the geometry rigorously. Topics such as separation on curves and surfaces, congruence, measure, and parallelism are covered. Prerequisite: MATH 253. Two lectures per week.

MATH 390 ABSTRACT ALGEBRA (3)

Preliminary examination of algebraic systems; groups, rings, fields, vector spaces, linear transformations, matrices, etc. Prerequisite: MATH 265. Three lectures per week.

MATH 450 INTRODUCTION TO COMPLEX VARIABLES (3)

Complex differentiation and integration, analyticity, Cauchy's integral theorem and formula, Taylor and Laurent series, calculus of residues. Prerequisite: MATH 253. Three lectures per week.

MATH 452 ADVANCED CALCULUS (3)

Calculus of one variable, the real number system, continuity differentiation, integration and Reimann-Stieltjes integration. Prerequisite: MATH 253. Three lectures per week.

Music

(School of Humanities and Fine Arts)

MUS 114, 115 ELEMENTARY THEORY (3, 3)
Thorough groundwork in the elements of music. Detailed study of keys, scales, modes, intervals, triads, seventh chords, etc. Techniques and rules of simple, four-part harmony are studied and practiced, and keyboard techniques for the above are developed. Requires prior knowledge of or concurrent enrollment in piano.

MUS 116, 117 SIGHT-SINGING AND EAR TRAINING (2, 2)
Sight-singing is developed by practice in vocal recognition of tonal and rhythm patterns and by singing graded musical exercises. Ear training is developed by means of rhythmic, melodic, and harmonic dictation exercises. The course should be taken in conjunction with MUS 114, 115 since materials in both sequences correlate.

MUS 127, 128 PIANO CLASS (2, 2)
Open to all students but recommended for beginners. The electric piano laboratory makes it possible to provide individual instruction in a class situation. Sections are designated for music majors, beginners, and intermediate-level students.

MUS 130 STRING CLASS (2)
Study of the violin, viola, cello, and string bass in a class situation. Emphasis is on the fundamentals of playing techniques at an elementary level.

MUS 135 MUSIC AND METHODS IN EARLY CHILDHOOD (2)
Designed for students who will be working with preschoolers, kindergarten, and early elementary students. Through the creative process, students develop simple tunes and gain knowledge and appreciation of music. Includes the creating of musical instruments from simple objects.

MUS 136 MUSIC FUNDAMENTALS (2)
Fundamentals of music for non-music majors. Covers names of notes; key signatures; meter; scales; major, minor, diminished, and augmented chords and intervals; keyboard familiarity, with emphasis on accompanying simple songs.

MUS 137, 138 VOICE CLASS (2, 2)
Fundamentals of singing, including vocal tone, breath control, phrasing, range and diction. Standard song literature is studied. Open to all students.

MUS 167, 168 CONDUCTING (2, 2)
An introductory study of conducting: choral and instrumental.

MUS 214, 215 ADVANCED THEORY (3, 3)
In-depth continuation of MUS 114, 115.

MUS 251, 252 MUSIC THEATRE (2, 2)
A workshop class offering practical experience in selection, staging, and performance of music literature ranging from melodrama to opera, including production of a musico-dramatic show for public performance. Prerequisite: Permission of instructor.

MUS 310, 311 COMPREHENSIVE MUSICIANSHIP (3, 3)
First semester: study and writing of 18th century (Bach) counterpoint; analysis of contrapuntal forms, including two- and three-part inventions and fugue. Second semester: arranging for jazz groups, starting with small groups or sections and working toward arrangements for the full jazz ensemble; analyses of harmonic styles.

MUS 324, 325 HISTORY OF MUSIC LITERATURE AND STYLES (3, 3)
Includes an in-depth study of the literature and styles of music. Ancient, Medieval, Renaissance, Baroque, Classic, Romantic and Modern music are covered. The course work is planned for the Visual and Performing Arts major; however, any student with sufficient background may take the course. Offered alternate years.

MUS 343, 344 JAZZ HISTORY **(3, 3)**
Evolution of the historical and stylistic aspects of rock and jazz music. Particular emphasis is placed on performers and titles. A text is utilized in conjunction with tapes and records. Film strips and guest lecturers augment the presentation. Offered alternate years.

MUS 351, 352 MUSIC THEATRE **(2, 2)**
See MUS 251, 252.

MUS 446, 447 INDEPENDENT STUDY **(3, 3)**
Independent research or project in the student's strength area to be decided by instructor and student.

MUS 451, 452 MUSIC THEATRE **(2, 2)**
See MUS 251, 252.

MUS 467, 468 ADVANCED CONDUCTING **(3, 3)**
Concentrated effort in development of performance score mastering, rehearsal and performance techniques. In-depth continuation of MUS 167, 168.

Nursing

(School of Nursing and Allied Health)

NURS 112 INTRODUCTION TO NURSING **(2)**
Orientation to organization of health care facilities, composition and ethical standards of the health team, basic mental and personal health concepts, the problem-solving approach, ethnocultural aspects of nursing and nurse-patient relationships.

NURS 113 NURSING CONCEPTS I **(5)**
NURS 113L NURSING CONCEPTS I LAB **(2)**
Introduction to the concept of man as a biopsychosocial being. Covers principles of nursing care to meet activities of daily living through developing skills in basic nursing procedures. Includes beginning content in assessment, body responses to illness, physical and mental health problems, pharmacology and drug administration.

NURS 123 NURSING CONCEPTS II **(5)**
NURS 123L NURSING CONCEPTS II LAB **(4)**
Expansion and application of NURS 113 and Introduction to Nursing, including nursing care of patients/clients of all ages who manifest common, recurring mental and physical health problems. Integrates concepts of care of the childbearing family.

NURS 141 PERSONAL VOCATIONAL RELATIONS **(2)**
Emphasis on the ethical and legal responsibilities of the nurse. Includes an overview of nursing history and job opportunities.

NURS 142 HEALTH IN THE HOME AND COMMUNITY **(2)**
Measures taken by the community, state, and federal governments to maintain and improve the health of the people of the nation. Includes concepts of emergency and disaster nursing and care of the patient in a home situation.

NURS 143 CLINICAL NURSING **(7)**
Functioning in the role of a licensed practical nurse. Student functions under less direct supervision of instructor and begins to assume the more independent role of working directly on the nursing team under the direction of a team leader. Weekly nursing seminars are held, allowing the students to correlate and discuss theory and practice pertinent to common nursing problems.

NURS 210 NURSING CONCEPTS III (5)
NURS 210L NURSING CONCEPTS III LAB (5)
NURS 230 NURSING CONCEPTS IV (5)
NURS 230L NURSING CONCEPTS IV LAB (5)

Provides increased depth of knowledge of the human adaptive capabilities throughout the life span. Emphasis is placed on the use of the nursing process. Content and experience are related to the management of larger groups of clients and health team relationships. Experience in rural nursing is provided during spring semester.

NURS 273 TRENDS IN NURSING (2)

Important components of nursing history and current issues in nursing and health care.

Occupational Guidance Specialist

(School of Social and Behavioral Sciences)

OGSP 290 OCCUPATIONAL STUDIES (36)

This general program requirement may be completed in the following ways: (1) Work experience may be submitted for evaluation for a possible maximum award of 36 semester hours; (2) the student may use previously earned credit or complete new coursework in business and/or vocational-technical subjects approved by a faculty adviser; or, (3) a combination of the preceding options.

OGSP 320 PRINCIPLES OF CAREER GUIDANCE AND JOB DEVELOPMENT (3)

Topics include career education, career development theory, factors influencing career development, individual and group counseling. Job development and placement are analyzed as a coordinated cooperative activity.

OGSP 322 TESTING FOR CAREER COUNSELING (2)

An introduction to the theory and practice of using standardized tests and interpretation of results. Includes group versus individual tests, reliability, validity, and standardization procedures.

OGSP 324 CAREER INFORMATION (2)

Analyzes sources and references of career information for occupational and career orientation. Topics include locating, selecting, appraising, classifying and uses of occupational information in counseling and guidance.

OGSP 420 COUNSELING PROCESSES AND TECHNIQUES (3)

Exploration and examination of counseling principles and practices which facilitate interpersonal communication and effective career development. Counseling skills in attending behavior, listening, problem exploration, responding, understanding and modes of action are examined, discussed, and applied in classroom counseling situations.

OGSP 422 PERSONNEL AND GUIDANCE INTERVIEWING (3)

Career guidance and personnel interviewing methods are discussed and practiced in classroom situations. Topics include various types of interviews used in personnel and management situations, questioning techniques, and interpretation of interview findings. Counts as management course for Management majors and minors.

OGSP 424 GROUP GUIDANCE PROCESSES AND TECHNIQUES (3)

Emphasis is on group procedures and processes for helping others to develop self-understanding leading to effective personal and career plans and decisions. Recently developed career guidance and counseling materials and programs are discussed.

OGSP 440 PRACTICUM—BUSINESS [4]
OGSP 442 PRACTICUM—EDUCATION [4]
OGSP 444 PRACTICUM—GOVERNMENT [4]

Students are required to select two practicum areas from among the three offered by Mesa College and are placed under professional supervision to gain useful experience and practice in personnel, counseling, and guidance activities. Selection of practicums to be taken will be made with the approval of the program director. Primary consideration will be given to previous work experience and personal career goals. A typed paper must be submitted for approval and course credit. All students will meet at least one hour per week on campus with college faculty for consultation and evaluation of individual progress.

Physical Education and Recreation

(School of Social and Behavioral Sciences)

PHYSICAL EDUCATION AND RECREATION ACTIVITY COURSES (1 ea.)

PER 101	Beginning Swimming	PER 152	Softball
PER 102	Intermediate Swimming	PER 154	Beginning Baseball
PER 103	Diving	PER 155	Intermediate Baseball
PER 104	Water Polo	PER 156	Soccer
PER 108	Canoeing	PER 158	Speedball
PER 110	Sailing	PER 160	Field Hockey
PER 112	Backpacking	PER 162	Volleyball
PER 113	Beginning Bowling	PER 164	Beginning Basketball
PER 114	Intermediate Bowling	PER 165	Intermediate Basketball
PER 115	Beginning Golf	PER 166	Flag Football
PER 116	Intermediate Golf	PER 168	Beginning Hatha Yoga
PER 117	Badminton	PER 169	Intermediate Hatha Yoga
PER 119	Archery	PER 172	Square Dance
PER 121	Beginning Tennis	PER 173	Folk Dance
PER 122	Intermediate Tennis	PER 174	Social Dance
PER 123	Racquetball	PER 176	Beginning Ballet
PER 125	Handball	PER 177	Intermediate Ballet
PER 127	Physical Conditioning	PER 180	Beginning Modern Dance
PER 129	Weight Training	PER 181	Intermediate Modern Dance
PER 130	Fitness and Figure Control	PER 184	Modern Jazz Dance
PER 133	Skiing	PER 186	Tap Dance
PER 135	Cross-Country Skiing	PER 190	Varsity Football
PER 137	Horseback Riding	PER 191	Varsity Basketball
PER 139	Roller Skating	PER 192	Varsity Baseball
PER 141	Bicycling	PER 193	Varsity Wrestling
PER 143	Orienteering	PER 194	Varsity Tennis
PER 145	Wrestling	PER 195	Varsity Volleyball
PER 147	Field and Track	PER 196	Varsity Softball
PER 149	Gymnastics	PER 197	Varsity Track and Field

PER 200 INTRODUCTION TO PHYSICAL EDUCATION [2]

Orientation to the breadth, scope and nature of the professional program in physical education.

PER 210 INTRODUCTION TO RECREATION AND LEISURE SERVICES [2]

Orientation to park and recreation service. Scope of service, history, and professional development as it relates to public, semi-public, private agency, military, and therapeutic recreation services.

PER 220 FUNDAMENTALS OF SPORT (FIELD SPORTS) (2)
PER 221 FUNDAMENTALS OF SPORT (VOLLEYBALL) (2)
PER 222 FUNDAMENTALS OF SPORT (BASKETBALL) (2)
PER 223 FUNDAMENTALS OF SPORT (TENNIS) (2)
PER 224 FUNDAMENTALS OF SPORT (FOLK, SQUARE, AND SOCIAL DANCE) (2)
PER 225 FUNDAMENTALS OF SPORT (GYMNASTICS) (2)
A series of courses for physical education majors designed to present the fundamentals, theory and methods of selected sports.

PER 230 BEGINNING IMPROVISATION AND COMPOSITION IN DANCE (3)
Theory and practice in basic principles of dance composition.

PER 231 CREATIVE PLAY ACTIVITIES IN DANCE (3)
Designed for students who will be working with students. Emphasis is placed on creative movement exploration through the Laban series of body, effort, space and relationship.

PER 233 REPERTORY DANCE (1)
Student participates directly in the production of a dance choreographed by faculty or guest artist.

PER 240 SPORTS OFFICIATING (2)
Techniques of officiating three major sports: football, basketball, baseball. Lectures and lab.

PER 245 KINESIOLOGY (3)
A course designed to develop understanding of the mechanics of sport-related human movement through a study of selected physical, anatomical and physiological factors affecting human performance. Prerequisites: BIOL 141, 141L, 142, 142L.

PER 250 ADVANCED LIFESAVING (3)
American Red Cross course. ARC advanced lifesaving certification to qualified students.

PER 251 WATER SAFETY INSTRUCTORS COURSE (3)
American Red Cross course. ARC WSI certification to qualified students. Prerequisite: ARC advanced life-saving certificate.

PER 260 PERSONAL AND COMMUNITY HEALTH (2)
Discussion and evaluation of personal and community health problems. Emphasis on development of proper health attitudes and practices.

PER 265 FIRST AID (2)
American Red Cross Course. ARC standard and advanced certification to qualified students.

PER 270 RECREATION AND SPECIAL POPULATIONS (3)
The study of recreation as a resource and tool for recreational personnel working with specific special populations. The special populations discussed are: the mentally retarded, youth and adult offenders, mentally ill, alcoholics and drug addicts, the physically disabled, visually impaired, the economically deprived, racial minorities, and the aged.

PER 290 INDEPENDENT STUDY IN DANCE COMPOSITION (2)
Prerequisite: PER 230 or DRAM 222.

PER 321 REPERTORY DANCE (1)
Student participates directly in the production of a dance choreographed by faculty or guest artist.

PER 324 DANCE PRODUCTION (2)
Analysis and practice in elements of publicity, lighting, costuming and makeup for dance. Emphasis is placed on the non-traditional forms of dance production.

PER 380 PLANNING AND DESIGN OF PARK AND RECREATION FACILITIES (3)

A survey of park and recreation areas and facilities (indoor and outdoor) with emphasis on planning, design, park land acquisition and development programs.

PER 382 CAMP COUNSELING (3)

Techniques of camp and outdoor recreation programming as it relates to public, resident and day camps. Counseling, techniques of administration, program, and design constitute the course emphasis. Field trip required.

PER 384 LEISURE IN CONTEMPORARY SOCIETY (3)

A course involving interpretation of recreation as a basic part of the living process; the importance of recreation in individual communities and the nation; and the growing importance of leisure-time problems.

PER 390 INTRODUCTION TO THERAPEUTIC RECREATION (3)

A presentation of therapeutic recreation in the United States today. The course will consider such topics as: therapeutic recreation services, rationale for therapeutic recreation, recreation and mental illness, recreation for the mentally retarded, the physically disabled and the aging, programs for socially deviant or dependent youth, community services for the disabled, and evaluation and research in therapeutic recreation. Prerequisite: PER 270.

PER 396 INDEPENDENT STUDY IN DANCE COMPOSITION (2)

Prerequisite: PER 296

PER 410 RECREATION AND MENTAL RETARDATION (3)

An introductory course designed to provide an understanding of recreation's specific facility in meeting needs of the mentally retarded. Course content: basic motor patterns and skills, basic physical and motor fitness, perceptual-motor development, movement experience, psychological and social behavior, and lab experience. Prerequisites: PER 270, PER 390.

PER 420 THERAPEUTIC RECREATION SERVICE (3)

An introduction to technical and theoretical information required to administer and program recreation therapy services in both the institutional and the community setting.

PER 421 REPERTORY DANCE (1)

Direct student participation in the production of a dance choreographed by faculty or guest artist.

PER 450 RECREATION FOR THE AGED (3)

A course which will prepare the student in therapeutic recreation to work with the aged through knowledge of: philosophy of recreation in gerontology, group leadership, developing the volunteer program, day centers and clubs, institutions, special programming, and special events. Prerequisites: PER 270, PER 390.

PER 470 MANAGEMENT AND OPERATION OF GOLF FACILITIES (2)

Fundamentals of operative golf facilities with special emphasis on turf maintenance, concession facilities, equipment purchasing, sample bids and lease proposals, legal liabilities, programming of lessons and tournaments, course design, pro-shop operation and driving range operation.

PER 472 RECREATION FOR THE PHYSICALLY DISABLED (3)

The study of recreation activity and its modification and adaptation for the physically disabled participant. Resources, programming, equipment, legislation, grants, and area and facility adaptation constitute the course emphasis. Prerequisites: PER 270, PER 390.

PER 480 ORGANIZATION AND ADMINISTRATION OF RECREATION AND LEISURE SERVICES (3)

A course in modern theory and methodology of the administrative process, including such topics as personnel management, revenue resources, budget and fiscal management, public relations, planning, evaluation and research, structure and organization, department manuals and staff guidelines.

PER 482 MANAGEMENT AND OPERATION OF AQUATIC FACILITIES (3)

Procedures for effective management of swimming pools, wading pools, waterfront, ponds, lakes, and reservoirs for recreational use. The course concentrates on lifeguard and instructional staff duties, maintenance materials and operation, pool chemistry and winter sport use.

PER 484 PROGRAMS IN RECREATION AND LEISURE SERVICES (3)

Methods of planning a balanced community recreation program. The primary emphasis is on leisure counseling, survey and interest-finding instruments, brochure construction, activity structures, advertising and program promotion.

PER 486 RECREATION AND LEISURE SERVICE LEADERSHIP AND SUPERVISION (4)

Theory and application of leadership techniques, management styles, motivation programs, and problem-solving. Such topics as recruitment, assignment, evaluation, and in-service training programs are considered. The student is expected to complete an on-the-job leadership or supervision project.

PER 495 INTERNSHIP IN RECREATION AND LEISURE SERVICES (12)

Full-time placement in a recreation and/or park agency. The course is designed to provide a smooth transition from the classroom to the work setting through first hand experience. The student is expected to complete a minimum of six hundred clock hours in one or two agencies (300 hours each). Application must be made during the first four weeks of the semester prior to the semester in which the internship is planned. Prerequisites: PER 480, PER 482, PER 484, PER 486.

PER 498 INDEPENDENT STUDY IN DANCE COMPOSITION (2)

Prerequisite: PER 396.

PER 498, 499 INDEPENDENT STUDY IN RECREATION (1, 2)

Prerequisites: Grade-point average of 3.0, ten semester hours of courses in recreation, and permission of instructor.

Performing Ensembles

(School of Humanities and Fine Arts)

PERF 110, 120; 210, 220; 310, 320; 410, 420 JAZZ ENSEMBLE (1 ea.)

By audition. This group utilizes stage band instrumentation and performs many local and national concert engagements. Audition preference is given to members of Stadium Band and/or Symphonic Band.

PERF 131; 231; 331; 431 STADIUM BAND (1 ea.)

Open to all students who demonstrate sufficient ability on wind or percussion instruments or have previous training in auxiliary units (flags, twirlers, pompons). The band performs in the stands for home football games and marches in several parades. At mid-semester the band converts to concert band instrumentation to prepare for their annual Christmas concert.

PERF 132, 133; 232, 233; 332, 333; 432, 433
SYMPHONIC BAND **(1 ea.)**

Open to any wind and percussion student who demonstrates the ability to perform advanced wind ensemble literature. The group presents formal concerts on campus and in selected high schools and performs for the Commencement ceremony.

PERF 137, 138; 237, 238; 337, 338; 437, 438
INSTRUMENTAL ENSEMBLE **(1 ea.)**

Groups are organized upon the basis of talents and interests of the members. These groups may consist of various combinations of woodwind, string, bass, and percussion instruments.

PERF 140, 240, 340, 440 PEP BAND **(1 ea.)**

Membership is by invitation of director based upon ability and instrumentation. Rehearsals begin fall mid-semester in preparation for musical entertainment at basketball games.

PERF 144, 145; 244, 245; 344, 345; 444, 445
VOCAL ENSEMBLES **(1 ea.)**

Include men's and women's trios, quartets, double quartet, etc. Groups are organized according to talents and interests of the students.

PERF 147, 148; 247, 248; 347, 348; 447, 448
COLLEGE CHOIR **(1 ea.)**

Open to all men and women who wish to sing the best in all styles of choir literature. Performs several concerts each year.

PERF 151, 152; 251, 252 PIANO ACCOMPANYING **(1 ea.)**

A course designed to give piano majors actual experience in supervised accompanying with emphasis on interpretation of various styles.

PERF 154, 155; 254, 255; 354, 355; 454, 455
CLARINET ENSEMBLE **(1 ea.)**

Composed of interested clarinet players who desire an outlet to rehearse and perform clarinet literature. Offered alternate years.

PERF 157, 158; 257, 258; 357, 358; 457, 458
COMMUNITY CHOIR **(1 ea.)**

Open to faculty, students, and community members. Performs at times with the community symphony.

PERF 161, 162; 261, 262; 361, 362; 461, 462
DANCE BAND **(1 ea.)**

Open to any student wishing to improve stylistic or rhythmic reading skills in dance band literature.

PERF 165, 166; 265, 266; 365, 366; 465, 466
RECORDER ENSEMBLE **(1 ea.)**

Fundamental approach is used in teaching students to obtain proficiency on the Baroque recorder. Literature from all eras is utilized after basic skills are obtained. Offered alternate years.

PERF 168, 169 BEGINNING JAZZ IMPROVISATION **(1 ea.)**

Instrumentalists learn basic techniques of performing rock and jazz solos. Prerequisite: performing knowledge of major and minor scales on instrument.

PERF 171, 172; 271, 272; 371, 372; 471, 472
MODERN CHOIR **(1 ea.)**

A performing group that sings Broadway show tunes, jazz, and popular music for campus and community audiences. Auditions held for membership.

PERF 368, 369 ADVANCED IMPROVISATION (1, 1)
Emphasis is placed on learning riffs, figures, and sequences as they are utilized in various chord structures. Most of the tunes utilized involve altered chords and substitute chords. Beginning improvisation is a prerequisite or special permission of the instructor.

PERF 384, 385; 484, 485 COMBO (1 ea.)
Interested individuals team up with a rhythm section in learning tunes and head charts. Various combinations of instrumentalists and vocalists find this class the best medium for improving performing skills and making practical application of improvisation techniques.

Philosophy

(School of Humanities and Fine Arts)

PHIL 251 HISTORY OF PHILOSOPHY I (3)
Foundations of Greek thought and philosophy, including Socrates, Plato, Aristotle; Christian philosophy through St. Thomas Aquinas. Permission of instructor.

PHIL 252 HISTORY OF PHILOSOPHY II (3)
Modern philosophy: Machiavelli through William James. Permission of instructor.

PHIL 351 AESTHETICS (3)
Classical and contemporary theories of art; analysis of works in visual arts, music, dance, literature, theatre and film. Recommended for fine arts, education, and English majors.

Physics

(School of Natural Sciences and Mathematics)

PHYS 111 INTRODUCTION TO PHYSICS (3)
A lecture course in mechanics, electricity, magnetism, thermodynamics, sound, and optics. Intended for students of subjects other than the natural sciences. Three lectures per week.

PHYS 111L INTRODUCTION TO PHYSICS LABORATORY (1)
Laboratory work emphasizing the principles and methods of physics. One three-hour session per week.

PHYS 211, 212 GENERAL PHYSICS (4, 4)
A lecture course in mechanics, electricity, magnetism, thermodynamics, sound, optics, and modern physics. Problem solving is emphasized. Prerequisite: college trigonometry. Four lectures per week.

PHYS 211L, 212L GENERAL PHYSICS LABORATORY (1, 1)
Laboratory work confirming general principles by observation and evaluation of quantitative data. Detailed laboratory reports are required. One three-hour session per week.

PHYS 221, 222 ENGINEERING PHYSICS (4, 4)
A lecture course in mechanics, electricity, magnetism, thermodynamics, sound, and optics. The calculus and vectors are employed throughout. Principles and mathematical models are emphasized and problem solving is used to measure progress. Intended for science and engineering students. Corequisite: MATH 151. Four lectures per week.

PHYS 221L, 222L ENGINEERING PHYSICS LABORATORY (1, 1)
Laboratory work in the classical branches of physics. Formal laboratory reports are required. One three-hour session per week.

PHYS 224 MODERN PHYSICS (4)
A lecture course introducing special relativity, quantum physics, nuclear physics, and solid state physics. Offered alternate years or upon sufficient demand. Prerequisite: PHYS 222. Four lectures per week.

PHYS 246 INDEPENDENT STUDY IN PHYSICS (1)
A course in which a student with a previously developed interest in and knowledge of a specialized subject can continue his or her work. It is expected that most such work will be original. However, studies of a non-original nature but not in the established curriculum will also satisfy the requirements of this course. Prerequisite: consent of instructor. Work schedule by arrangement.

PHYS 249 INDEPENDENT STUDY IN PHYSICS (2)
See Independent Study course description under PHYS 246.

Political Science

(School of Social and Behavioral Sciences)

POLS 101, 102 AMERICAN GOVERNMENT (3, 3)
A study emphasizing the framework and functions of the national government with some attention to state and local governments.

POLS 251 INDEPENDENT STUDY IN POLITICAL SCIENCE (1)
POLS 252 INDEPENDENT STUDY IN POLITICAL SCIENCE (2)
Prerequisites: six hours of political science and permission of the instructor.

POLS 254 PHILOSOPHY OF AMERICAN DEMOCRACY (3)
A study of the ideas in American democracy as they evolved out of the writings of the great political philosophers such as: Plato, Socrates, Aristotle, Hobbes and Locke. Additional attention is given to the *Federalist Papers* and de Tocqueville's *Democracy in America*. Recommended prior courses: POLS 101, 102.

POLS 256 STATE AND LOCAL GOVERNMENT (3)
A study of the development, organization and operation of state and local governments in the United States. Prerequisites: POLS 101, 102.

POLS 261, 262 COMPARATIVE GOVERNMENTS (3, 3)
An introduction to comparative politics emphasizing the political systems of Great Britain, France, Germany, the Soviet Union and the developing nations.

POLS 300 THE WASHINGTON SEMINAR (12)
Seminar-internship conducted in Washington, D.C., in cooperation with the Washington Center for Learning Alternatives. Students do formal academic study in conjunction with intern assignments with congressional offices, executive agencies and the Justice Department. Prerequisites: 6 hours of political science and consent of the program coordinator.

POLS 310 CONSTITUTIONAL INTERPRETATIONS (3)
A study of selected decisions of the Supreme Court of the United States, emphasizing recent cases involving freedom of religion and speech, equal protection of the laws, and criminal procedure. Prerequisite: 6 hours of political science.

POLS 312 PUBLIC ADMINISTRATION (3)
An introduction to public administration with emphasis on historical development, organizational structure and theory, management, personnel administration, fiscal administration and administrative responsibility. Prerequisites: POLS 101, 102.

Physical Science

(School of Natural Sciences and Mathematics)

PSCI 101 PHYSICS AND CHEMISTRY FOR DENTAL ASSISTANTS (2)

Applications of selected principles of chemistry and physics toward understanding the materials involved in the dental sciences. Two lectures per week.

PSCI 111 SURVEY OF PHYSICS (3)

Lectures and demonstrations in the traditional fields of physics intended to show the student that he or she already knows much about physics. Approached non-mathematically with emphasis on the conceptual, qualitative aspects of physics. Intended for students with majors other than the sciences. Three lectures per week.

PSCI 112 SURVEY OF CHEMISTRY (3)

Lectures and demonstrations on the major principles of chemistry. Approached non-mathematically and with attention to chemical technology and its effect on society. Intended for students with majors other than the sciences. Three lectures per week.

PSCI 113 SURVEY OF EARTH SCIENCE (3)

Lectures on important topics in geology as well as the solar system, weather, and the oceans. Emphasis on understanding the physical makeup of the earth. Intended for students with majors other than the sciences. Three lectures per week.

PSCI 114 ELEMENTARY ASTRONOMY (3)

Lectures on both the solar system and the stars in general, including stellar evolution. Knowledge of elementary algebra desirable. Nighttime observing scheduled when possible. Three lectures per week.

PSCI 115 WEATHER AND CLIMATE (3)

Lectures and demonstrations on the causes and effects of typical weather and climate phenomena of the world and particularly of the western United States. Included are such topics as earth's general air circulation, seasons, heating, cooling, air masses, and the formation and classification of clouds. Three lectures per week.

Psychology

(School of Social and Behavioral Sciences)

PSY 121, 122 GENERAL PSYCHOLOGY (3, 3)

A survey of the fundamental principles of psychology.

PSY 133 HUMAN GROWTH AND DEVELOPMENT (3)

An introductory study of developmental principles, ages and stages of the life span and adjustment techniques. Not intended for social science majors. Credit for this course will not be granted if PSY 310, PSY 330 and/or PSY 350 are taken.

PSY 200 MENTAL HYGIENE (3)

A study of the problems of behaviorally defining mental health, and of the strategies useful in the pursuit of mental health. An introduction to abnormal psychology emphasizing prevention of serious problems through personal understanding. Prerequisites: PSY 121, 122 or permission of the instructor.

PSY 254 EDUCATIONAL PSYCHOLOGY (3)

The psychological principles underlying the social, emotional, and intellectual development of the child as these relate to educational theory and practice. Prerequisites: PSY 121, 122.

PSY 310 CHILD PSYCHOLOGY (3)

Principles of human development and psychology from conception to puberty. Prerequisites: PSY 121, 122.

PSY 314 PSYCHOLOGY OF LEARNING (3)
Classical and modern psychological explanations of the phenomenon of learning at both the human and lower-animal levels. Prerequisites: PSY 121, 122; STAT 200.

PSY 320 SOCIAL PSYCHOLOGY (3)
A study of social influences upon behavior. Consideration will be given to topics such as: social perception, attitude formation and change, communication and leadership. Prerequisites: PSY 121, 122 or permission of the instructor; STAT 200.

PSY 322 MOTIVATION (3)
An examination of classical and contemporary psychological explanations of the forces that originate, direct, and sustain behavior. Prerequisites: PSY 121, 122; STAT 200.

PSY 330 ADOLESCENT PSYCHOLOGY (3)
Principles of human physiological and psychological development from puberty through young adulthood. Prerequisites: PSY 121, 122.

PSY 332 INDIVIDUAL AND GROUP DIFFERENCES (3)
A study of some measurable similarities and differences in intelligence, aptitude, achievement and personality such as those between the sexes and among racial groups. Implications of measured differences for societal decisions regarding education and employment are examined. Prerequisites: PSY 121, 122; STAT 200.

PSY 340 ABNORMAL PSYCHOLOGY (3)
A systematic presentation of the concepts related to psychopathology and personality disorders including functional causation, general psychological theory, and behavior deviation patterns. Prerequisites: PSY 121, 122; STAT 200.

PSY 350 PSYCHOLOGY OF AGING (3)
A survey of the problems of aging in physiological, social and psychological perspectives with attention to such problems as health, housing, interpersonal relationships, finances, mobility, retirement and death. Prerequisites: PSY 121, 122.

PSY 351 INDEPENDENT STUDY IN PSYCHOLOGY (1)
PSY 352 INDEPENDENT STUDY IN PSYCHOLOGY (2)
Prerequisites: nine hours of psychology and permission of instructor.

PSY 400 TESTS AND MEASUREMENTS (3)
An introduction to the theory, problems, methods and content of psychological measurement, including such topics as: concepts of the purpose of testing, test administration and scoring, standardization, reliability, validity, and test evaluation. Prerequisites: PSY 121, 122; STAT 200.

PSY 412 INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY (3)
The application of psychological principles to formal, productive organizations such as businesses, governments and schools. Personnel selection, placement, training and evaluation, motivation to work, job satisfaction and morale are examined. Prerequisites: PSY 121, 122; STAT 200. Counts as a management course for Management majors and minors.

PSY 420 PERSONALITY (3)
Personality theories from the time of Freud through the present, with emphasis on the development and functioning of the normal personality. Prerequisites: PSY 121, 122; STAT 200.

PSY 422 EXPERIMENTAL APPROACHES TO SENSATION AND PERCEPTION (3)
An introduction to the visual and auditory information processing systems. Frequent classroom demonstrations and occasional opportunities for student experimentation. Prerequisites: PSY 121, 122; STAT 200.

Radiologic Technology

(School of Nursing and Allied Health)

RADT 111 RADIOLOGIC ORIENTATION (2)

Complete overview of radiologic technology with emphasis on guidelines of the program, history, the medical team, health-care delivery, medical ethics, professional conduct, and professional organizations and development.

RADT 112 RADIOLOGIC PHYSICS (2)

A study of basic atomic theory. Introduction to X-ray production, interaction of X-rays with matter, basic radiation protection, and preventive maintenance of X-ray equipment.

RADT 121 RADIOLOGIC TECHNOLOGY I (2)
RADT 121L RADIOLOGIC TECHNOLOGY I LAB (1)

Radiography of appendicular skeletal system, ribs, sternum and sterno-clavicular joints. Student is instructed in every phase of radiologic technology in an integrated coverage of each of the above areas.

RADT 122 RADIOLOGIC PRINCIPLES I (2)
RADT 122L RADIOLOGIC PRINCIPLES I LAB (1)

A theoretical and practical approach to the fundamentals of radiography. Topics include: production of X-rays, equipment, accessory devices, production of radiographs, exposure mathematics and radiation hazards and protection. Technical and prime exposure factors are discussed and applied in the energized lab. Students make actual radiation exposures on a phantom patient in order to observe and learn the effect of various factor changes (Ma, time, KvP, distance, filtration, collimation, grid screens, X-ray film).

RADT 123 CLINICAL EXPERIENCE I (4)

Supervised experience in the clinical laboratory which enables student to become familiar with hospital and departmental policies, standard radiographic projections, nursing procedures, office procedures, basic radiation protection, and development of films. Students are under direct supervision of a registered radiologic technologist in an affiliated hospital.

RADT 124 NURSING PROCEDURE (1)

This course serves to introduce the student to the various ethical considerations and nursing procedures pertinent to the radiologic technologist. The student practices such techniques as obtaining vital signs, proper syringe technique, and first-aid measures.

RADT 131 RADIOLOGIC TECHNOLOGY II (2)
RADT 131L RADIOLOGIC TECHNOLOGY II LAB (1)

Continuation of RADT 121. Students are instructed in every phase of radiography of the axial skeleton, thoracic viscera, abdomen, digestive system, urinary system, and dental radiography.

RADT 132 RADIOLOGIC PRINCIPLES II (2)

Continuation of RADT 122. Subjects include: X-ray film processing chemistry, manual and automatic processing, sensitometry, film artifacts and their causes. Students are instructed in processor maintenance and develop an awareness for quality assurance in radiology.

RADT 133 CLINICAL EXPERIENCE II (4)

Continuation of RADT 123 in all phases of radiology, especially the areas covered in RADT 121. Includes two hours a week of film critique provided by the clinical instructor or radiologist.

RADT 241 RADIOLOGIC RESEARCH (1)

Students are required to prepare and present a formal scientific paper relative to radiologic technology, to include carrying out the appropriate research and data collection. Students present an oral report on their selected research topics.

RADT 242 RADIOLOGIC PATHOLOGY (1)
Designed to acquaint the student with certain changes which occur in disease and injury and their application to radiologic technology.

RADT 243 CLINICAL EXPERIENCE III (10)
Continuation of RADT 133 in all phases of radiology, especially the areas covered in RADT 121 and 131. Includes two hours per week of film critique provided by the clinical instructor or radiologist.

RADT 251 RADIOLOGIC TECHNOLOGY III (3)
Study of specialized and highly technical procedures carried out in the department of radiology. Included is a study of the special equipment, opaque media and radiographic anatomy involved in the procedures.

RADT 252 RADIATION THERAPY/NUCLEAR MEDICINE (2)
RADT 252L RADIATION THERAPY/NUCLEAR MEDICINE LAB (1)
Emphasizes the use of X-rays and other ionizing sources in therapy, as well as the fundamentals of radioisotope technology and the role of the technologist in their use. The absorption of radiation, its effect upon tissue and tissue recovery are also studied.

RADT 253 CLINICAL EXPERIENCE IV (10)
Continuation of RADT 243 in all phases of radiology. Includes two hours per week of film critique provided by the clinical instructor or radiologist.

RADT 261 RADIOLOGIC TECHNOLOGY IV (3)
A study of pediatric radiography, departmental administration, and radiologic records. The last few weeks of this course are devoted to a review and preparation for the national registry examination.

RADT 263 CLINICAL EXPERIENCE V (10)
Continuation of RADT 253 in all phases of radiology, with special emphasis on radiation therapy and nuclear medicine. Includes two hours per week of film critique provided by the clinical instructor or radiologist.

Reading

(School of Humanities and Fine Arts)

READ 110 COLLEGE STUDY SKILLS AND READING (3)
Designed to aid in the development of vocabulary and comprehension; especially for students whose ACT scores indicate a need to improve reading and study skills.

READ 113 READING IMPROVEMENT (3)
Developmental course stresses vocabulary and comprehension. Two hours of structured class work and one hour of skills practice permit students to advance at their own speed.

Sociology

(School of Social and Behavioral Sciences)

SOC 144 MARRIAGE AND THE FAMILY (3)
The development of marriage and the family in various selected cultures; an examination of the important aspects of courtship and marriage; contemporary marital and domestic problems; changing family functions; efforts at stabilization and the problem of adjustment to a changing society.

SOC 260 GENERAL SOCIOLOGY (3)
A survey of sociological concepts designed to acquaint students with the terminology, basic principles and important theories. Not open to freshmen.

SOC 264 SOCIAL PROBLEMS (3)
A discussion of some of the major contemporary social problems. Possible topics include: crime, race relations, war, the educational systems unequal distribution of wealth and political apathy. Prerequisite: SOC 260.

SOC 300 POLITICAL SOCIOLOGY (3)
An interdisciplinary study of the interactions and interrelationships between social and political forces. Prerequisite: SOC 260.

SOC 310 SOCIOLOGY OF RELIGION (3)
An interdisciplinary approach to the scientific study of religion, particularly in the context of modern culture. Prerequisites: SOC 260, STAT 200.

SOC 312 COLLECTIVE BEHAVIOR AND POPULAR CULTURE (3)
An inquiry into the dynamics of forming new social structures with emphasis on contrasting popular cultures and their structures with collective behavior models of the study area. Prerequisite: SOC 260.

SOC 314 POPULATION IMPACT PROBLEMS AND URBANIZATION (3)
A survey of population problems and theories of population growth, industrialization and urbanization. Prerequisite: SOC 260.

SOC 316 SOCIAL STRATIFICATION (3)
An examination of the major theories regarding the causes and effects of the differential distribution of desirables by race, social class, and other variables.

SOC 330 CRIME AND DELINQUENCY (3)
A study of crime, delinquency, and deviance, including the social and psychological factors of such behavior, trends in theory, correctional procedures, control, prevention, and laws. Prerequisite: SOC 260.

SOC 350 THANATOLOGY (3)
A critical review of concepts and findings of social scientists and a semi-scientific review of literature dealing with death. Prerequisite: SOC 260.

SOC 351, 352 INDEPENDENT STUDY IN SOCIOLOGY (1, 2)
Prerequisites: 6 hours of sociology and permission of instructor.

SOC 360 SOCIAL INFLUENCES OF SMALL GROUPS (3)
An inquiry into small-group processes in schools, peer groups, industry and other selected institutions; small groups as related to the larger social system; group structure and communications, the dynamics of social interaction. Prerequisite: SOC 260.

SOC 400 HISTORY OF SOCIOLOGY (3)
A study of the development of sociology as a discipline from early times to the present. Prerequisite: SOC 260.

SOC 410 CONTEMPORARY SOCIAL THEORY (3)
A survey of sociological theories with an emphasis on 20th century contributions and the relationships of sociology to allied fields such as anthropology, psychology, economics and political science. Prerequisite: SOC 260.

Social Science

(School of Social and Behavioral Sciences)

SOCS 147 EXPLORATORY STUDIES IN THE SOCIAL SCIENCES (1)
SOCS 148 EXPLORATORY STUDIES IN THE SOCIAL SCIENCES (2)
A course designed to allow social science students to explore areas of interest through work experience in schools, public offices, human services agencies, etc.

SOCS 201 INTRODUCTION TO RELIGION (3)
A transdisciplinary introduction to the field of religion. Considered in the course will be such topics as: the religious impulse, types of religious experience, influence of religion on Western civilization, and the Western-Eastern religious problem.

SOCS 310 METHODS OF SOCIAL RESEARCH (3)
An introductory course in research methods and their application to the social sciences. Prerequisites: PSY 121, 122 or SOC 260.

SOCS 321, 322 CONTEMPORARY ISSUES IN RELIGION (3, 3)
A course designed to consider various current topics in religion. Specific topical descriptions will be provided by the instructor.

SOCS 351 HISTORY OF IDEAS IN THE SOCIAL SCIENCES: ANCIENT AND MEDIEVAL PERIODS (3)
A study of the major ideas of man and society in ancient Greece and Rome with attention to social conditions influencing their development and transmission into the social thought of Medieval Europe.

SOCS 352 HISTORY OF IDEAS IN THE SOCIAL SCIENCES: MODERN PERIOD (3)
A study of the emergence of the Idea of Progress, a set of ideas which underlie the social sciences, including history writing. Critique of the effectiveness of these ideas for a social science capable of meeting the problems of modern society. Prerequisite: SOCS 351.

Spanish

(School of Humanities and Fine Arts)

SPAN 111, 112 FIRST-YEAR SPANISH (5, 5)
A beginning program designed to help develop basic competency in understanding, speaking, reading, and writing for students whose major fields have a comprehensive foreign language requirement.

SPAN 114, 115 CONVERSATIONAL SPANISH (3, 3)
A beginning level class for students who wish to develop a basic vocabulary for speaking and understanding Spanish socially, on the job, or south of the border.

SPAN 117, 118 CAREER SPANISH (3, 3)
For students with or without prior knowledge of Spanish who wish to develop a speaking and understanding knowledge of the vocabulary and phrases most frequently encountered in the fields of social work, education, medicine, law enforcement, agriculture, ranching, air transportation, geology, engineering, and child care.

SPAN 251, 252 SECOND-YEAR SPANISH (3, 3)
A comprehensive intermediate-level transfer-type program which provides reinforcement and expansion of the four basic language skills developed in the first-year course, as well as exposure to a wider variety of cultural materials and situations. Prerequisites: two years of high school Spanish; SPAN 111, 112; or permission of instructor.

Speech

(School of Humanities and Fine Arts)

SPCH 101 INTERPERSONAL COMMUNICATIONS (3)
Concerned with language, listening, response, defense of statement and/or non-verbal communication between two or more people.

SPCH 102 SPEECHMAKING (3)
Designed to help the student in the preparation, organization, and delivery of a speech.

SPCH 111 INTRODUCTION TO SPEECH PATHOLOGY (3)
An introductory course for students interested in exploring the field of speech pathology and audiology. Recommended for elementary education and early-childhood education majors.

SPCH 112 VOICE AND DICTION (3)
The use of the speaking voice with emphasis on voice placement, speech sounds and the phonetic alphabet. Recommended for theater majors.

SPCH 121 INTRODUCTION TO BROADCASTING (3)
An introductory course concerned with the broadcasting mediums of radio and TV. Basic techniques, history, and impact on society are covered.

SPCH 122 RADIO AND TV PRODUCTION (3)
A practical course in radio and television production. Prerequisite: SPCH 121 or consent of instructor.

SPCH 201 ADVANCED SPEECH MAKING (3)
Trains the student in panels, interviews, persuasion, informative, and after-dinner speaking and situation speaking encountered in community living. Open to any student who has completed SPCH 102 or by consent of instructor.

SPCH 202 BUSINESS AND PROFESSIONAL SPEAKING (3)
Designed for the business or professional person who will be expected to speak in public as either a member or guest of an organization.

SPCH 211 VOICE AND ARTICULATION DISORDERS (3)
Provides an introduction to the anatomy of the head, neck, and trunk and a thorough analysis of the nature, causes, and treatment of articulation and voice disorders.

SPCH 231, 232 DEBATE I (3, 3)
Research and development of the various types of debate formats using national and international topics of current interest. The student may enter into competition.

SPCH 233, 234 FORENSIC SPEECH (3, 3)
Speech work used for competitive speaking including informative, persuasive, oratory and extemporaneous speaking.

SPCH 235 DISCUSSION (3)
The class is concerned with the language of group interaction, with emphasis on types of groups, purposes, group structure, task orientation, group climate and group consensus. Assignments are based on topics of current interest.

SPCH 241 ORAL INTERPRETATION (3)
Emphasis is placed on the reading aloud of prose, poetry, and essays with the intention of conveying the author's ideas to a listening audience.

SPCH 242 READER'S THEATRE (3)
The staging of a long work or several shorter works by the use of oral interpretation and a minimum of properties. Prerequisite: SPCH 241 or permission of the instructor.

SPCH 245, 246 PROBLEMS IN SPEECH (1, 1)
An independent study course which includes special problems and work in speech or speech-related activities.

SPCH 302 SEMANTICS (3)
The effect of slang, triteness, labels, and colloquialisms upon the public and the individual reactions to these techniques of language.

SPCH 331, 332 DEBATE II (3, 3)
See SPCH 231, 232

SPCH 401 PSYCHOLOGY OF PERSUASION (3)
A study of the nature of audiences and how a speaker can influence the audience.

SPCH 402 SPEECH ANALYSIS (3)
The study of world-famous speeches and speakers of the past and present with the purpose of seeing why they were successful.

SPCH 445, 446 PROBLEMS IN SPEECH (1, 1)
See SPCH 245, 246

Statistics

(School of Natural Sciences and Mathematics)

STAT 200 INTRODUCTION TO PROBABILITY AND STATISTICS (3)
An introductory course in statistics and statistical methods, primarily intended for the agricultural sciences, business administration, economics, home economics, psychology, sociology, geology and the medical sciences. Examples and exercises have been chosen from all of these subject areas. Some of the topics discussed are: analysis of data, elementary probability, binomial distribution, random sampling, Student's t-distribution, regression and correlation, chi-square, F-distribution, and analysis of variance. Prerequisite: MATH 110 or two years of high school algebra. Three lectures per week.

STAT 214 STATISTICAL APPLICATIONS IN BUSINESS (3)
An introduction to the methods used in business for the collection and analysis of numeric data for decision-making purposes. The course covers probability and decision theory; sample design; classical distribution; statistical inference; methods of estimation and prediction as they apply to business situations. Prerequisite: MATH 113 or two years of high school algebra. Three lectures per week.

STAT 311 STATISTICAL METHODS (3)
Simple and multiple analysis of covariance, introduction to non-parametric statistical techniques, design of experiments. Prerequisite: STAT 200 or STAT 214, or consent of instructor. Three lectures per week.

STAT 312 CORRELATION AND REGRESSION (3)
Graphical and numerical analysis for simple and multiple correlation and regression problems, both linear and curvilinear. Time series and multivariate analysis, least squares. Prerequisites: STAT 200 or STAT 214, or consent of instructor. Three lectures per week.

STAT 313 SAMPLING TECHNIQUES (2)
Survey designs, simple random, stratified and systematic samples; systems of sampling; methods of estimation; costs. Prerequiste: STAT 200 or STAT 214, or consent of instructor. Two lectures per week.

STAT 325 STATISTICAL APPLICATIONS IN SOCIAL STUDIES AND PSYCHOLOGY (2)
Applied problems in social science; linear models; design of experiments; sampling. For natural or social science students. Prerequisite: STAT 200. Two lectures per week.

STAT 495, 496, 497 SEMINAR (1, 1, 1)
Seminars conducted by faculty, students and visiting professors. A total of fifteen hours needed for one seminar credit. One lecture per week.

Welding

(School of Industry and Technology)

WELD 110 WELDING LABORATORY (7)
Shop practice in safe use of equipment. Oxyacetylene welding for approximately six weeks on mild steel in all positions and beginning through intermediate arc welding for the remainder of the semester.

WELD 112 OXYACETYLENE AND ARC THEORY (3)
Instruction in the care and use of welding equipment, selection of the proper rods and processes and safety as it applies to welding and welding equipment. (Classroom.)

WELD 115 APPLIED MATHEMATICS (2)
Basic mathematics, fractions, decimals, percentages and basic algebra, all as applied in industry.

WELD 120 WELDING LABORATORY II (7)
A continuation of WELD 110 in refining the welding of mild steel in all positions. Prerequisite: WELD 110 or consent of instructor.

WELD 121 BLUEPRINT READING (2)
Basic principles of blueprint interpretation and visualization of objects as applied to industry. Also the use and interpretation of welding symbols.

WELD 122 ADVANCED BLUEPRINT READING (2)
A continuation of blueprint reading with emphasis on working with shop drawings. Prerequisites: WELD 121 and 131, ENGR 105, or consent of instructor.

WELD 131 FABRICATION LAYOUT (2)
Basic layout techniques used from shop drawings to fabrication of sheet metal, plate, structural shapes and pipe.

WELD 132 ADVANCED FABRICATION LAYOUT (2)
A continuation of fabrication layout, WELD 131. Prerequisite: WELD 121 and 131, ENGR 105 or consent of instructor.

WELD 141 SHOP MANAGEMENT AND STRUCTURAL THEORY (3)
A study of shop operations, expenditures, floor-plan design and equipment of the modern-day shop and various welding codes as applied to industry.

WELD 145 METALLURGY (2)
A general study of smelting, refining, and alloying. Discussion of heat-treating methods and the effects of welding on metals.

WELD 230 WELDING LABORATORY III (7)
A continuation of WELD 120 with emphasis on low-hydrogen electrode welding techniques. Prerequisite: WELD 120 or consent of instructor.

WELD 240 WELDING LABORATORY IV (7)
A continuation of WELD 230 with emphasis on Mig, Tig, and pipe welding. Prerequisite: WELD 230 or consent of instructor.

WELD 251, 252 WORK EXPERIENCE (7, 14)
On-the-job training by local companies in fabrication, construction or maintenance welding. The student is responsible for securing the position and arranging work hours. Written papers are required as part of the course work. Minimum of 300 clock hours required for 7 credit hours or 600 clock hours for 14 credit hours. Prerequisites: WELD 110, 112, 115, 120, 121, 131, 141, 145, 230, or consent of instructor. Four hours per day for 15 weeks will equate to seven semester hours credit. Eight hours per day for 15 weeks will equate to 14 semester hours credit.

Governing Board and Administration

TRUSTEES OF THE CONSORTIUM OF STATE COLLEGES IN COLORADO

JOHN D. EDDY ..... Grand Junction
GLADYS FOSTER ..... Englewood
BERTRAM MORRIS ..... Boulder
JOHN PLOCK (Student Member) ..... Lakewood (Adams State College)
IRENE SWEETKIND, Vice-President of the Board ..... Gunnison
M. EDMUND VALLEJO ..... Pueblo
PHILIP A. WINSLOW, President of the Board ..... Colorado Springs
GEORGE W. WOODARD ..... Alamosa
JOHN A. MARVEL, President of the Consortium of State Colleges in Colorado ..... Denver

CONSORTIUM OF STATE COLLEGES

Adams State College ..... Alamosa
Milton Byrd, President
Mesa College ..... Grand Junction
John U. Tomlinson, President
Metropolitan State College ..... Denver
Richard G. Netzel, Acting President
Western State College ..... Gunnison
John P. Mellon, President

MESA COLLEGE STAFF OFFICIALS

General Services

JOHN U. TOMLINSON (1975). President; B.A., M.S., Fort Hays Kansas State University; Ph.D., University of Kansas.
CARL R. WAHLBERG, JR. (1972), Vice-President for External Affairs; B.A., M.A., Ed.D., University of Denver.
NATHAN E. BRUNDRIDGE (1967), Director of Special Projects; B.S., M.Ed., Colorado State University.
WALLACE DOBBINS (1958), Director of Information Services; B.Ed., Colorado State University; M.A., Western State College.
DALE E. JARRELL (1978), Director of Data Processing; B.S., Colorado State University.

Business Services

JOHN A. RICCILLO, C.P.A. (1978); Vice-President for Administrative Affairs; B.S., Fordham University.
GARY R. CALHOUN (1970), Business Manager; B.S.B.A., University of Denver.
WILLIAM C. CONKLIN (1972), Director of Physical Plant.
JOHN C. (JACK) KESTER (1966), Purchasing Officer; A.S., Mesa College.
DOUGLAS G. TUCKER (1975), Payroll Accountant/Personnel Coordinator; B.A., Western State College.

Instructional Services

H. HERBERT WELDON (1946), Professor of Mathematics, Vice-President for Academic Affairs; B.A., M.A., Western State College.
J. RICHARD GARCIA (1975), Administrative Assistant for Academic Affairs; B.S., Colorado State University.
ALFRED J. GOFFREDI (1948), Professor of Business, Director of Area Vocational School; B.A., M.A., Western State College.
CHARLES R. HENDRICKSON (1967), Director of Media Services; B.A., M.A., University of Northern Colorado.
KEITH W. MILLER (1965), Director of Continuing Education; B.A., M.A., University of Northern Colorado.
BETSY A. SNEED (1968), Registrar; B.S., East Texas State University; M.A., Adams State College.
MARTIN A. WENGER (1968), Director of Library Services; B.A., University of Utah; M.L.S., University of Oklahoma.

Deans of Academic Schools

School of Business, James C. Carstens (1962)
School of Humanities and Fine Arts, Dan M. Showalter (1957-59, 1961)
School of Industry and Technology, Alfred J. Goffredi (1948)
School of Natural Sciences and Mathematics, William E. Putnam (1961)
School of Nursing and Allied Health, Eileen M. Williams (1968)
School of Social and Behavioral Sciences, Donald A. MacKendrick (1956)

Instructional Services (Continued)

Department Heads

Art, Donald E. Meyers (1962)
Agriculture, Maylon D. Peters (1977)
Biological Sciences, Edward C. Hurlbut (1976)
Computer Science, Mathematics and Engineering, James C. Davis (1957)
Human Services, Harry A. Tiemann (1962)
Languages and Literature, Robert L. Johnson (1962)
Music, Darrell C. Blackburn (1957)
Nursing, Marie J. Eicher (1973)
Speech and Drama, William S. Robinson (1960)
Social Science, I. J. Nicholson (1960)

Student Services

JO F. DORRIS (1977), Vice-President for Student Affairs. B.A., Oklahoma College for Women; M.S., Oklahoma State University; Ed.D., Arizona State University.
RICHARD E. BACA (1972), Director, Counseling and Career Center; B.S., University of Colorado; M.A., University of Northern Colorado.
RAY L. BIGGS (1976), Director of Housing; B.S., Montana State University; M.Ed., Colorado State University.
TILMAN M. BISHOP (1962), Director of Student Services; B.A., M.A., University of Northern Colorado.
JOHN W. (JAY) JEFFERSON (1967), Director of College Center; B.A., M.A., Adams State College.
ELLEN P. JONES (1970), Counselor; B.A., M.Ed., Ed.S., University of Florida.
FRANK KELLER (1973), Assistant Director of College Center; B.A., Adams State College.
RICHARD N. McNEIL (1977), Intramural Director, Director of Adult Physical Education Activities. B.S., M.A., Michigan State University.
C. A. (JACK) SCOTT (1963), Director of Admissions; B.A., University of Northern Colorado; M.A., University of Denver.
MARION E. SHAW (1970), Counselor for Job Development and Placement; B.S., M.Ed., Colorado State University.
LIONEL W. (BUD) SMOCK (1967), Director of Financial Aids and Student Employment. B.A., M.A., Western State College.
HELEN M. SPEHAR, R.N. (1974), Director of Student Health Center; B.S., University of Colorado.
ROBERT P. STOKES (1970), Counselor for Career Development; B.A., Western State College; M.A., Colorado State University.
ANN M. VANDERTOOK (*1966; 1969), Bookstore Manager.
RAYMOND ALAN WORKMAN (1967-68, 1971), Counselor, Director of Student Activities; B.A., University of Northern Colorado; M.P.S., Ed.D., University of Colorado.

Library Staff

MARTIN A. WENGER (1968), Director of Library Services; B.A., University of Utah; M.L.S., University of Oklahoma.
M. ELIZABETH (BETTY) GOFF (1965), Assistant Professor of Library Science, Circulation Librarian; B.A., University of Colorado; M.A., University of Denver.
PAULINE O. MESSENGER (1963), Professor of Library Science, Reference Librarian; B.A., Bethany College; M.S., Emporia Kansas State University.
KATHLEEN R. TOWER (1972), Assistant Professor of Library Science, Catalog Librarian, B.M.E., M.A., University of Denver.

Instructional Personnel (1978-79 Faculty)

HERMAN C. ALLMARAS (1963), Associate Professor of Physics; B.S., University of Wisconsin; M.S., New Mexico Highlands University.
NICHOLAS J. ANDERSON (1976), Instructor of Business Management; B.B.A., Eastern New Mexico University; M.B.A., University of Denver.
DANIEL J. AROSTEGUY (1976), Associate Professor of Economics, Director of Selected Studies; B.S., M.S., University of Nevada, Reno; Ph.D., Colorado State University.
CHARLES W. BAILEY (1965), Associate Professor of Mathematics; B.A., M.A., University of Northern Colorado.
BRUCE A. BAUERLE (1972), Associate Professor of Biology; B.A., University of Kansas; M.S., University of Missouri—Kansas City; D.A., University of Northern Colorado.
HELEN GABRIEL BEAVER (1977), Assistant Professor of Applied Technology (Dental Assisting), Director of Dental Assisting and Expanded Functions Program; B.V.E., California State University, Sacramento.
VIRGINIA L. BEEMER (1968), Instructor of Education; Director of Early Childhood Education Program; B.S., Northern Arizona University.

(Figures in parentheses indicate year of regular appointment to Mesa College professional staff for half time service or more. Prior temporary or part-time service is not indicated.)

**Date of first employment in another classification.*

WALTER F. BERGMAN (1950), Associate Professor of Physical Education; B.S., M.Ed., Colorado State University.
RICHARD L. BERKEY (1967), Assistant Professor of English; B.A., Fort Lewis College; M.A., Eastern New Mexico University.
WALTER J. BIRKEDAHL (1967), Associate Professor of Music; B.Mus.Ed., M.Mus.Ed., University of Denver.
DARRELL C. BLACKBURN (1957), Professor of Music; Head, Department of Music; B.Mus.Ed., M.Mus.Ed., University of Colorado.
ORVILLE L. BOGE (1956), Professor of Chemistry; B.A., M.A., University of Northern Colorado.
HAROLD R. BOLLAN (1970), Assistant Professor of Applied Technology (Auto Body and Fender); B.S., Southern Utah State College; M.A., Brigham Young University.
LORRAINE N. BOSCHI (1961-63, 1970), Associate Professor of English; B.A., Ohio State University; M.A., Ohio University.
WILLIAM T. BRANTON (1970), Assistant Professor of Applied Technology (Welding); Certified Instructor, State Board for Community Colleges and Occupational Education.
JAMES K. BREYLEY, JR. (1975), Instructor of Business; B.A., Illinois Northwestern University; M.S., Colorado State University.
CLIFFORD C. BRITTON (1964), Associate Professor of Mathematics; B.A., Adams State College; M.A., San Diego State College.
C. JAMES BUCKLEY, C.P.A. (1972), Professor of Accounting; B.A., Western State College; M.S., Colorado State University.
TENNIE ANN CAPPS (1964), Assistant Professor of Office Administration; B.S., M.Bus.Ed., University of Oklahoma.
PERRY H. CARMICHAEL (1969), Assistant Professor of Speech; B.A., M.A., Western State College.
VIRGINIA T. (TESS) CARMICHAEL (1973), Instructor of Office Administration; B.A., Western State College.
JAMES C. CARSTENS (1962), Professor of Business Administration, Dean, School of Business; B.A., M.A., Western State College; Ph.D., Colorado State University.
JOHN D. CHARLESWORTH (1970), Assistant Professor of Applied Technology (Auto Mechanics); B.Ed., M.Ed., Colorado State University.
PHYLLIS L. CHOWDRY (1976), Assistant Professor of Biology; B.S., University of Denver; M.N.S., Arizona State University.
DAVID COX (1978), Instructor of Speech-Drama (Technical Theatre); B.A., Mesa College; M.F.A., University of Utah.
DANIEL R. DAIL (1978), Instructor of Agriculture; B.S., California State Polytechnic University, Pomona; M.S., University of Connecticut.
JAMES C. DAVIS (1957), Professor of Mathematics; Head, Department of Computer Science, Mathematics and Engineering; B.A., M.A., University of Northern Colorado.
DIANE DEA, R.N. (1977), Instructor of Nursing; B.S.N., University of Maryland; M.S.N., University of Colorado.
DOUGLAS T. DeVINNY (1975), Assistant Professor of Art; B.A., Colorado State University; M.F.A., Indiana University.
DALE L. DICKSON (1969), Assistant Professor of Business Management; B.S.B.A., University of Denver; M.Ed., Colorado State University.
RICHARD A. DIMPFL (1977), Assistant Professor of Business Management; B.A., Swarthmore College; M.B.A., University of Chicago; J.D., University of Maryland.
MATTS G. DJOS (1976), Assistant Professor of English; B.A., University of Washington; M.A., University of Idaho; Ph.D., Texas A. & M University.
DAVID R. DUFF (1973), Assistant Professor of Applied Technology (Graphic Communications); B.A., Colorado State University.
CAROL R. EDMONDS (1976), Instructor of Journalism; B.A., University of Colorado; M.S., Columbia University Graduate School of Journalism.
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DON CRAIG, Piano
ETHELYN CROSS, Piano
ALLEN DALEY, Guitar
DONNA GUNSAULUS, Oboe, English Horn
BILL HEINZ, Guitar
KERRY HENSON, Percussion
MARGARET HUTTON, Piano, Organ
ALLEN PORTER, Flute
DELLA SCHNEIDER, Clarinet
ALFRED URBACH, Cello
GEORGIA WATKINS, Flute
BARBARA WATTS, Voice
MELBA WILKINSON, Violin

EMERITI

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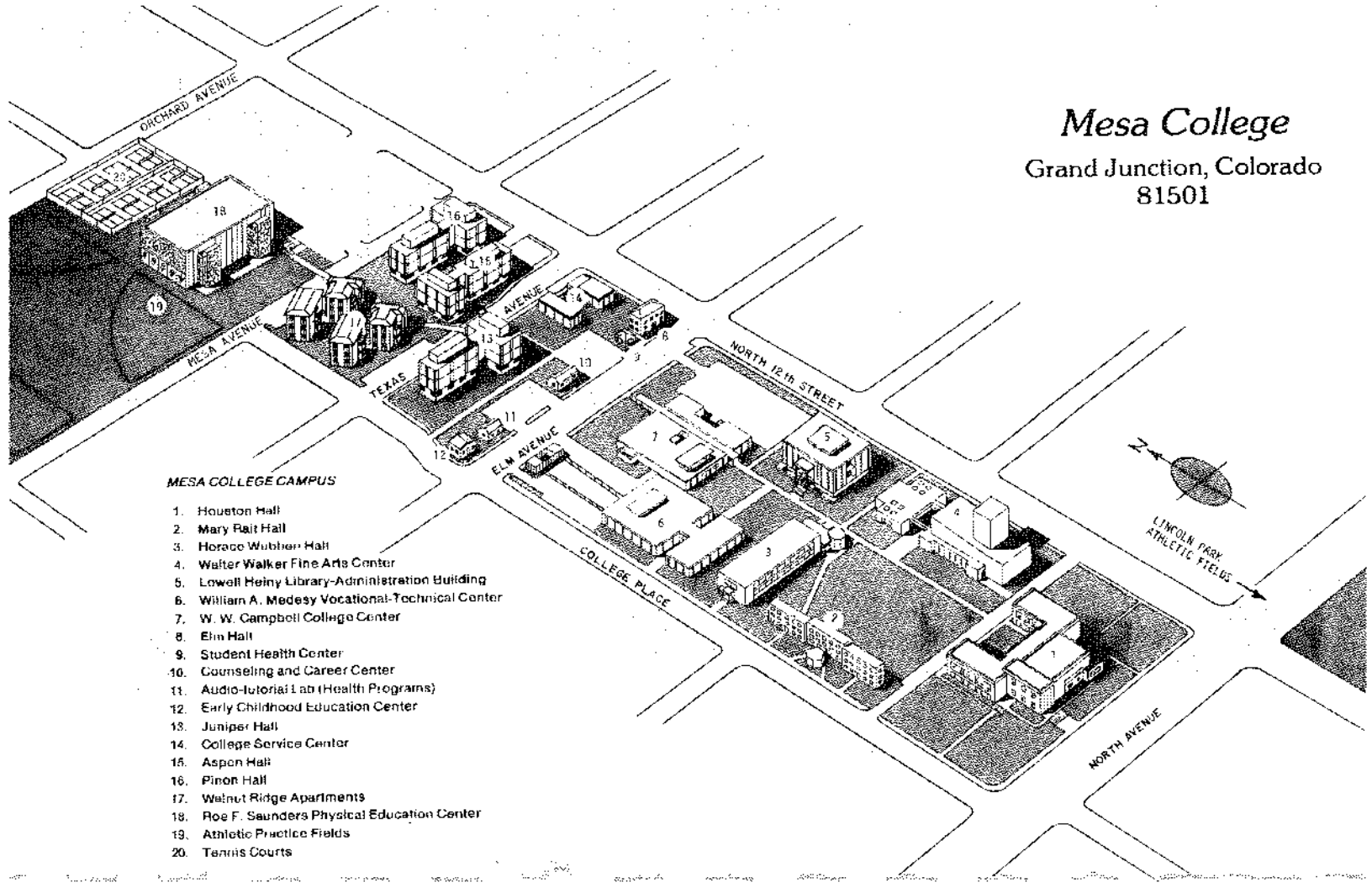

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4. Walter Walker Fine Arts Center
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7. W. W. Campbell College Center
8. Elm Hall
9. Student Health Center
10. Counseling and Career Center
11. Audio-tutorial Lab (Health Programs)
12. Early Childhood Education Center
13. Juniper Hall
14. College Service Center
15. Aspen Hall
16. Pinon Hall
17. Walnut Ridge Apartments
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19. Athletic Practice Fields
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