Mesa college®

GRAND JUNCTION, COLORADO 81502

GENERAL CATALOG 1985-86

How to Apply for Admission

Students Attending College for the First Time

1. Secure an Application for Admission form from your high school principal or from the Admissions Office at Mesa College.
2. Complete the Application for Admission and have your high school office send a copy of your high school transcript to the Admissions Office at Mesa College. Applications may be filed at any time after the close of the first semester of the senior year in high school and must be in the Mesa College Admissions Office by August 1 for Fall Semester and at least two weeks in advance of registration for Spring Semester. (The College reserves the right to deny admission to any student who has not completed the application process by these dates.)
3. Upon receipt of your application and the $10 application fee the College will inform you of your admission status. (Admission status will be tentative until the record of the final semester of the senior year has been received.)
4. A.C.T. scores must be in the Admissions and Records Office before final acceptance is granted. See your high school counselor for test dates.
5. Students who must live away from home must make arrangements for and secure approval of their housing through the office of the Director of Housing.
6. Prior to registration each applicant will receive additional information and preliminary registration instructions and materials.

Transfer Students

1. File with the Admissions Office at Mesa College:
   a. The Standard Application for Admission form. (A $10 application fee must accompany the admission application.)
   b. An official transcript of all credits earned from each college or university previously attended. Failure to list all institutions previously attended may result in loss of credit and/or dismissal.
   c. An official report of A.C.T. scores. (Transfer students who have fewer than 60 transferable semester credits and who have not taken these tests previously must make arrangements with the Admissions Office to take them prior to registration.)
   d. An official transcript from the high school attended.

Mailing address:
MESA COLLEGE
P.O. Box 2647
Grand Junction, CO 81502

REGISTRATION AND ADMISSION TESTS

The college admission tests of the American College Testing (A.C.T.) Program are required, prior to registration, of all new students who plan to work toward a degree at Mesa College. It is recommended that prospective students take these tests during their senior year in high school. The tests are available at designated centers throughout the state and region on five different dates.

A $9.50 fee must be submitted with registration form to the Registration Department, American College Testing Program, P.O. Box 414, Iowa City, Iowa 52243, four weeks prior to the test date on which the student elects to take the test. A special residual test administration date will be arranged as a part of each semester's registration period for those who, for good reason, have not been able to take the test during one of the regularly scheduled national test dates. (A $13.00 test fee is charged on the residual testing date.) Detailed information regarding testing centers, dates, and registration supplies will be available through high school principals and counselors or from the Director of Admissions at Mesa College. College Board Scholastics Aptitude Test Scores (S.A.T.) are not required by Mesa College and will not excuse the student from the A.C.T. requirement.

Mesa college

P.O. BOX 2647
GRAND JUNCTION, COLORAOO 81502

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NEED MORE INFORMATION?

Please feel free to contact Mesa College for any additional information you need. For assistance in specific areas, write or telephone:

Admission ..... **Jack Scott**-Director of Admissions, 248-1376
Housing ..... **Lee Seebo**-Director of Housing, 248-1536
Scholarships, Loans, Grants ..... **Bud Smock**-Director of Financial Aids, 248-1396
Pre-College Counseling ..... **Bob Stokes**-Student Life Center, 248-1366

Address: MESA COLLEGE, P.O. Box 2647, Grand Junction, CO 81502
Telephone: 248-1020

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

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FOREWORD

MESA COLLEGE is a comprehensive coeducational institution operated under the goverance of the Trustees of the Consortium of State Colleges in Colorado.

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

PHILOSOPHY AND GOALS

Mesa College is a democratic center of learning dedicated to the improvement of human capability. The College extends its services to anyone regardless of age, sex, race, religion, color, cultural background, economic status, or handicap. Committed to instruction, service, and research, with an emphasis on instruction, the College seeks to improve each student's unique talents and sense of social responsibility by helping the student to recognize knowledge as the basis of all past and future achievements.

By promoting the acquisition of skills as well as the discovery and application of knowledge, the College seeks to develop the intellectual, ethical, and aesthetic sensibilities that enable a student to pursue a rewarding career.

While recognizing the importance of preparing individuals to assume responsible and productive roles in society, the College seeks to liberate persons from narrow interests and prejudices, to help them observe reality precisely, to judge opinions and events critically, to think logically, and to communicate effectively.

The College offers programs of value in areas of civic and cultural life, research and recreation and desires to play a constructive role in improving the quality of human life and the environment.

In order to implement this philosophy, the College shall:

1) offer programs leading to baccalaureate degrees and associate degrees in liberal arts, sciences, business, and professional areas;
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 can be conversant in the areas of general knowledge.

HISTORY OF THE COLLEGE

Mesa College was organized as Grand Junction State Junior College in 1925 by authority of legislation 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.

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 baccalaureate degrees.

Mesa College has experienced growth throughout its 55 year history. Expansion of faculty has kept pace with enrollment, now about 4500, providing students with a favorable student—instructor ratio along with access to quality learning materials and facilities.

ACCREDITATION

Mesa College is accredited by the North Central Association of Colleges and Schools. 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. Various programs at Mesa are approved by appropriate state and national agencies, including the Colorado Board of Nursing, National League for Nursing, Colorado State Board of Accountancy, and Committee on Allied Health Education of the American Medical Association (Radiologic Technology), and the American Dental Association Commission on Dental Accreditation.

LOCATION

The campus is bordered by an attractive and modern residential section. Stores and other conveniences are located within walking distance of the campus, and many others, including large shopping centers, are nearby.

Grand Junction's location in a scenic part of the Rocky Mountain West provides unlimited opportunity for the outdoor enthusiast. Many 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 Ski Area on Grand Mesa. 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 southeast of Mesa College 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.

BUILDINGS AND EQUIPMENT

Houston Hall (1940), the first permanent building on the present campus, has classrooms for a variety of subject areas. This structure was remodeled in 1979-80 to provide several large lecture halls and other improvements including an elevator, new stairways, modern heating, lighting, and air-conditioning.

Horace Wubben Hall (1962) contains classrooms and laboratories, along with related staff offices and storage areas, for instruction and learning in the physical and life sciences, mathematics, computer sciences, and engineering. Special features of the building are an octagonal lecture hall which seats one hundred persons, an electron microscopy laboratory, and the only herbarium in western Colorado.

Lowell Heiny Library (1967) is a four-level building incorporating the latest concepts in library design, with open stacks and a variety of study facilities. The collection includes more than 140,000 volumes plus 1,100 periodicals. The library has facilities for a variety of learning experiences, including reading, viewing, listening, research, and group dis-

cussions. The library is an integral part of the college's Learning Resource Center, which also includes educational media services. The terrace level of the library 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) has shops, laboratories, and classrooms for auto mechanics, auto body and fender, electronics, dental assisting, and graphic-communications departments. The Mesa College Area Vocational School serves both youth and adults of the region as a training center for various occupations.

Industrial Energy Training Center (1982) houses shops, speciality training area and classrooms for Heavy Equipment/Diesel Mechanics, and shops, classrooms and specialty training area including facilities for Oxyacetylene, Electric and speciality welding training; Electric training center, shops, classroom and overhead and under-ground transmission training area is located at this site. This Center serves high school, college, and adults. It is located at 29 & D Roads approximately three miles from the main campus.

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), 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.

W.W. Campbell College Center (1962 remodeled 1980-81) 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 childcare centers and also for the Parent Education and Preschool program.

Mesa College Day Care Center, organized for the convenience of Mesa College students who have small children, is located on the lower level of the Early Childhood Education Center.

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.

Student Life 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.

Mesa College Farm, leased from the State Home and Training School, provides shops and laboratories for various types of courses.

COLLEGE/COMMUNITY RELATIONS

Through mutual cooperation with the community, Mesa College has become an integral factor in the development of Colorado West. Faculty members are available for lectures and discussions on a wide range of subjects and student groups appear before both public and private audiences for information or entertainment programs. The public is invited to attend many College programs—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.

WAYNE N. ASPINALL FOUNDATION PROGRAM

In cooperation with the Wayne N. Aspinall Foundation, Inc., Mesa College students have an opportunity to participate in several cooperative programs, including an annual Contemporary Affairs Symposium held each spring semester, an annual course and public lecture offered by a distinguished visiting lecturer honored as the occupant of Wayne N. Aspinall Chair of History, Political Science and Public Affairs, and the Wayne N. Aspinall Scholarships awarded to a student whose course of study is directed toward a career in public affairs. Details of these programs may be obtained from the Dean, School of Social and Behavioral Sciences.

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. 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.

MESA COLLEGE DAY-CARE CENTER

Day care is available for children of college students. A minimum fee is charged by the hour or by the day for children 2 to 5 years of age.

For further information, write Mesa College Day Care Director.

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.

DEGREES AND PROGRAMS

Mesa College grants the Bachelor of Business Administration, Bachelor of Science in Nursing, Bachelor of Arts and Bachelor of Science degrees in a number of areas. The College awards Associate in Arts, Associate in Commerce, and Associate in Science degrees in a variety of disciplines, as well as Associates in Applied Science and Certificates in occupational (vocational-technical) areas. Specific requirements for the various degrees 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.

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

School of Business—Administrative Office Management, Accounting, Computer Information Systems, Business Administration, Business Software Engineering, Data Processing, Finance, Management, Marketing, Medical Office Assistant, Office Administration, Personnel Management, Secretary—Legal or Medical, Travel, Recreation and Hospitality Management and Word Processing.

School of Humanities and Fine Arts—Art, Creative and Technical Writing, English, Foreign Languages, Mass Communications, Music, Philosophy, Speech, Theatre and Dance.

School of Industry and Technology—Auto Body and Fender, Auto Mechanics, Heavy Equipment/Diesel Mechanics, Mechanic-Welder, Electric Lineman, Electronics, Graphic Communications, Welding.

School of Natural Sciences and Mathematics—Agriculture, Astronomy, Biology, Botany, Chemistry, Computer Science, Engineering, Engineering Technology, Geology, Home Economics, Mathematics, Physics, Physical Science, Statistics, and Zoology.

School of Nursing and Allied Health—Dental Auxiliary, Nursing, and Radiologic Technology.

School of Social and Behavioral Sciences—Anthropology, Archaeology, Career Counseling and Guidance, Dance, Early Childhood Education, Economics, Education, Geography, History, Human Services, Law Enforcement, Military Science (ROTC), Physical Education, Political Science, Psychology, Recreation, Social Science, Sociology and Teacher Education.

Area Vocational School—The coordinating entity for the various occupational programs taught in the different schools of the College and Mesa County.

Continuing Education and Outreach—The coordinating office for adult education, night classes, and off-campus classes.

DEGREES AND PROGRAMS OF STUDY

Studies undertaken by a student at Mesa College depend upon career plans and educational objectives. The college offers baccalaureate degrees in Accounting, Biological and Agricultural Sciences, Business Administration, Recreation and Leisure Services, Liberal Arts, Nursing, Physical and Mathematical Sciences, Selected Studies, and Social and Behavioral Sciences, with a variety of options available in some of these four-year degree areas.

A student may first receive an 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 goals.

Mesa College offers 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.

Degrees and Certificates

Bachelor of Arts (B.A.)
- Social and Behavioral Science
- Recreation and Leisure Services
- Liberal Arts
- Selected Studies

Bachelor of Business Administration (B.B.A.)

Bachelor of Science (B.S.)
- Accounting
- Biological and Agricultural Sciences
- Physical and Mathematical Sciences

Bachelor of Science in Nursing (B.S.N.)

Associate of Arts (A.A.)
- Available in numerous disciplines

Associate of Commerce (A.C.)
- Accounting
- Office Administration, Secretarial

Associate of Science (A.S.)
- Nursing
- Dental Science
- Available in numerous other disciplines

Associate of Applied Science (A.A.S.)
- Auto Body and Fender
- Computer Information Systems, Business
- Commercial Art
- Early Childhood Education
- Electronics Technology
- Engineering Technology, Civil
- Engineering Technology, Drafting
- Graphic Communications
- Law Enforcement
- Legal Secretary
- Medical Secretary
- Mechanics-Automotive
- Radiologic Technology
- Travel, Recreation, and Hospitality
- Welding

Certificate Programs
- Data Processing
- Dental Assisting
- Drafting Technology
- Early Childhood Education
- Electric Lineman
- Electronics Technology
- Expanded Function Dental Auxiliary
- Heavy Equipment/Diesel Mechanics
- Legal Secretary
- Mechanics-Automotive
- Mechanic-Welder
- Medical Office Assistant
- Office Career Exploration
- Office Clerical-Secretary
- Welding
- Word Processing

Consortium Programs

Master of Arts (M.A.)
- Education Administration (Western State College)
- Elementary Education (Western State College)
- Guidance and Counseling (Adams State College)

Master of Business Administration (M.B.A.) (Western State College)

Teacher Certification
- Elementary (Metropolitan State College and Western State College)
- Secondary (Metropolitan State College)

Certificate Endorsement
- Educable Mentally Handicapped Endorsement (Metropolitan State College)

SECOND DEGREES

A student who has been awarded a bachelor's degree or an associate degree by Mesa College or another regionally accredited institution can earn an additional bachelor's or associate degree from Mesa College. The second bachelor's degree must be awarded in a different discipline.

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.

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 prior to earning credits toward the degree.

Two degrees will not be conferred in the same semester or at the same commencement exercise.

ADMISSIONS INFORMATION

(For additional application and admission information, see *How to Apply for Admission* on inside front cover of this catalog.)

ADMISSION TO MESA COLLEGE

Admission to Mesa College is granted upon the filing of an official application for Admission and the presentation of satisfactory credentials. Official application forms may be obtained from the Office of Admissions at Mesa College or the office of the high school principal. A $10.00 evaluation fee must accompany the admission application. Admission is considered without regard to race, color, religion, national origin, age, sex, or handicap.

Colorado high school graduates who have completed satisfactorily a minimum of 15 acceptable units of high school work are eligible for admission to Mesa College. Individuals who have not graduated from high school will be considered for admission by submitting a G.E.D. High School Equivalency Certificate with a composite standard score of 45 or above. The Application for Admission and transcript of the high school record properly filled out and signed by the high school principal or counselor should be on file in the Admissions Office no later than August 1, for the fall semester. Application forAdmission to the spring semester should be on file in the Admissions Office at least two weeks prior to the beginning of the semester.

Unclassified Status:

For those individuals who are **NOT** seeking a degree or who are **NOT** enrolling for vocational certificates. Individuals wishing to enroll in credit courses at Mesa College but have no intent to obtain a degree, either at Associate or Baccalaureate levels, and who are not enrolled for vocational certificates, may obtain an unclassified admission form at the Continuing Education Office, Houston Hall, Room 110, or the registration counter, Lower Level of the Heiny Library. It will be necessary for each individual to sign a statement of understanding of unclassified status **BEFORE** registering for a credit class. If, at some future date, individuals decide to seek regular status and pursue a vocational program and/or an Associate or Baccalaureate degree, it will be necessary to complete the regular admission process.

Unclassified students may enroll in a maximum of six semester credits per semester. They are not required to submit high school or prior college transcripts and will not be assigned an adviser. **NO OFFICIAL TRANSCRIPT WILL BE PROVIDED.** A letter of verification of study will be provided by Mesa College upon request.

ADMISSION TO CERTAIN PROGRAMS

Admission to Mesa College does not automatically constitute admission to programs which require special admission procedures. Such programs include the Early Childhood Education Program, and all programs offered by the School of Nursing and Allied Health. Students applying for these programs must have their ACT scores on file in the Admissions Office. (Other test scores will not be accepted in lieu of ACT scores).

ADVANCED COURSE/CREDIT PROGRAM

Mesa College is in the process of reviewing its policy on Advanced Course/Credit Program. For information on the status of this review, please contact the Office of Academic Affairs.

COLLEGE CREDIT BY EXAMINATION

Students attending Mesa College may earn college credit by examination in certain subject areas on the College Level Examination Program (CLEP). Credit may also be earned by subject matter tests offered through various departments at Mesa College. For more information contact the appropriate College Dean or the College Testing Office at 248-1215.

ADMISSION OF TRANSFER STUDENTS

Students in good standing with another college or university may be admitted to Mesa College. Students applying must see that the Admissions Office is provided an official transcript of **all** college work attempted at another institution. If a student attended more than one college or university, a transcript from each institution is required.

An applicant for admission who has attended another institution cannot disregard a collegiate record and apply for admission as a first-time freshman. Failure to comply is cause for dismissal.

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

Transfer students with fewer than 60 semester hours of credit are 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 Admissions Office. All applicants for nursing programs, regardless of the number of hours transferred, are required to have ACT scores on file in the Admissions Office. Test scores are not usually 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.

Mesa College will accept transfer credits with grades "S" or "P" only if granting institution states that such a grade is equal to a grade of "C" or above.

Transfer students who are on probation or suspension from a previous college or university cannot be admitted until they have been approved by the Office of Admissions.

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 April 1 for Summer Session: (1) Application form with $10 non-refundable application fee; (2) Medical exami-

nation report; (3) Copy of American College Testing Scores; (4) High school transcript, translated into English; (5) Transcripts from other colleges and universities attended (must be translated in English); and (6) Certificate of financial support.

Foreign students must also 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 450 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 achievement level of 108; or (4) A foreign student who has been enrolled as a regular full-time student at another college or university in the United States may be considered on an individual basis.

Before admission is granted, a foreign student must provide proof of financial 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 $9,500 per calendar year. The sum of $1,000 must be deposited with the Mesa College Business Office by August 1 for Fall Semester or April 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 DEVELOPMENTALLY DISABLED STUDENTS

Mesa College admits developmentally disabled students and works with the local Division of Rehabilitation Office and other agencies in assisting these students with support services. These services may include: class scheduling, housing, tutors, health problems, counseling, parking, etc.

Currently most physical barriers in buildings and other facilities on campus have been removed in order to accommodate developmentally disabled students and it is hoped that adequate funding will allow completion of this project. It is highly recommended that a prospective student visit the campus prior to enrollment and meet with counselors to discuss special needs and determine the feasibility of completing a 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 shared resources—physical, professional, organizational, and curricular.

The registrars of the four 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 "host" 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 "host institution" is defined as any consortium institution other than the home institution at which a consortium student enrolls in courses.

ADMISSION INFORMATION FOR VETERANS

Programs offered by Mesa College, with certain exceptions, are approved by the State Board for Community Colleges and Occupational Education 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 or Registrar's Office.

Credit is granted for experience and training gained during active duty in the armed forces. Students must submit appropriate discharge papers and certificates of completion to the Office of the Registrar. All credit granted will be lower division credit.

ADMISSIONS AND COUNSELING TESTS

The ACT (American College Test) is required of students attending Mesa College. Test scores must be on file in the Admissions Office before official admittance is granted. (See inside front cover.) 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 credit 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.

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 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 $13.00 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.

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. Credit will be given only for the specific courses for which the student is registered and paid.

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.

Tuition Charges for classes taken for non-credit are the same as if taken for credit. Exceptions to this policy will be for senior citizens.

WITHDRAWAL FROM ONE OR MORE CLASSES

Students are permitted to withdraw from one or more classes up to five days after the first day mid-term grades are available to students from Faculty Advisers. Proper form and signatures are required and must be turned in to the Registrar's Office. Forms are available at the Registrar's Office or Dean's Office.

Normally, students who officially withdraw from class(es) are given the grade of "W", however, after the designated deadline students are subject to receiving a grade of "F".

Students who are forced to withdraw from college because of an emergency situation beyond their control, after the deadline, may be given a "W" grade or "F" failing grade depending upon the academic status of the student in a particular class at the time of withdrawal. An exception to this policy is where an emergency withdrawal occurs within the last two weeks of a term, in which case the instructors may give a grade of "I", incomplete, or a final passing grade for the course (A, B, C, or D) if it is believed a passing grade is warranted.

In addition to regular withdrawal from class(es) by the student, an instructor may initiate a withdrawal from his/her class for failure to attend class, failure to turn in assignments over an extended period of time, or for disciplinary reasons. In such cases, the instructor must observe regular withdrawal deadlines and recommended grading procedures.

WITHDRAWAL FROM COLLEGE

A student who desires to withdraw from the College should notify his faculty adviser and report to the Registrar's Office. 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. Students who withdraw or drop classes after the above date are subject to penalty "F" grades.

For refund policy, please see "Refunds of Tuition and Fees" under "Expenses" section of this catalog.

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.

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.

Tuition and fees for the 1985-86 academic year could not be determined when this catalog was printed. The following rates are those actually charged during the 1984-85 academic year. Students are invited to write for current rates, which will be available by July 1, 1985.

TUITION AND FEE SCHEDULE (IN EFFECT DURING 1984-85)

	Semester	*Year*
Full-Time Students, Regular Academic Year:		
COLORADO RESIDENTS (Enrolled in 10 or more hours)		
Tuition	$ 399.00	$ 798.00
Student Services Fees	120.00	240.00
TOTAL	$ 519.00	$1038.00
NON-COLORADO RESIDENTS (Enrolled in 10 or more hours)		
Tuition	$1755.00	$3510.00
Student Services Fees	120.00	240.00
TOTAL	$1875.00	$3750.00
Part-time Students, Regular Academic Year:		
COLORADO RESIDENTS (Enrolled in 9 or fewer hours)		
Tuition per semester hour		$ 40.00
Student Services Fees per semester hour		9.00
TOTAL		49.00
NON-COLORADO RESIDENTS (Enrolled in 9 or fewer hours)		
Tuition per semester hour		$ 117.00
Student Services Fees per semester hour		9.00
TOTAL		$ 126.00

Summer Session

Tuition charges equal those for the regular academic year; however, Student Services Fees are $6.00 per semester hour regardless of the number of hours taken.

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 $85 per semester for one lesson each week. Other special instructional services available to students which require extra fees include bowling, skiing, and physical education classes with locker and towel facilities.

PAYMENT OF TUITION AND FEES

A student, by the act of registration, automatically incurs a financial obligation to the College. This obligation must be satisfied by appropriate payment to the College. This means that a student who registers for one or more classes (unless the student officially withdraws from the College within the time frame for a partial refund), is obligated to pay the full amount of his/her tuition and fees, whether or not the student attends class. 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

Beginning with the first day of classes and continuing through the sixth day, if a student officially withdraws, the College will retain 25% of his/her tuition and fees; if tuition and fees have been paid, the remainder will be refunded; if tuition and fees have not been paid, the student will be billed for 25% of his/her incurred debt.

From the 7th through the 12th day of classes students who choose to withdraw will forfeit 50% of the tuition and fees obligation.

From the 13th through the 20th day of classes students who choose to withdraw will forfeit 75% of the tuition and fees obligation.

There are no refunds for withdrawals after the 20th day.

The Department of Continuing Education operates under a different refund policy as well as drop/add. Please contact that office for specific information.

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

Graduation (cap, gown, diploma)	20.00
Room damage deposit (refundable)	100.00
Parking permit	12.00
Student health insurance per semester (subject to change)	60.00

STUDENT HEALTH INSURANCE

Student health insurance fees will be billed to every student who does not complete a waiver form in the business office.

ROOM AND BOARD

Two types of on-campus housing are available. (1) College residence halls with cafeteria meal plans are available to students. Most rooms are designed for two students, although there are a limited number of single rooms and four-person rooms. (2) College apartments are available for freshmen (with prior approval) sophomores, juniors, and seniors. These apartments are modern living units for three or four students consisting of bedrooms, bath, kitchen and living room. Freshman students who do not reside in the Grand Junction area are required to live on campus. There are three meal plans (10, 15, or 19 meals per week) available for students living in the Residence Halls. Students residing in the college apartments or off-campus have the option of purchasing these three meal plans. Meals are served 7 days a week. ON WEEKENDS ONLY two meals are served (brunch and dinner). For 10 or 15 meal plans any meals served can be selected to total 6 or 15 meals eaten per week. On the 10 meal plan, students are given coupons which can be used in the cafeteria or snack bar to purchase the remaining 4 meals.

PAYMENT OF ROOM AND BOARD

Room and board is contracted on a **yearly** basis and is payable each semester at the time of registration. Special deferred payments can be arranged through the College Business Office. Registration is not complete until the student's obligation is met in full. The following reflect 1984-85 prices. These rates will increase for the 1985-86 academic year.

APARTMENTS:

(Expanded occupancy)
- 2 bedrooms - for 3 students ..... $649.00 per student per semester
- 3 bedrooms - for 4 students ..... $649.00 per student per semester

(Normal occupancy)
- 2 bedrooms - for 2 students ..... $978.00 per student per semester
- 3 bedrooms - for 3 students ..... $978.00 per student per semester

RESIDENCE HALLS:	*Semester*	*Year*
Double occupancy.....	$521.00	$1042.00
Single occupancy.....	$701.00	$1402.00
BOARD:		
19 meal plan	$588.00	$1176.00
15 meal plan	$562.00	$1124.00
10 meal plan	$531.00	$1062.00

REFUNDS ON ROOM AND BOARD

See section on Student Life Center.

BOOKS AND SUPPLIES

Required text books and supplies are sold at the College Bookstore, located in the College Center Building. Other items sold at the bookstore include general books, art and engineering supplies, basic school supplies, calculators, imprinted and non-imprinted clothing, magazines, non-prescription medicine, and gift items.

The approximate cost of textbooks for a single semester is $150 to $180. Supply costs vary depending upon student preference and course requirements.

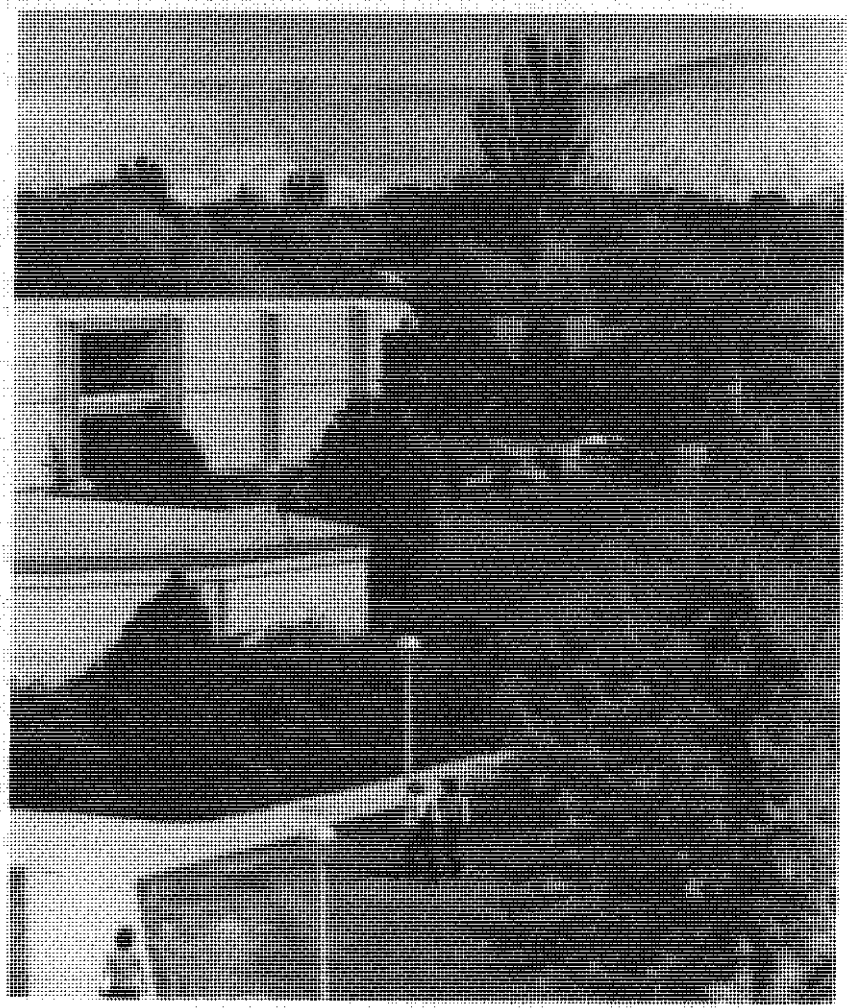
Textbooks may be returned during the first four weeks of Fall and Spring semesters, providing the cash register receipt is shown as proof of purchase.

The bookstore sponsors a book buy-back program which is conducted during Finals Week of Fall and Spring semesters only.

Used books may be available for some classes and are sold on a first-come, first serve basis.

The College Bookstore hours are:

Monday, Tuesday and Thursday ..... 7:45 a.m. to 4:30 p.m.
Wednesday ..... 7:45 a.m. to 7:00 p.m.
Friday ..... 7:45 a.m. to 4:00 p.m.
Saturday and Sunday ..... Closed



A view of campus in summer.

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 at Mesa College a minimum of 16 semester hours for an associate degree and 28 semester hours for a baccalaureate degree.
2. File a petition to graduate and degree plan with the Registrar sometime during the semester immediately preceding the semester during which graduation requirements are to be met. A nominal graduation fee is charged for all degrees.
3. Satisfy all 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 or a higher minimum that may be established for a particular program.

Except for changes in major, students are required to complete the 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.

Students may not participate in commencement unless all course work is completed prior to the ceremony.

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:**

Associate of Arts Degree:

Freshman English	6 semester hours
Literature/Humanities	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 of Science Degree:

Freshman English	6 semester hours
*Social or Behavioral 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 of Commerce Degree

	Accounting	Off. Admin. Secretarial
Freshman English	6 sem. hrs.	6 sem. hrs.
Physical Education (two semesters of different activity classes)	4 sem. hrs.	4 sem. hrs.
Principles of Economics	6 sem. hrs.	
General Education (Lit., Soc. Sci., Nat. Sci., Humanities, etc.)	18 sem. hrs.	
Social Science, Psychology or Literature		12 sem. hrs.
Approved Business School Courses	30 sem. hrs.	33 sem. hrs.
Electives		9 sem. hrs.

Associate of Applied Science Degree

Freshman English	6 semester hours
Social or Behavioral Science 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 Programs section 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.

(Most degree programs require ENGS 111 and 112; some programs accept ENGS 111 and 115. Students should check with adviser.)

* Associate Degree Nursing requires PSY 122, General Psychology.

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.** (Persons twenty-five years or older at time of their admission to Mesa College are not required to fulfill the Physical Education General Education requirement. Veterans are also exempt from this requirement.)

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 ENGS 111, 112; or, in a few programs, ENGS 111, 115; or, for those who qualify, ENGS 126, 127.

II. 34 semester hours in four areas (a), (b), (c), (d), distributed as follows:

(a) **8-9 semester hours in Biological Sciences and Psychology** with a minimum of 3 semester hours in each, chosen from the following:

Biology	
BIOL 101, 101L	General Biology & Lab
BIOL 102, 102L	General Biology & Lab
BIOL 105, 105L	Attributes of Living Systems & Lab
BIOL 106, 106L	Principles of Animal Biology & Lab
BIOL 107, 107L	Principles of Plant Biology & Lab
BIOL 141, 141L	Human Anatomy & Physiology & Lab
Psychology	
PSY 121, 122	General Psychology
PSY 200	Psychology of Human Adjustment
PSY 210	Environmental Psychology
PSY 220	Psychology of Women
PSY 233	Human Growth & Development

(b) **8-9 semester hours in Humanities and Fine Arts,** divided over two program areas.

Area One, The Arts. Three hours are to be chosen from one of the five groups following:

Art	
ART 100	Art Foundations
ART 115	Art Appreciation
ART 120	Jewelry
ART 140	Ceramics
ART 150	Sketching
ART 151	Basic Drawing
ART 170	Printmaking
ART 180	Sculpture
ART 190	Water Media
ART 211, 212	Art History
Fine Arts	
FA 101	Man Creates
Music	
MUS 110	Standard Notation
MUS 114, 115	Theory I & II
MUS 130	Class Piano I
MUS 220	Music Appreciation
MUS 270, 271	Music Theatre

Speech

SPCH 101	Interpersonal Communications
SPCH 102	Speechmaking
SPCH 202	Business and Professional Speaking
SPCH 235	Discussion
SPCH 241	Oral Interpretation

Theatre

THEA 115	Problems in Modern Theatre
THEA 141	Theatre Appreciation
THEA 235	Development of World Cinema
THEA 236	Development of American Cinema

Area Two, The Humanities. The remaining 6 hours may be satisfied either wholly in literature, or in a combination of literature with philosophy or foriegn languages. Three hours must be from literature.

English

ENLW 131, 132	World Literature
ENLW 134, 135	Mythology
ENLW 141	Intro. to Fiction
ENLW 142	Intro. to Poetry
ENLW 143	Intro. to Drama
ENLW 145	Intro. to Oriental Literature
ENLE 254, 255	English Literature
ENLA 261, 262	U.S. Literature

Philosophy

PHIL 251, 252	History of Philosophy I, II
PHIL 275	Introduction to Logic

French

FLAF 111, 112	First Year French
FLAF 251, 252	Second Year French

German

FLAG 111, 112	First Year German
FLAG 251, 252	Second Year German

Spanish

FLAS 111, 112	First Year Spanish
FLAS 117, 118	Career Spanish
FLAS 251, 252	Second Year Spanish

(c) **8-9 semester hours in Physical Sciences and Mathematics** chosen from:

Chemistry

CHEM 100	Chemistry & Society
CHEM 121 & 121L	General Chemistry & Lab
CHEM 122 & 122L	Introduction to Organic Chemistry & Lab
CHEM 131, 132	General Inorganic Chemistry
CHEM 131L, 132L	General Inorganic Chemistry Lab
CHEM 211, 212	Organic Chemistry
CHEM 211L, 212L	Organic Chemistry Lab
CHEM 221 & 221L	Instrumental Methods of Analysis & Lab

Computer Science

CSCI 100	Computers in Our Society
CSCI 111	Computer Science I
CSCI 112	Computer Science II
CSCI 131 & 131L	FORTRAN Programming & Lab
CSCI 133 & 133L	PASCAL Programming & Lab
CSCI 230	Assembly Language Programming
CSCI 240	Computer Architecture
CSCI 250	Data Structures

Geology

GEOL 100	Survey of Earth Science
GEOL 101, 102	Introduction to Geology
GEOL 101L, 102L	Introduction to Geology Lab
GEOL 103	Weather & Climate
GEOL 105	Geology of Colorado
GEOL 111 & 111L	Principles of Physical Geology & Lab
GEOL 112 & 112L	Principles of Historical Geology & Lab
GEOL 201 & 201L	Stratigraphy & Lab
GEOL 203	Introduction to Environmental Geology

Mathematics

MATH 101	Programming
MATH 105, 106	Elements of Mathematics I, II
MATH 110	Finite Mathematics
MATH 113	College Algebra
MATH 119	Precalculus Mathematics
MATH 121	Mathematical Foundations of Business
MATH 127	Mathematics of Finance
MATH 130	Trigonometry
MATH 131	Logarithms
MATH 132	Right and Oblique Triangles
MATH 133	Conditional Equations/Trigonometric Identities
MATH 134, 135	Advanced Trigonometry
MATH 146	Calculus for Biological Sciences
MATH 151	Calculus I
MATH 152	Calculus II
MATH 161	Programmable Calculator
MATH 253	Calculus III
MATH 260	Differential Equations
MATH 265	Linear Algebra

Physics

PHYS 100	Concepts of Physics
PHYS 101	Elementary Astronomy
PHYS 111, 112	General Physics
PHYS 111L, 112L	General Physics Lab
PHYS 221	Classical Physics I
PHYS 222	Classical Physics II
PHYS 222L	Experimental Mechanics Lab
PHYS 224	Modern Physics

Statistics

STAT 200	Probability and Statistics
STAT 214	Business Statistics

(d) **8-9 semester hours in Social Sciences** chosen from:

Anthropology

ANTH 101	Physical Anthropology
ANTH 102	Cultural Anthropology
ANTH 221	Old World Archaeology
ANTH 222	New World Archaeology

Economics

ECON 201	Principles of Macroeconomics
ECON 202	Principles of Microeconomics
	(These courses must be taken in sequence)

Geography

GEOG 101, 102	Introduction to Geography

History

HIST 101, 102	Western Civilizations
HIST 120	History of Colorado
HIST 131, 132	United States History

HIST 136	Introduction to the Afro-American Experience
HIST 137	Introduction to the Chicano Experience
HIST 205	Introduction to the Civilization of China and Japan
Political Science	
POLS 101, 102	American Government
POLS 256	State and Local Government
POLS 261, 262	Comparative Governments
Social Science	
SOCS 210	Religion in the American Experience
Sociology	
SOC 144	Marriage and the Family
SOC 260	General Sociology
SOC 264	Social Problems

Specific information concerning other 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

Six hours only of vocational credits, as defined by each school, may count toward the Associate in Arts, Associate in Science, and Associate in Commerce degrees.

Vocational credits, as defined by each school, may count toward the Bachelor of Arts and Bachelor of Science degrees:

B.A., Social & Behavioral Sciences..... Varies
B.A., Recreation and Leisure Services ..... 12 hours
B.A., Selected Studies ..... Varies
*B.S., Accounting..... Varies
*B.B.A., Business Management..... Varies

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

ACADEMIC ADVISING

• The student alone is ultimately responsible for knowing the requirements for a particular degree and for fulfilling those requirements.•

Upon completion of the program requirements, the student will be awarded the appropriate degree.

Students are expected to assume the responsibility for planning their academic programs in accordance with College rules and policies and departmental requirements. They are, however, urged to consult with advisers in their departments 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 department and adviser.

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 than 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 by 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 facilitates the transfer of credits earned at Mesa College to 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.

Mesa College also generally accepts credit from regionally accredited colleges and universities.

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.

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 semester 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 course 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 be 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 Administrative and 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.

Students receiving scholarships and/or financial aid are generally expected to enroll for, and complete, 12 hours of credit courses each semester.

In order to receive full G.I. financial benefits, veterans must be enrolled in twelve or more semester hours each semester of attendance.

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 6 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.

Some schools or departments have specific requirements regarding independent study; for example, in some areas the student must obtain permission at least one semester in advance. The student should check with his or her adviser for specific information. 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 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 of ..... A = 12 points
3 Semester Hours of ..... B = 9 points
3 Semester Hours of ..... C = 6 points
3 Semester Hours of ..... D = 3 points
3 Semester Hours of ..... F = 0 points

30 points divided by 15 semester hours = 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. It is important to remember that a student must achieve a cumulative grade-point average of 2.00 (C), or higher, in order to graduate at either the associate or baccalaureate levels. However, the student is considered to be making "satisfactory progress" toward a degree if he attains a cumulative GPA according to the table listed below. It is important to note that if the student plans to graduate at the end of two years with an associate degree, the 2.00 must be achieved prior to graduation.

Credit Hours	Cumulative GPA
0 - 19	1.50
20 - 29	1.60
30 - 39	1.70
40 - 49	1.80
50 - 59	1.90
60 and above	2.00

ACADEMIC PROBATION AND SUSPENSION

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

"Academic Probation" indicates a student is not in good standing and constitutes a warning to the student that the student's scholastic achievement needs improvement or suspension may result. The student is permitted to continue studies for one term during which he is expected to improve his cumulative grade point average to the minimum required level.

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

A student is subject to academic probation for the next semester(s) during which he is enrolled, if he does not achieve a cumulative grade-point average set forth above. 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.

Once 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 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. If the student, at the end of the semester on probation, fails to bring his/her cumulative GPA to the minimum required, such student shall be subject to academic suspension.

After a student has completed 60 or more 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, such student shall 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 may be continued on academic probation for an additional semester(s), provided the student's average meets the requirement of 2.00 or higher GPA.

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 Registrar for permission to be continued on probation for the next semester.

Any suspended student may not enroll as a part-time student except during the summer term or with permission from the Registrar. Such permission shall be granted only in unusual situations.

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.

POLICY ON CHEATING

Faculty members may, at their discretion, take any of the following actions regarding a student who has cheated (including plagiarism):

a. Give a score of "zero" on the work involved;
b. Withdraw a student from the class;
c. Give the student a grade of "WF" of Withdrawn Failing. This would mean that the student is through with the class and has a grade of F. The hours for which the student is considered to be enrolled would immediately decrease just as if the student has withdrawn voluntarily;
d. File a request to the Vice President for Administrative and Student Affairs that the student be expelled or placed on probation.

Students have the right to appeal any of the above actions. The first contact in such an appeal would be with the faculty member involved, then to the school dean, then to the Vice President for Administrative and Student Affairs. (The appeal process is spelled out in full under "Student Grievance Procedures" in the student handbook.)

EVALUATION

The evaluation of student learning progress is considered to be a planned and continuous process and consists of a variety of activities including judgement, 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 a grade of "F".

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.

A student must be enrolled during the semester the incomplete grade is being made up.

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 12 semester hours 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 12 semester hours.

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.

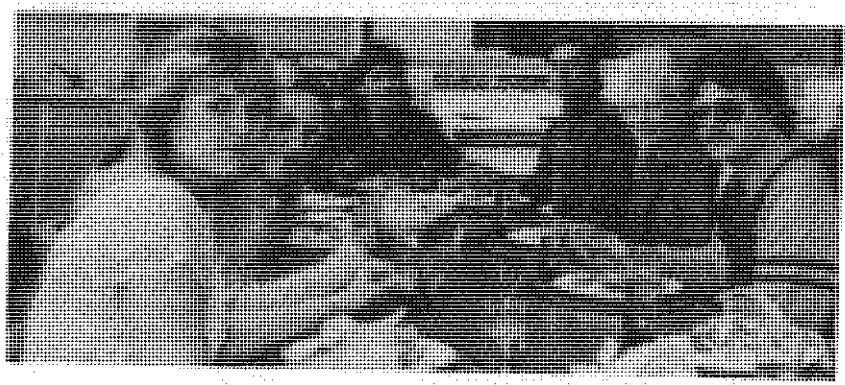
With Distinction—Associate-degree graduates with cumulative grade-point averages of 3.50 to 3.74

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.



The Foreign and Fancy Foods class, enjoying a gourmet dining and learning experience.

STUDENT SERVICES

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

STUDENT ADVISING

All students, including transfers, are assigned academic advisers on the basis of program 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 LIFE CENTER

The Center serves as an umbrella entity for services commited to helping in the process of teaching life skills. Consideration is given to personal, interpersonal, academic, physical, and health issues of students as they progress in their development. The intent of Center services is to promote and encourage a sense of personal empowerment within students and to serve as a catalyst in their reaching out to activating the inherent potential within themselves. The following services constitute the Student Life Center:

Counseling, Career Planning and Placement. Mesa offers a variety of programs and services from the time they enter to the time they leave our campus. Educational counseling and career development is available in both individual and group settings. Many variations are used in working with students, including the use of interest inventories, personality testing and information searches. Students needing short-term psychological counseling, crisis intervention, or developmental groups can find well qualified staff to aid their needs. A placement service is offered for graduates with part-time and full-time job listings available, along with skill development workshops for students wanting help in resume writing, interviewing and job application procedures.

Housing Administration/Residence Life. The office of housing opens its doors to all students who attend Mesa College. Three residence halls and an on-campus apartment complex provide the nucleus to house 847 students.

Freshman Students who do not reside in the Grand Junction area are required to live on campus. Colleges have learned through experience that freshmen living on campus adjust more readily to college life and their grades are usually better than those of students living off campus.

An on-campus apartment complex is reserved for freshmen (with prior approval), sophomore, junior, and senior students. Students are responsible for finding their own roommates.

Most residence hall rooms are designated for two students, although there are a limited number of four-person rooms and single rooms. Most halls are designed with a central bathroom or two on each floor. All rooms are furnished with beds, mattress, drapes, wastebasket, desks, chairs, desk light, closet and drawer space. You will need to bring your own pillow, pillowcase, blankets, sheets, towels and a drinking glass.

A few personal items such as a radio, stereo, tape deck and a small rug may make for a more homelike atmosphere.

Coin-operated washing machines and dryers are located on each floor of the residence halls and in two central locations for the apartment complex residents. Students need to provide their own irons and ironing boards.

Each room in a residence hall is equipped with a telephone. A student may call within the local Grand Junction area without charge. If the student wishes to call long distance (other than collect) a credit card must be obtained from the local Mountain Bell office in Grand Junction.

The residence halls are staffed with a resident director, assistant director, and resident assistants who are trained to counsel, stimulate, and significantly influence the development of students. These staff members assist residents in dealing with new ideas, programs, policies, resident hall government and problems of college life.

Assignment of rooms will be made early in the summer and the student will be notified the first part of August as to their room and hall assignment, also their roommates name, his home address and academic major will be included. If you have any questions concerning housing on campus, please stop by the housing office located in the Student Life Center at 1152 Elm Ave., across from the W.W. Campbell College Center.

General Requirements. A housing deposit of $100 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 $100 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 $100 security deposit will be refunded within 60 days from the date of official check-out. When a reservation is cancelled 30 days prior to registration for the semester for which accommodations have been reserved, the full $100 reservation deposit will be refunded. Otherwise, there will be no refund of the reservation deposit.

Refund on Housing and Boarding Contract for Residence Halls. 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 assesed charges for room and board in accordance with the following refund policy. The $100 security deposit, less damages, will be refunded.

Refund on Housing Contract for on-campus apartment tenants who cancel their lease, in writing, 30 days prior to the first day of registration

will receive the full $100.00 deposit as refund. Tenants who cancel less than 30 days prior to the first day of registration wil be held responsible for up to ½ of that semester's rent.

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.

1st week of the semester, 90% of semester rent refunded.
2nd week of the semester, 80% of semester rent refunded.
3rd week of the semester, 70% of semester rent refunded.
4th week of the semester, 60% of semester rent refunded.
5th week of the semester, 50% of semester rent refunded.
6th week of the semester, 40% of semester rent refunded.
7th week of the semester, 30% of semester rent refunded.

NO refunds of rent will be made for check-outs that occur after the 7th week of the semester.

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.

Off-Campus Housing. 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.

STUDENT HEALTH CENTER

Good health, both physical and emotional, is an important fa[illegible] successful college work. It is the intent of the College Health Se[illegible] provide competent medical care. Similar to the family doctor, it serves as a fixed and readily available source of medical assistance for the student who is away from home.

Mesa College operates as an out-patient clinic which provides health services for all students regardless of number of hours carried or insurance status. Primarily, these services are limited to: first aid; dispensing simple medicines; recommending proprietary drugs; making referrals to physicians and dentists; providing counsel for personal health problems and doing limited lab tests for a minimal fee.

The clinic is staffed with a full-time registered nurse and employs a medical doctor on a three-hour daily schedule during class days. The medical doctor provides students with an initial health assessment and evaluation, treats minor illnesses or conditions, and refers students for hospitalization and special treatment as needed.

The Health Clinic is located in a separate building on the north side of Elm Avenue immediately across the street from the College Center. Office hours for receiving students are as follows:

Monday through Thursday only
7:30 a.m.-11:30 p.m. 12:30 p.m.-4:00 p.m.
7:30 a.m.-1:30 p.m. Fridays

The Student Health Center is not open on Saturdays, Sundays, or holidays. For illnesses or accidents which occur after hours or on weekends, students should report for emergency treatment at St. Mary's or one of the other area hospitals. In extreme emergencies call the local Rescue Squad. Telephone is 911.

Student accident and sickness insurance program. This is mandatory, for all full-time students, with the right to waiver. Waiver cards, which must be signed by a parent or guardian if the student is under 18, are available at the Business Office. Full-time students who do not have a signed waiver card filed prior to prepayment dates (for those students who pre-register), or by the day of regular registration (for non-preregistered students) will be charged for student insurance.

INTRAMURALS/RECREATION SERVICES

The intramural sports program at Mesa College affords students, staff and faculty, the opportunity to enjoy a variety of individual, dual and team sports. The following objectives give direction to the staff of intramural sports in their efforts to be of service to Mesa College students, staff and faculty. 1) to offer a variety of recreational events balanced between vigorous and light exercise, team and individual competition, and student and faculty interest. 2) To encourage self-participation, transforming the mass of students from passive spectators into active participants. 3) To develop a program where social relations and positive attitudes can be nurtured, therby leading to high standards of sportmanship. 4) To foster "fair dealings" with all individuals and groups associated with the program. 5) To provide multitudes of leadership opportunities and cooperative experiences for students, staff and faculty. All students who are currently enrolled in credit courses (or transfer from any accredited 2-year or 4-year college), and all faculty and staff members eligible to participate in the intramural sports program except as prohibited by existing eligibility rules.

DENTAL CARE

Dental preventative care is available for students at a greatly reduced cost. Contact the Mesa College Dental Clinic for information.

STUDENT ACTIVITIES

Mesa College promotes an active co-curricular program to enhance a student's educational experience. An extensive and varied program, available to all students, includes such activities as intercollegiate athletics, intramurals, drama, theater, dance, debate, numerous art and music groups, student government and student organizations of special interest.

The Mesa College student publication, the *Criterion,* and the student radio station, KMSA, provide students with news of current happenings both on and off campus. The *Criterion* offices are located in the W.W. Campbell College Center; KMSA operates from Houston Hall.

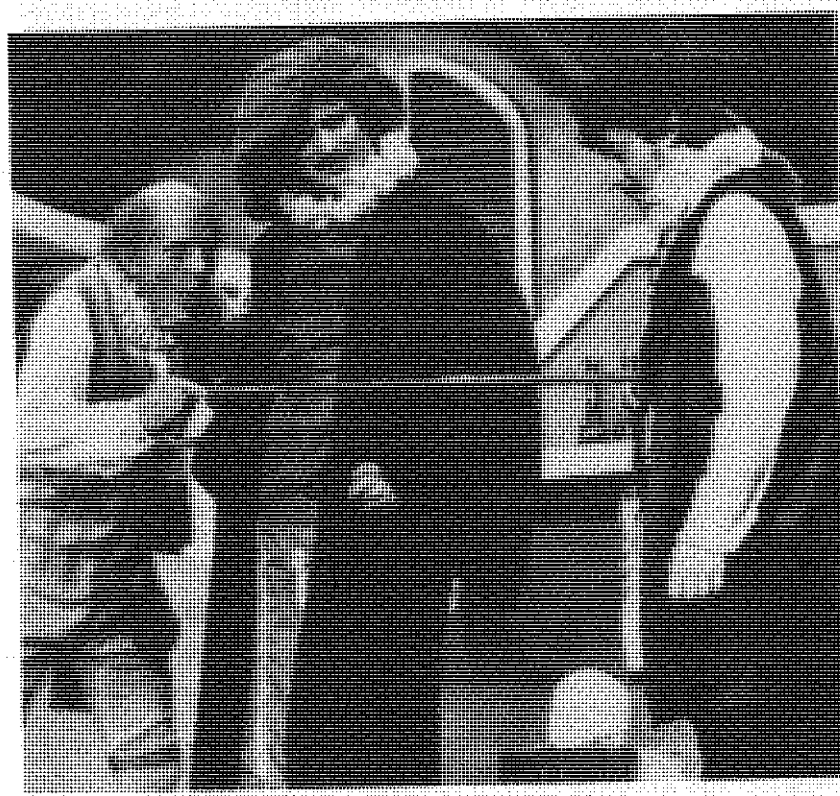
Student Body Association provides a means for Mesa College Students to participate in both curricular and co-curricular programs and policies. The association operates through the Student Cabinet; a legislative body composed of students elected by the student body. The cabinet provides a legal-aid service and coordinate collegiate clubs and organizations. Student Body Association offices are located in the W.W. Campbell College Center.

Mesa College Activities Council provides the opportunity for the student to participate in both leadership and entertainment activities. The chairperson and vice chairpersons are selected at the end of the Spring

term and are salaried through the next year. The volunteer body is active in providing a broad program of social, educational, recreational, non-traditional and cultural activities. The MCAC office is located in the W.W. Campbell College Center as are many of the student activities.

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. The College Center Advisory Board, the Student Body Association and the Mesa College Activities Council help to make the Center the hub of cultural, recreational, and social activities throughout the year. The College Center Advisory Board also acts in areas of college community concern, and proposes appropriate recommendations to the College Center Staff and educators. In addition to housing offices for the Student Body Association, Activities Council and Student Publications, it includes a cafeteria, snackbar, bookstore, varied sizes of meeting rooms, a multi-purpose room for special events, and an active games room and student lounge. An extensive Outdoor Program is administered through the College Center as well.



The Mesa College theatre department produces a number of fine productions during the year.

FINANCIAL AID

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.

Financial aid awards, based on need, consider family resources as the primary source of funding for education with federal and state sources secondary and supplemental. Therefore, in considering students for financial aid, the following order of priority is used for determining need and responsibility for meeting that need:

1. As stated in federal law, the parent is primarily responsible for payment of educational expense. Thus, parents of students attending college are expected to make every effort to assist the student financially.
2. The student, as the benefactor of the educational experience, is the next most responsible person for payment of educational expenses. At Mesa College the student is expected to contribute no less than $1,000 per academic year from summer savings.
3. The third level of responsibility is from other outside sources such as communities, clubs, corporations, etc.
4. The final and last resort is and should be federal and state financial aid programs. There has never been enough funding to assist all needy students, which emphasizes the requirement that the family make every effort financially to support the student.

Students who are self-supporting may not be expected to receive support from parents. However, if they are a single student without dependents they will be expected to save no less than $1,200 toward their educational expenses and to show income of no less than $4,000 for the prior tax year. Students who do not show a $4,000 income can expect to have their self-supporting status challenged.

The spouse of a self-supporting student may be expected to work and support the student financially even though there may be children in the home. The spouses' minimum expectation will be at least $3,150 for an academic year which is the equivalent of $350 per month.

The accuracy and timeliness of information from the student and parents to the Financial Aid Office is the responsibility of the student. Failure on the part of the student to follow-up the application may result in reduction, if not total loss of aid.

COLORADO STUDENT-AID PROGRAMS

(Available to full-time 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 $600 and need is not a factor in determining recipients. Students who receive Colorado Scholarships and who do not wish to apply for other financial aid but plan to seek employment off campus may contact the Mesa College Job Placement officer for assistance.
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 $2000.

FEDERAL STUDENT-AID PROGRAMS

1. **Pell (formerly the B.E.O.G.)** 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 aid at any eligible post-secondary institution. The student applies directly to the Pell Grant analysis center and, upon receipt of a Student Report (SAR) from Pell, submits the SAR to the financial aid 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 Pell Grant Program is the base program for financial aid at Mesa College.
2. **College Based Programs**—Mesa College participates in many of the other federal student-aid programs. These include: (1) the National Direct Student Loan Program, (2) Supplemental Educational Opportunity Grants Program and, (3) the College Work Study Program.

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 recieve an outright grant of from $200 to $2,000. 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 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 aid 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 the Family Financial Statement (FFS) of the American College Testing Program. This form 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 material 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 the Pell Grant received after July 1 may be too late to be funded, for the fall semester.

Guaranteed Student Loans may be obtained up to a maximum of $2,500 for dependent students 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 nine per cent interest repayable after students complete their education. A need analysis is required of applicants whose annual family income is more than $30,000.

MESA COLLEGE FOUNDATION

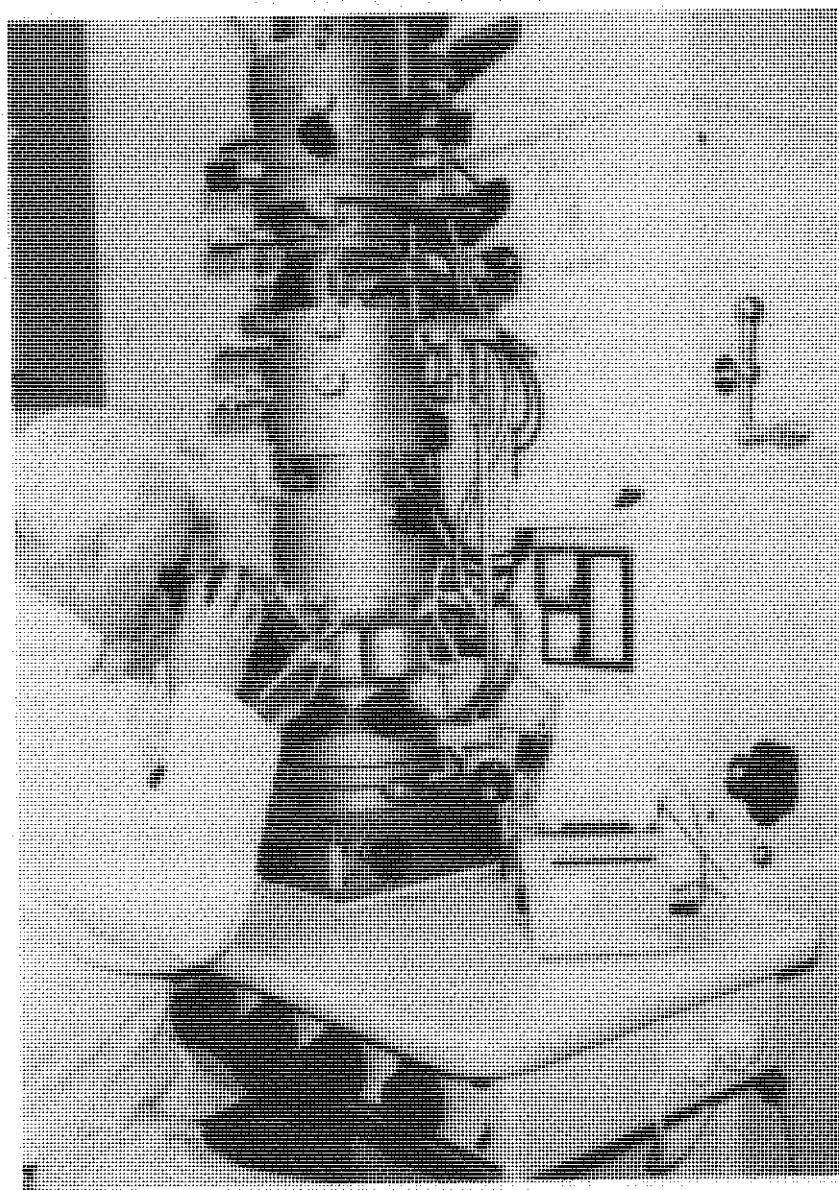
The Mesa College Foundation, is a non-profit agency comprised of prominent citizens of the area who are interested in aiding deserving students at Mesa College. This group, which functions independently of the College, conducts an annual drive to raise funds for scholarships and student loans. The organization 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. **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.
2. **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 catagory are normally limited to $900. There is a service charge for loans made from this fund: $4 per $100 borrowed and $4 for any fraction over $100. For loans exceeding $150 co-signers may be required.
3. **Army (ROTC) Scholarships**—The United States Army offers qualified male and female applicants one-, two- and three-year fully paid ROTC scholarships to attend Mesa College.

GENERAL STATEMENT - STUDENT CONDUCT

Mesa College is a community whose members are its students, faculty, support staff and administrators. By a large plurality, students are the majority. As such, certain rules and regulations are established that relate to the basic purposes and necessities of the college. The College does not attempt to define all "student conduct", rather, it relies on the students to assume the responsibility and obligation of conducting themselves in a manner compatible with the purpose of the college as

an educational institution and the community as a place of residence. In addition to College rules and regulations, all students are subject to the same local, state and federal laws as non-students, and they are beneficiaries of the same safeguards of rights as non-student. See the Student Handbook for more specific conduct rules.



An electron microscope in use.

INSTRUCTIONAL PROGRAMS

The following sections of this catalog describe the instructional organization of Mesa College. Included is information about the specific programs, degrees, and options offered by each school.

Students who have selected programs will find essential information listed under the appropriate school. Students who have not selected programs but who wish to work toward a 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 this catalog. (See index.)

The course profiles 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, see the first page of Course Profiles section in the back of this catalog.

Mesa College reserves the right to withdraw from its offerings any course which 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: L. Ahrens, N. Anderson, E. Boehler, J. Buckley, T. Capps, D. Dickson, B. Heath, B. Isaacson, E. Johnson, J. Kercheval, B. Lerman, M. Myers, N. Roadifer, D. 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 the 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. The School of Business includes the following departments: Accounting and Business Computer Information Systems (C. James Buckley, Department Chair); Business Administration (Dale Dickson, Department Chair); Office Administration (Muriel Myers, Department Chair).

PROGRAMS

Several types of programs are offered by the School of Business. The Bachelor of Science in Accounting and Bachelor of Business Administration 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 business computer 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.

COURSE PROFILES

Detailed descriptions of the courses offered by this school are to be found beginning on page 106 of this catalog. The order is alphabetical by discipline.

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. Emphasis areas are:
(1) Computer Information Systems, Business
(2) Managerial Accounting
(3) Public Accounting

Bachelor of Business Administration. Emphasis areas are:
(1) Administrative Office Management
(2) Computer Information Systems, Business
(3) Business Software Engineering
(4) Finance
(5) Management
(6) Marketing
(7) Personnel Management

Two-Year Degree Programs:

Associate of Applied Science—Computer Information Systems, Business
Associate of Applied Science—Legal Secretary
Associate of Applied Science—Medical Secretary
Associate of Applied Science—Travel, Recreation, and Hospitality Management
Associate of Arts in Business Administration
Associate of Commerce in Accounting
Associate of Commerce in Office Administration (Secretarial)

One-Year Certificate Programs:

Data Processing
Legal Secretary
Medical Office Assistant
Office Clerical-Secretarial
Word Processing

Bachelor of Science in Accounting

In order to receive the Bachelor of Science in Accounting, a student must satisfactorily complete the following: (NOTE: The student will work closely with his/her adviser and utilize a program sheet listing specific course requirements and course sequences needed to meet program requirements.)

	Sem. Hrs.	
General Education (including 4 hours of Physical Education)		44
Core Courses:		
To include BUAC 201, 202, 321, 322, 331, 332, 401, 441, (Accounting)	26	
BUGB 351, 352 (Business Law)	6	
BCIS 101, 131 (Computer Info. Systems)	6	
BUMA 201 (Management)	3	41
Courses in one of the following Specialization areas:		
(1) Computer Information Systems	21	
(2) Managerial Accounting	21	
(3) Public Accounting	24	21-24
Unrestricted Electives		15-18
TOTAL SEMESTER HOURS (Minimum)		121

Suggested Course Sequence for B.S. in Accounting
First Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
BUAC 201 (Principles of Accounting I)	3	BUAC 202 (Principles of Accounting II)	3
ENGS 111 (English Composition)	3	ENGS 112 or ENGS 115	3
BCIS 101 (Business Data Processing)	3	General Ed. (Speech)	3
General Ed. (Physical Science or Math)	3-4	General Ed. (Psychology or Biology)	3
General Ed. (Psychology or Biology)	3		12
	15-16		

Bachelor of Business Administration

In order to receive the Bachelor of Business Administration degree, a student must satisfactorily complete the following: (NOTE: the student will work closely with his/her adviser and utilize a program sheet in planning course sequences to meet program requirements.)

		Sem. Hrs.
General Education (including 4 hours of Physical Education)		44-47
Core Courses:		
BUAC 201, 202, select one of the following: BUAC *311, 321, or 331 (Accounting)	9	
BCIS 101 (Bus. Data Processing)	3	
BUGB 101, *351, 352 (#Introduction to Business and Business Law)	9	
BUFN 339 (Finance)	4	
BUMA 201, 491 (Management)	6	
BUMK 231 (Marketing)	3	
#*Any two lower division business courses	6	40
Courses in one of the following emphasis areas:		
(1) Administrative Office Management	21	
(2) Computer Information Systems	21	
(3) Business Software Engineering	21	
(4) Finance Emphasis	24	
(5) Management	21	
(6) Marketing	21	
(7) Personnel Management	21	21-24
Unrestricted Electives (9 to 18 hours must be upper division)		14-20
TOTAL SEMESTER HOURS (Minimum)		119

Note: All BBA programs except AOM require 49 hours of upper division courses.
*Administrative Office Management requires BUAC 311, BUGB 351, BUMA 371 and 9 hours of upper division Business School Electives. (This program requires 46 hours of upper division courses.)
#Business Software Engineering requires BUMA 331 but does not require BUGB 101 or the two lower division courses.

Suggested Course Sequence for BBA Emphasis Areas of **Computer Information Systems, Finance, Management, Marketing and Personnel Management.**
First Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
ENGS 111 (English Composition)	3	ENGS 112 or 115	3
MATH 113 (College Algebra) or MATH 127 (Math of Finance)	3-4	MATH 121 (Math Foundations of Business)	3
BCIS 101 (Business Data Processing)	3	General Ed. (Humanities)	3
BUGB 101 (Introduction to Business)	3	BUMA 201 (Principles of Management)	3
General Ed. (Psychology or Biology	3	General Ed. (Psychology or Biology)	3
	15-16		15

Suggested Course Sequence for BBA Emphasis Area of **Business Software Engineering**

First Year

Fall Semester	*Sem. Hrs.*
BUAC 201 (Principles of Accounting I)	3
ENGS 111 (English Composition)	3
General Ed. (Suggest College Algebra or Math of Finance)	3-4
BCIS 101 (Business Data Processing)	3
CSCI 111 (Computer Science I)	3
	15-16

Spring Semester	*Sem. Hrs.*
BUAC 202 (Principles of Accounting II)	3
ENGS 112 or ENGS 115	3
MATH 121 (Math Foundations of Business)	3
BUMA 201 (Principles of Management)	3
CSCI 112 (Computer Science II)	3
	15

Suggested Course Sequence for BBA Emphasis Area of **Administrative Office Management**

Fall Semester	*Sem. Hrs.*
ENGS 111 (English Composition)	3
BCIS 101 (Business Data Processing)	3
BUOA (Work with Adviser)	3
BUOA (Work with Adviser)	3
BUOA (Work with Adviser)	3
	15

Spring Semester	*Sem. Hrs.*
ENGS 112 or 115	3
BUMA 201 (Principles of Management)	3
General Ed. (Humanities)	3
BUOA (Work with Adviser)	3
BUOA (Work with Adviser)	3
	15

Computer Information Systems, Business

Associate of Applied Science

In order to receive the Associate of Applied Science degree in Business Computer Information Systems, a student must satisfactorily complete the following:

	Sem. Hrs.	
General Education: (16 Hrs.)		
ENGS 111 and 115	6	
Social Science (Recommend ECON 201 and 202)	6	
PER Physical Education	4	16
Business Courses: (24 Hrs.)		
BUAC 201 & 202 Principles of Accounting I & II	6	
BUMA 201 Principles of Management	3	
BCIS 101 Business Data Processing	3	
BCIS 131 COBOL Programming I	3	
BCIS 234 RPG Programming	3	
BCIS 332 COBOL Programming II	3	
BCIS 391 Automated Systems	3	24
Other Courses: (24 Hrs.)		
SPCH 102	3	
MATH 127 Math of Finance	3	
Electives (Work with Adviser)	18	24
TOTAL SEMESTER HOURS (Minimum)		64

Suggested Course Sequence for AAS of **Business Computer Information Systems**

First Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
ENGS 111 (English Composition)	3	47
PER (Physical Education)	1	24
BUAC 201 (Principles of Accounting I)	3	47
BUMA 201 (Principles of Management)	3	47
BCIS 101 (Business Data Processing)	3	47
MATH 121 (Math Foundations of Bus)	3	47
	16	219

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
ENGS 115 (Technical Writing)	3	47
PER (Physical Education)	1	24
BUAC 202 (Principles of Acctg II)	3	47
BCIS 131 (COBOL Programming I)	3	47
SPCH 102 or 202	3	47
MATH 127 (Mathematics of Finance)	3	47
	16	219

Note: **Please work closely with Faculty Adviser in scheduling classes for Sophomore Year.**

Legal Secretary

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

	Sem. Hrs.
General Education	
English	6
Social or Behavorial Science, Psychology or Literature	6
Physical Education	4
Other Courses listed in Suggested Course Sequence	48
TOTAL SEMESTER HOURS (Minimum)	64

Suggested Course Sequence
First Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
ENGS 111 (English Composition)	3	47
BUOA 152 (Intermediate Typing)	3	47
BUOA 112 (Intermediate Shorthand)	3	47
BUOA 221 (Transcription Machines)	3	47
#General Ed.	3	47
PER (Physical Education)	2	48
	17	283

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
ENGS 112 (English Composition)	3	47
BUOA 251 (Advanced Typing)	3	47
BUGB 141 (Business Mathematics)	3	47
#General Ed.	3	47
BUGB 211 (Business Communications)	3	47
PER (Physical Education)	2	48
	17	283

Second Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
BUOA 101 (Bookkeeping for Small Bus.)	3	47
BUOA 244 (Legal Procedures I)	3	47
BUOA 263 or 264 (Word Processing)	3	47
Business Elective	6	94
	15	235

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
BUOA 201 (Office Management) or BUOA 202 (Records Management)	3	47
SPCH (Speech)	3	47
Business Electives	3	47
BUOA 271 (Office Simulation)	3	47
BUGB 231 (Survey of Bus. Law)	3	47
	15	235

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

#Social or Behavioral Science or Literature.

SUGGESTED BUSINESS ELECTIVES: Computer Information Systems, Introduction to Business, Human Relations in Business.

Medical Secretary

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

	Sem. Hrs.
General Education:	
English	6
Social or Behavioral Science, or Literature	6
Physical Education	4
Other Courses listed in Suggested Course Sequence	47
TOTAL SEMESTER HOURS (Minimum)	63

Suggested Course Sequence
First Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
ENGS 111 (English Composition)	3	47
BUOA 152 (Intermediate Typing)	3	47
General Education	3	47
BUGB 141 (Business Mathematics)	3	47
PER (Physical Education)	2	48
	14	236

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
ENGS 112 (English Composition)	3	47
BUOA 251 (Advanced Typing)	3	47
BUGB 211 (Business Communications)	3	47
General Education	3	47
BUOA 101 (Bookkeeping for Small Bus.)	3	47
PER (Physical Education)	2	48
	17	283

Second Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
SOC 260 (General Sociology)	3	47
BIOL 141 (Human Anatomy and Physiology)	3	47
BIOL 141L (Human Anatomy and Physiology Lab)	2	60
BUHL 147 (Medical Terminology)	2	32
PSY 233 (Human Growth and Development)	3	47
PER 265 (First Aid)	2	32
Elective	3	47
	18	312

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
BUHL 159 (Medical Office Procedures)	3	47
BUOA 231 (Medical Transcription)	3	47
BUHL 154 (Lab Techniques)	2	32
Elective	6	94
	14	220

#Social or Behavioral Science or Literature

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

Travel, Recreation, and Hospitality Management

In order to receive the Associate of Applied Science degree in Travel, Recreation, and Hospitality Management, a student must satisfactorily complete the following: (Students who are contemplating seeking a four year degree upon completion of this program should work very closely with their adviser in selecting the elective hours.)

	Sem. Hrs.	
General Education:		
English Composition	3	
History of Colorado and Principles of Macroeconomics or General Psychology	6	
Technical Writing	3	
Physical Education	4	16
Business School Courses in Suggested Course Sequence	21	21
Travel, Recreation, and Hospitality Courses as Indicated	30	30
Electives	9	
TOTAL SEMESTER HOURS (Minimum)		76

Suggested Course Sequence

First Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
BUTR 101 (Travel Industry I)	3	47
ENGS 111 (English Composition)	3	47
BUMK 135 (Salesmanship)	3	47
BUGB 141 (Business Mathematics)	3	47
PER (Physical Education)	2	48
BUGB 101 (Introduction to Business)	3	47
	17	283

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
BUTR 102 (Travel Industry II)	3	47
ENGS 115 (Technical Writing)	3	47
BUMA 121 (Human Relations in Business)	3	47
BUTR 103 (Travel and Tourism Marketing Techniques)	3	47
PER (Physical Education)	2	48
	14	236

Summer

BUTR 299 (Internship) 15 640

Second Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
BUTR 201 (Management in Travel Industry I)	3	47
BUAC 201 (Principles of Accounting I)	3	47
ECON 201 or PSY 121 or 122	3	47
HIST 120 (History of Colorado)	3	47
Elective	3	47
	15	235

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
BCIS 101 (Business Data Processing)	3	47
BUTR 202 (Management in Travel Industry II)	3	47
BUGB 231 (Survey of Bus. Law)	3	47
Elective	6	94
	15	235

Business Administration

Associate of Arts

This program is designed primarily for students who wish to complete two years of course work prior to working toward the baccalaureate degree. In order to receive the Associate in Arts degree in Business Administration a student must satisfactorily complete the following:

	Sem. Hrs.	
General Education:		
English Composition	6	
Literature	6	
Social Science (Suggest Economics)	6	
Physical Science or Mathematics (Suggest Mathematics)	6	
Biology or Psychology	6	
Physical Education	4	34
Business Data Processing	3	
Introduction to Business	3	
Business Communications	3	
Principles of Accounting	6	
Electives	15	
TOTAL SEMESTER HOURS (Minimum)		64

Suggested Course Sequence

First Year

Fall Semester	*Sem. Hrs.*
Biology or Psychology	3
ENGS 111 (English Composition)	3
MATH 113 (College Algebra) or MATH 121 (Math Foundations)	3-4
*BUGB 101 (Introduction to Business)	3
PER (Physical Education)	1
Elective (Suggest Speechmaking)	3
	16-17

Spring Semester	*Sem. Hrs.*
Biology or Psychology	3
ENGS 112 (English Composition)	3
*BUGB 211 (Business Communications)	3
*BCIS 101 (Business Data Processing)	3
MATH 121 (Mathematical Foundations) or STAT 214 (Business Stat)	3
PER (Physical Education)	1
	16

Second Year

Fall Semester	*Sem. Hrs.*
*BUAC 201 (Principles of Accounting I)	3
Literature	3
ECON 201 (Principles of Macroeconomics)	3
Elective (Suggest Principles of Management)	3
PER (Physical Education)	1
STAT 214 (Business Stat) or Elective	3
	16

Spring Semester	*Sem. Hrs.*
*BUAC 202 (Principles of Accounting II)	3
Literature	3
ECON 202 (Principles of Microeconomics)	3
Elective	3
Elective	3
PER (Physical Education)	1
	16

*Required Core Courses

Accounting

Associate of Commerce

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

General Education:	Sem. Hrs.	
English Composition	6	
Economics	6	
Electives (Lit., Soc. Sci., Nat. Sci., Humanities, etc.)	18	
Physical Education	4	34
Bookkeeping for Small Business	3	
Business Data Processing	3	
Accounting	6	
Survey of Business Law	3	
Income Tax	3	
Principles of Management	3	
Business Communication	3	
Beginning Word Processing	3	
Office Management	3	
Ten-Key Operations	1	
TOTAL SEMESTER HOURS (Minimum)		65

Suggested Course Sequence

First Year

Fall Semester	*Sem. Hrs.*
*BUOA 101 (Bookkeeping for Small Business)	3
ENGS 111 (English Composition)	3
*BCIS 101 (Business Data Processing)	3
*BUAC 201 (Principles of Accounting I)	3
General Ed.	3
PER (Physical Education)	2
	17

Spring Semester	*Sem. Hrs.*
*BUMA 201 (Principles of Management)	3
ENGS 112 or 115 (English Composition or Technical Writing)	3
*BUAC 202 (Principles of Accounting II)	3
SPCH 102 (or other General Ed.)	3
General Ed.	3
PER (Physical Education)	2
	17

Second Year

Fall Semester	*Sem. Hrs.*
ECON 201 (Principles of Macroeconomics)	3
General Ed.	6
BUGB 211 (Business Communication)	3
BUOA 263 (Beginning Word Processing)	3
BUAC 205 (Ten-Key Operations)	1
	16

Spring Semester	*Sem. Hrs.*
BUGB 231 (Survey of Business Law)	3
ECON 202 (Principles of Marcoeconomics)	3
General Ed.	3
*BUGB 241 (Income Tax)	3
BUOA 201 (Office Management)	3
	15

*Required Core Courses

Office Administration (Secretarial)

Associate of Commerce

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

	Sem. Hrs.	
General Education:		
English	6	
Social or Behavioral Science, or Literature	12	
Physical Education	4	22
Business Mathematics	3	
Intermediate Shorthand	3	
Intermediate Typing	3	
Bookkeeping for Small Business	3	
Business Communications	3	
Business Data Processing	3	
Office Management	3	
Office Simulation	3	
Transcription Machines	3	
Beginning Word Processing	3	
Advanced Word Processing or Advanced Typing	3	
Electives	9	
TOTAL SEMESTER HOURS (Minimum)		64

Suggested Course Sequence

First Year

Fall Semester	*Sem. Hrs.*
Social or Behavioral Science or Literature	3
ENGS 111 (English Composition)	3
*BUOA 112 (Intermediate Shorthand)	3
*BUGB 141 (Business Mathematics)	3
*BUOA 152 (Intermediate Typing)	3
PER (Physical Education)	1
	16

Spring Semester	*Sem. Hrs.*
Social or Behavioral Science or Literature	3
ENGS 112 (English Composition)	3
BCIS 101 (Business Data Processing)	3
*BUOA 101 (Bookkeeping for Small Bus.)	3
Elective	3
PER (Physical Education)	1
	16

Second Year

Fall Semester	*Sem. Hrs.*
Social or Behavioral Science or Literature	3
*BUGB 211 (Business Communications)	3
*BUOA 221 (Transcription Machines)	3
PER (Physical Education)	1
BUOA 263 (Beginning Word Processing)	3
Elective	3
	19

Spring Semester	*Sem. Hrs.*
Social or Behavioral Science or Literature	3
*BUOA 201 (Office Management)	3
*BUOA 271 (Office Simulations)	3
PER (Physical Education)	1
BUOA 251 or 264 (Advanced Typing or Advanced Word Processing	3
Elective	3
	19

*Required Core Courses

SUGGESTED ELECTIVES: Survey of Business Law, Internship, 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 this nine-month Certificate, a student must satisfactorily complete the following course sequence or a similar sequence approved by the adviser.

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
BCIS 101 (Business Data Processing)	3	47
#ENGS 111 (English Composition)	3	47
BUMA 201 (Principles of Management)	3	47
BUAC 201 (Principles of Accounting I)	3	47
BUGB 141 Business Mathematics)	3	47
	15	235

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
ENGS 115 (Technical Writing)	3	47
BCIS 131 (COBOL I)	3	47
BUAC 202 (Principles of Accounting II)	3	47
BCIS 234 (RPG Programming)	3	47
BUGB 241 (Income Tax)	3	47
	15	235

#If placement scores indicate, ENGS 110 and 111 instead of ENGS 111 and 115.

LEGAL SECRETARY

In order to receive this nine-month Certificate, 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.*
#ENGS 111 (English Composition)	3	47
BUOA 244 (Legal Procedures I)	3	47
BUOA 152 (Intermediate Typing) or Business Elective	3	47
BUGB 141 (Business Mathematics)	3	47
BUOA 221 (Transcription Machines)	3	47
*Social or Behavioral Science Elective	3	47
	18	282

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
#ENGS 112 (English Composition) or ENGS 115 (Technical Writing)	3	47
BUOA 101 (Bookkeeping for Small Bus.)	3	47
BUOA 263 (Beginning Word Processing)	3	47
BUOA 271 (Office Simulation)	3	47
BUOA 251 (Advanced Typing)	3	47
	15	235

#If placement scores indicate, ENGS 110 and 111 instead of ENGS 111 and 112.
*Suggested Social Science electives include American Government, Sociology, Economics or Psychology.
Typing and Shorthand courses are subject to challenge. Approved Business electives may be substituted for these courses.

MEDICAL OFFICE ASSISTANT

In order to receive this nine-month Certificate, 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 141 (Human Anatomy and Physiology)	3	47
BIOL 141L (Human Anatomy and Physiology Lab)	2	60
BUHL 147 (Medical Terminology)	2	32
PSY 121 (General Psychology)	3	47
BUOA 101 (Bookkeeping for Small Bus.)	3	47
ENGS 111 (English Composition)	3	47
	16	280

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
BUHL 159 (Medical Office Procedures)	3	47
BUOA 231 (Medical Transcription)	3	47
BUOA 152 (Intermediate Typing)	3	47
BUHL 154 (Lab Techniques)	2	32
PER 265 (First Aid)	2	32
BUGB 211 (Business Communications)	3	47
	16	252

#If placement scores indicate, ENGS 110 & 111 instead of ENGS 111 & 112.

OFFICE CLERICAL-SECRETARIAL

In order to receive this nine-month Certificate 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.*
#ENGS 111 (English Composition)	3	47
BUOA 221 (Transcription Machines)	3	47
BUOA 152 (Intermediate Typing)	3	47
BUOA Elective	3	47
BUDA 263 (Beginning Word Processing)	3	47
	15	235

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
#ENGS 112 (English Composition) or ENGS 115 (Technical Writing)	3	47
BUOA 101 (Bookkeeping for Small Bus.)	3	47
BUGB 141 (Business Mathematics)	3	47
BUOA Electives	6	94
BUGB 211 (Business Communications)	3	47
	18	282

*Concurrent enrollment in BUOA 152 or one year of high school typing.
#If placement scores indicate, ENGS 110 & 11 instead of ENGS 111 & 112.

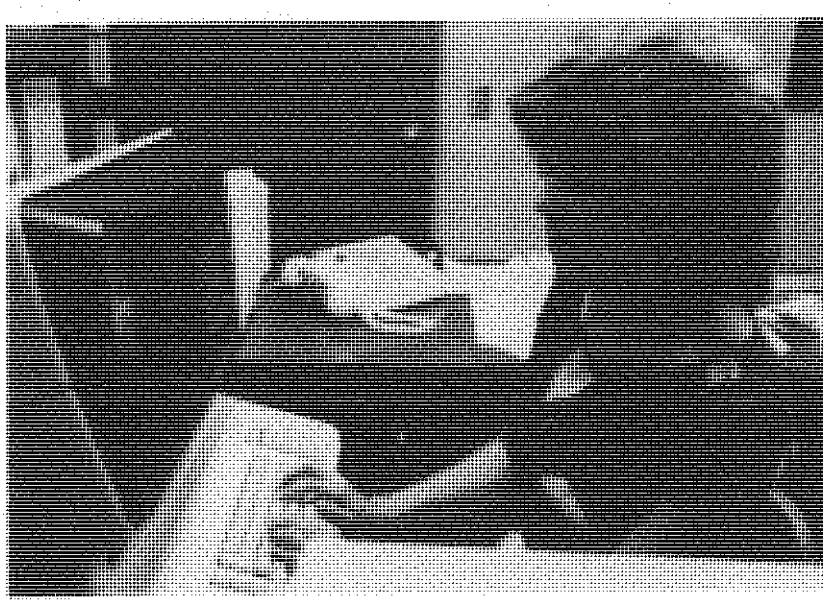
WORD PROCESSING

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

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
#ENGS 111 (English Composition)	3	47
BUOA 152 (Intermediate Typing)	3	47
BUOA 221 (Transcription Machines)	3	47
BCIS 101 (Business Data Processing)	3	47
BUOA 263 (Beginning Word Proc.)	3	47
	15	235

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
#ENGS 112 (English Composition) or ENGS 115 (Technical Writing)	3	47
BUOA 201 (Office Management) or BUOA 202 (Records Management)	3	47
BUGB 211 (Business Communications)	3	47
BUOA 271 (Office Simulation)	3	47
BUOA 264 (Advanced Word Proc.)	3	47
Business Elective	3	47
	18	282

#If placement scores indicate, ENGS 110 & 111 instead of ENGS 111 & 112.



SCHOOL OF HUMANITIES AND FINE ARTS

R. Bruce Crowell, Dean

Faculty: J. Ball, R. Berkey, L. Boschi, E. Broughton, A. Burdick, P. Carmichael, D. Cox, M. Djos, R. Frohock, J. Gallegos, M. Guyton, C. Hardy, R. Johnson, J. Keener, J. Kercheval, Dan MacKendrick, S. Matchett, D. Meyers, D. Pilkenton, J. Rider, M. Robb, M. Robinson, W. Robinson, A. Sanders, P. Schneider, R. Sowada, M. Spelman, B. Tharaud, D. Woodrich, J. Zeigel.

PROGRAMS

The School of Humanities and Fine Arts endeavors to promote in students cultural awareness and critical judgment. The school embraces the disciplines of:

- Art
- Creative and Technical Writing
- Dance
- English
- Foreign Language
- Mass Communications
- Music
- Philosophy
- Speech
- Theatre

Studies in these areas help students develop intellectual skills and ethical values which contribute to the enrichment of life for the individual and society. The School of Humanities and Fine Arts includes the following departments:

Department of Art (Donald E. Meyers, Department Chair)
Department of Languages and Literature (Robert L. Johnson, Department Chair)
Department of Music (Maebeth Guyton, Department Chair)
Department of Speech and Theatre (William S. Robinson, Department Chair)

COURSE PROFILES

Detailed descriptions of the courses offered by this school are to be found beginning on page 106 of this catalog. The order is alphabetical by discipline.

DEGREES AND CERTIFICATES

Bachelor of Arts in Liberal Arts

This program is designed for students who wish a broad experience in the arts and humanities. There are four emphases available:

1. English—emphasis plus teaching minor.
2. Fine Arts—an emphasis having four tracks: music; art; theatre; general fine arts.
3. Humanities—comprehensive, allowing a flexible mix of literature, speech, philosophy, foreign language, the arts and history of the arts.
4. Mass Communications—broadcast media track and print media track.

Outside the School of Humanities and Fine Arts, any emphasis traditional to the liberal arts spectrum but located in other schools in the college (i.e., history, biology, mathematics, psychology, etc.) may be accommodated under the B.A. in Liberal Arts.

Degree Requirements	*Sem. Hrs*
General Education	44
Core Program	30
Emphasis	20
Electives	30
TOTAL SEMESTER HOURS (Minimum)	124

The Emphases

Each of the emphases noted above is developed around a sequence of required areas of study embracing twenty credits, to which may be added appropriate electives to strengthen the total program. Each presumes an adequate preparatory base in courses selected to fulfill the school "Core Requirements."

English

Studies under this emphasis are required in several areas: British Literature from the Beginning to 1800; 19th Century British Literature; American Literature to 1900; 20th Century Literature; History of the Language, or Linguistics; Shakespeare; and either Chaucer or Milton.

Suggested Course Sequence

First Year

Fall Semester	*Sem. Hrs.*
ENGS 111 (English Composition)	3
ENLW 131 (World Literature)	3
Social Science	3
FA 101 (Man Creates)	3
FLAS 111 (First Year Spanish) or FLAG 111 (First Year German)	3
PER (Physical Education)	1
	16

Spring Semester	*Sem. Hrs.*
ENGS 112 (English Composition)	3
ENLW 132 (World Literature)	3
Social Science	3
FLAS 112 (First Year Spanish) or FLAG 112 (First Year German)	3
PER (Physical Education)	1
	13

Second Year

Fall Semester	*Sem. Hrs.*
THEA 311 (History of Theatre) or ART 211 (History of Art) or MUS 324 (History of Music)	3
ENGW 251 (Creative Writing) or SPCH 102 (Speechmaking)	3
ENLE 254 (English Literature) or ENLA 261 (United States Literature	3
Physical Science or Math	3
Biology or Psychology	3
PER (Physical Education)	1
	16

Spring Semester	*Sem. Hrs.*
ENGW 252 (Creative Writing)	3
ENGE 255 (English Literature) or ENLA 262 (United States Literature)	3
PHIL 251 (History of Philosophy)	3
Physical Science or Math	3
PER (Physical Education)	1
Biology or Psychology	3
	16

Other suggested courses for English Emphasis (Junior - Senior year).

- FA 101 (Man Creates)
- ENLW 142 (Intro. to Poetry)
- ENLW 134, 135 (Mythology)
- MSCM 131 (Intro. to Journalism)
- ENSS 421 (Hist. of Lit. Criticism)
- ENLE 355 (Shakespeare)
- ENLE 350, 360 (Chaucer or Milton)
- ENLE 370 (18th Century English Lit.)
- ENLE 380, 381 (19th Century British Lit.)
- ENLA 318 (Frontier American Lit.)
- ENLW 324 (Short Story)
- ENLA 316 (American Novel)
- ENGW 394 (Seminar)
- ENSS 440, 450 (Hist. of English Language or Linguistics)

Teaching Minor in English

The following sequence will satisfy certification requirements for the Teaching Minor in English. Students seeking certification must contact Dr. Mary Ryder, Coordinator of the Mesa/Metro Consortium for Teacher Education.

	Sem. Hrs.
ENGS 121 (Spelling)	3
ENLA 261 or 262 (U.S. Lit.)	3
ENLE 254 or 255 (English Lit.)	3
ENGS 115 (Technical Writing) or ENGW 251 (Creative Writing)	3
ENSS 455 (Methods of Teaching English)	3
plus	
9 hours of Upper Division English courses, choice open to students	9
TOTAL SEMESTER HOURS (Minimum)	24

Fine Arts: Art Track

Required areas of study include Drawing, Design, Art History, Processes and Media Studios at both lower and upper division levels, and Exhibitions and Management, and a senior seminar in art.

Commercial Art is offered in an Associate program in cooperation with Graphic Communications.

Suggested Course Sequence

First Year

Fall Semester	*Sem. Hrs.*
ART 151 (Basic Drawing)	3
ART 211 (Art History)	3
FA 101 (Man Creates)	3
ENGS 111 (English Composition)	3
PSY 121 (General Psychology)	3
PER (Physical Education)	1
	16

Spring Semester	*Sem. Hrs.*
ART 100 (Art Foundations)	3
ART 212 (Art History)	3
ENGS 112 (English Composition)	3
PSY 122 (General Psychology)	3
Elective	3
PER (Physical Education)	1
	16

Second Year

Fall Semester	*Sem. Hrs.*
ART 291 (Painting)	3
ART 281 (Sculpture)	3
PHIL 251 (History of Philosophy)	3
HIST 205 (Civilization of China/Japan)	3
CSCI 100 (Computers in Our Society)	3
PER (Physical Education)	1
	16

Spring Semester	*Sem. Hrs.*
ART 271 (Printmaking)	3
ART 251 (Figure Drawing)	3
ART 241 (Ceramics)	3
ENLW 135 (Mythology)	3
PER (Physical Education)	1
	13

Fine Arts: Commercial Music

A sequence in Commercial Music is offered at the Associate degree level. The sequence may also serve as a component within a Bachelor's degree program.

Second Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
Phy. Science or Biology or Psychology	3	Phy. Science or Biology or Psychology	3
Lit. or Soc. Science	3	Lit. or Soc. Science	3
MUSA 237 (Voice)	1	MUSA 237 (Voice)	1
MUS 220 or THEA 141 (Appreciation)	3	SPCH 112 (Voice and Diction)	3
MUS 270 (Music Theatre	2	MUS 271 (Music Theatre)	2
Music Theatre Ensemble	1	Music Theatre Ensemble	1
MUS 337 (Diction: It., Ger.)	2	MUS 337 (Diction: French)	1
PER (Dance)	1	PER (Dance)	1
Electives	2	Electives	3
	18		18

Fine Arts: Music Track

A Bachelor of Arts in Liberal Arts, Fine Arts Emphasis, Music Track is offered in the following areas of specialization. The hours shown must be taken in addition to the General Education and Fine Arts Core requirements. Some of the courses are offered only on alternating years. You are strongly encouraged to plan as far ahead as possible the order in which you will take your courses. The most important step in planning to complete the requirements for your chosen area of specialization in Music will be to meet regularly with your assigned adviser.

Required Courses for Performance	Sem. Hrs.
1. MUS 110, 116, 117, 130, 137, 216, 230 MUS 114, 115, 214, 215, 314, 315, 414, 415 (Basic Musicianship and Theory)	38
2. MUS 324, 325 (History and Literature)	6
3. MUSP courses; 12 hours (inculding MUSP 420) MUSA courses; 8 hours Applied Studies	20
Total Semester Hours (Minimum)	64

Required Courses for Liberal Arts	
1. MUS 110, 116, 117, 130, 137 MUS 114, 115, 214, 215 (Basic Musicianship and Theory)	22
2. MUS 224, 264, 324, 325 MUS 424 or 425 (History and Literature)	13
3. MUSA and/or MUSP Courses as advised (Applied Studies)	10
4. MUS 160, Art 300, THEA 401 (Arts Management)	6
Total Semester Hours (Minimum)	51

Required Courses for Music Minor for Elementary Education Majors

MUS 110 (Standard Notation)	2
MUS 114 (Theory I: Introduction)	3
MUS 116 (Basic Musicianship I)	2
MUS 130 (Class Piano I)	2
MUS 231 (Guitar Techniques and Materials)	2
MUS 233B (Recorder (Woodwind) T)	2
MUS 240 (Fundamentals of Music Education)	2
MUS 341 (Music & Methods for Elem. Classroom)	2
Electives taken from Music History, MUSA or MUSP Course Offerings	5
Total Semester Hours (Minimum)	22

Fine Arts: Music Theatre Track

Required areas of study include voice, piano, acting, music notation, sight singing, dance, music theatre, and make-up as well as participation in three musical productions. Approval of both Theatre and Music Departments is required for graduation.

Suggested Course Sequence
First Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
ENGS 111 (English Comp.)	3	ENGS 112 (English Comp.)	3
Social Science or Lit.	3	Social Science or Lit.	3
MUS 130 (Piano Class/Non-Major)	2	FA 101 (Man Creates)	3
MUS 137 (Voice Class)	2	MUS 138 (Voice Class)	2
THEA 251 (Beg. Acting)	3	THEA 252 (Stage Movement)	3
MUS 116 (Basic Musicianship)	2	MUS 117 (Basic Musicianship)	2
PER 176 (Beg. Ballet)	1	PER 184 (Jazz) or 186 (Tap)	1
Ensemble	1	Ensemble	1
	17		18

Fine Arts: Theatre Track

Required areas of study include Makeup, Costuming, Acting I, Scenery Construction, Beginning and Advanced Directing, Theatre Management, and one course from among the following: World Drama, American Drama, Contemporary Drama, or Shakespeare.

Suggested Course Sequence
First Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
ENGS 111 (English Comp. I)	3	ENGS 112 (English Comp.)	3
Social Science or Lit.	3	Social Science or Lit.	3
THEA 142 (Make-up)	2	THEA 143 (Costuming)	2
FA 101 (Man Creates)	3	Thea./Art/or Mus. Appreciation	3
THEA 251 or 243 (Acting I or Thea. Pract.)	3	THEA 252 or 244 (Acting II or Thea. Pract.)	3
MUSA 137 (Voice Class)	2	SPCH 112 (Voice and Diction)	3
PER (Ballet or Mod. Dance)	1	PER (Tap or Jazz)	1
	17		18

Second Year

Fall Semester	*Sem. Hrs.*
THEA 251 or 243 (Acting I or Thea. Pract.)	3
Phy. Science or Biology/ Psychology	3
Lit. or Social Science	3
MUS 270 (Music Theatre	2
PER (Ballet or Mod. Dance)	1
Electives	6
	18

Spring Semester	*Sem. Hrs.*
THEA 252 or 244 (Acting II or Thea. Pract.)	3
Phy. Science or Biology/ Psychology	3
Lit. or Social Science	3
MUS 271 (Music Theatre)	2
PER (Jazz or Tap)	1
Electives	6
	18

The student wishing to continue in the Acting/Directing sequence should consult with the acting faculty for course of study for upper division. The student wishing to continue in the Technical sequence should consult with the technical director.

Humanities

This emphasis requires that eighteen credits be selected in a balanced program representing at least three of the following areas:

Literature, Speech, Philosophy, Foreign Languages, the Arts, and History of the Arts. The program must be carefully designed in consultation with an adviser and be approved by the dean of the school.

Mass Communications

Print Media Track: Required areas of study include Persuasion Communications, Copy Editing and Make-up, Public Affairs and Feature Reporting, Journalism Law and Ethics, and Internship in Mass Communications.

Broadcast Media Track: Studies are required in Persuasion Communications, Broadcast Writing and Announcing, Television Production, Journalism Law and Ethics, and Internship in Mass Communications.

Suggested Course Sequence

First Year

Fall Semester	*Sem. Hrs.*
*MSCM 131 (Intro. to Journalism)	3
ENGS 111 (English Comp.)	3
General Ed. and Core	9
PER (Physical Education)	1
	16

Spring Semester	*Sem. Hrs.*
*MSCM 121 (Introduction to Broadcasting)	3
ENGS 112 (English Comp.)	3
MSCM 221 (Radio Prod.)	3
General Ed. and Core	6
PER (Physical Education)	1
	16

*Freshmen are required to complete either MSCM 121 or MSCM 131. They are encouraged to take both.

Second Year

Fall Semester	*Sem. Hrs.*
MSCM 231 (News Wr. & Rep.)	3
General Ed. and Core	12
PER (Physical Education)	1
	16

Spring Semester (for Print Media)	*Sem. Hrs.*
MSCM 341 (Copy Ed. & Makeup)	3
or MSCM 351 (Public Affairs/Feature)	
General Ed. and Core	12
PER (Physical Education)	1
	16

Spring Semester (for Broadcast Media)	*Sem. Hrs.*
MSCM 321 (Broadcast Writing)	3
MSCM 361 (Telev. Prod.)	3
General Ed. and Core	9
PER (Physical Education)	1
	16

Students in Print Media sequence should complete the following Mass Communications courses within four years:

MSCM 131 (Intro. to Journ.)
MSCM 231 (News Wr./Rep.)
MSCM 241 (Persuasion Comm.)
MSCM 341 (Copy Ed./Makeup)
MSCM 351 (Public Aff./Feature)
MSCM 421 (Journ. Law/Ethics)
MSCM 397 (Practicum)
MSCM 497 (Practicum)
MSCM 499 (Internship)

Students in Broadcast Media sequence should complete the following Mass Communications courses within four years:

MSCM 121 (Intro. to Broadc.)
MSCM 221 (Radio Prod.)
MSCM 231 (News Wr./Rep.)
MSCM 241 (Persuasion Comm.)
MSCM 321 (Broadc. Writing)
MSCM 361 (Telev. Prod.)
MSCM 421 (Journ. Law/Ethics)
MSCM 397 (Practicum)
MSCM 497 (Practicum)
MSCM 499 (Internship)

Students are not restricted from taking MSCM classes outside their primary sequence, but those classes should count as electives.

CORE REQUIREMENTS IN HUMANITIES AND FINE ARTS

Requirement: thirty credits total, from at least three departments, with a maximum of 18 semester hours from any single field of study. (Note: the courses indicated in each category *or their equivalents* are required.) Courses selected for General Education requirements **may not** be counted in the core.

I. INTRODUCTORY STUDIES: Six credits.

FA 101, Man Creates
ENLW 131 or 132, World Literature; 141 Intro. to Fiction
MUS 220, Music Appreciation
ART 115, Art Appreciation
THEA 141, Theatre Appreciation
MSCM 101, Mass Media in America

*II. HISTORICAL STUDIES: nine to twelve credits selected from among twelve historically oriented courses. (Must include at least two disciplines.)

ART 211 or 212, History of Art;
ART 315, 20th Century Art History;
THEA 331, History of Theatre;
FA 301 or 302, Civilization and the Arts;
ENLW 134 or 135, Mythology;
ENLW 142, Introduction to Poetry;
ENLW 143, Introduction to Drama;
ENLW 145, Intro. to Oriental Literature;
MSCM 121, Introduction to Broadcasting, or MSCM 131, Introduction to Journalism;
ENLE 254 or 255, Survey of English Literature;
ENLA 261 or 262, U.S. Literature;
ENLA 318, Frontier American Literature;
ENLA 326 or 327, World Drama;
ENLA 411, American Drama;
ENLW 413, Contemporary Drama;
MUS 224, 264, History of Contemporary Music;
MUS 324, History and Lit: Rom.;
MUS 325, History and Literature, Baroque and Classical;
MUS 424, History and Literature, Med. and Ren.;
MUS 425, 20th Century;
PHIL 251 or 252, History of Philosophy;

*III. APPLIED STUDIES: nine to twelve credits selected from among two dozen courses of an applied nature. *Must include at least two disciplines.*

ART 100, Art Foundations;
ART 151, Basic Drawing;
ART 120, 130, 140, 150, 154, 170, 180, 190, 192, 193, 257 (Studio Modules);
Art Process and Media, all 200-level courses;
THEA 142, Make-up;
THEA 143, Costuming;
THEA 243, Scene Const. and Painting;
THEA 244, Lighting;
THEA 251, Acting I, Beginning Acting;
THEA 252, Stage Movement;
THEA 114-214-314-414, Summer Theatre;
THEA 115, 315, Field Studies in Mod. Thea;
THEA 451, Beginning Directing;
THEA 452, Advanced Directing;
ENGW 251 or 252, Creative Writing;
FOREIGN LANGUAGE, any standard Introductory or Advanced;
MSCM 221, Radio Prod. and Announ.
MSCM 231, News Writing and Reporting;
MSCM 397 or 497 Practicum;
MUS 110, Standard Notation;
MUS 114-115, Theory I and II
MUS 116-117, Basic Musicianship I and II;
MUS 214-215, Theory III and IV;
MUS 350-351, Conducting I and II;
MUS 370-371, Music Theatre;
MUSP 100-400, Performing Groups;
MUSA 100-400, Applied Lessons;
SPCH 101 or 102, Inter-Personal Public Speaking;
SPCH 112, Voice and Diction;

IV. CRITICAL STUDIES: Three credits selected from among three courses in philosophy/criticism of the arts and humanities.

ENSS 421, History of Literary Criticism;
422, Contemporary Criticism
FA 401, Critical Analysis of the Arts.
MSCM 494 Seminar
PHIL 351, Aesthetics.

*The credits completed in areas II and III together must total 21.

Electives

Thirty hours are to be chosen as either free electives where the individual's program permits, or appropriately related electives if the individual chooses a more comprehensive emphasis.

Associate of Arts Degrees

Students who wish to work toward the Associate of Arts degree in the School of Humanities and Fine Arts should refer to the schedule listed under *Graduation Requirements* elsewhere in this catalog. 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 of Arts degree will serve as a basis for the Bachelor of Arts in Liberal Arts and also for programs offered in other academic units at Mesa College.

Associate of Arts in Liberal Arts: Commercial Music Sem. Hrs.

1. MUS 110, 114, 116, 130, 160, 290, and
   MUS 230 or 231, and
   MUS 224 or 264, and
   MUSA courses; 3 hours, and
   MUSP 160 and MUSP courses; 2 hours, and
   a. Voice Emphasis
      MUSP 261 and MUSP 150-450 or 153-453
   b. Instrumental Emphasis
      MUSP 260, and MUSP 140-440 or
   c. Songwriter Emphasis
      MUS 260, 261

Music Courses 21

2. FA 101, and 6 hours from:
   MUS 262, 263; THEA 141; ART 100; MSCM 221; BUMA 121

Recommended Electives 9

3. PER 176, 177, 180, 181; ENGS 111, 112; ENLW 134, 142; HIST 101, 102; CSCI 100; PHYS 100; PSY 121, 122

Recommended General Education and Physical Activities 34

Students who intend to pursue a Bachelor of Arts in Liberal Arts are advised to use electives to fulfill the specialized and interdisciplinary requirements.

Credit may be granted for professional work experience as determined by Music Department faculty; however, these may not apply towards a 4 year Bachelor of Arts program.

Music classes requiring proficiency may be challenged through testing. Four credits acquired through testing can be counted towards the department requirements. Additional credits have to be made up in music electives.

COMMERCIAL ART

See Associate of Applied Science (*Commercial Art*) - School of Industry and Technology.

PHILOSOPHY AND RELIGIOUS STUDIES

Apart from the course listings under "Philosophy" later in this catalog, a number of courses from various disciplines have been identified as pertinent for students wishing to pursue the subject of religious studies.

Suggested Courses

PHIL 251 (Hist. of Philosophy I)
PHIL 252 (Hist. of Philosophy II)
PHIL 352 (Ethics)
ANTH 230 (Myth, Magic & Religion)
ENLW 335 (Bible as Literature)
SOCS 210 (Religion in the American Experience)
SOC 310 (Sociology of Religion)

Other Allied Courses

ENLW 131, 132 (World Literature)
ENLW 134, 135 (Mythology)
ENLW 145 (Oriental Literature)
ENLW 330 (Women in World Thought & Lit.)
ENLW 340, 341 (Classical Lit. in Translation)
HIST 205 (Civilizations of Japan & China)
ANTH 232 (Primitive Science & Religion)

INTERNSHIPS

Internships, in which a student works off campus in a professional setting related to the Emphasis, are available to all areas of Humanities and Fine Arts as credit-granting endeavors. In some fields (Mass Communications, Arts Administration) they are required.

READING

Mesa College offers a number of reading courses in conjunction with Metropolitan State College. They are available through the Mesa/Metro teacher education programs which are not specifically listed in this catalog. Interested persons should contact Dr. Mary Ryder, coordinator of the program, in Houston Hall, Room 212.

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. Those desiring to teach English should have at least two years of a Foreign language.

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 Aid. See information in *Student Services* section of this catalog.

The School of Humanities and Fine Arts has a number of excellent scholarship opportunities each year. Major awards are available in Humanities and Theatre (Herr Memorial Scholarships) and Music (Krey Memorial Scholarship). Many supporting scholarships are available in Art, Music, Theatre, Creative Writing, and Mass Communications.

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

A. D. Anderson, Dean

Faculty: B. Beden, H. Bollan, W. Branton, J. Charlesworth, D. Duff, C. Fetters, E. Fresquez, E. Goodwin, R. Greb, F. Holgate, J. Livingston, L. Searcy, P. Wells, K. Youngblood.

PROGRAMS

The School of Industry and Technology offers a variety of training in:

Auto Body-Fender (A.A.S.)
Commercial Art (A.A.S.)
Electric Lineman (C.O.P.)
Electronics Technology (A.A.S. or C.O.P.)
Graphic Communications (A.A.S.)
Mechanics-Automotive (A.A.S. or C.O.P.)
Mechanics-Heavy Equipment/Diesel (C.O.P.)
Mechanic-Welder (C.O.P.)
Welding (A.A.S. or C.O.P.)

Students may work toward an Associate in Applied Science Degree (A.A.S.) in Auto Body, Mechanics-Automotive, Commerical Art, Electronics, Graphic Communications, and Welding. Certificates of Occupational Proficiency (C.O.P.) only are awarded in Mechanics-Heavy Equipment/Diesel, Mechanic-Welder, and Electric Lineman. Students may choose either the A.A.S. or C.O.P. in Mechanics-Automotive, Electronics and Welding.

To successfully complete the requirements for an Associate in Applied Science Degree or for a Certificate of Occupational Proficiency, the student must complete the program as currently approved by the State Board for Occupational Education.

COURSE PROFILES

Detailed descriptions of the courses are found beginning on page 106 of this catalog. The order is alphabetical by discipline.

DEGREES AND CERTIFICATES

Associate in Applied Science Degree

Students who meet the requirements for the Associate of Applied Science degree must complete the minimum number of semester hours specified which includes, in addition to technical courses, general education course work from the following:

I. Six (6) semester hours of English which may be satisfied by completing any of the following sequences: ENGS 106, 107, ENGS 110, 111; ENGS 110, 115; ENGS 111, 107; ENGS 111, 112, ENGS 111, 115; ENGS 106, 115; Also ENGS 111, 121; ENGS 106, 121; or, for students who qualify, ENGS 126, 127.

II. Six (6) semester hours of Social or Behavioral Science, or Literature from the following list:

a. ANTH 101, 102, 221, 222 — (Anthropology)
b. ECON 201, 202 — (Economics)
c. GEOG 101, 102 — (Geography)
d. HIST 101, 102, 120, 131, 132, 136, 137, 205 — (History)
e. ENLW 131, 132, 134, 135, 141, 142, 143, 145 — (Literature)
f. POLS 101, 102, 256, 261, 262 — (Political Science)
g. SOCS 210 — (Social Science)
h. PSY 121, 122 — (Psychology)
i. SOC 144, 260, 264 — (Sociology)

III. Four (4) semester hours of physical education course work which may include any activity course with a number of 100 or above but below a 200 number; in three different activities and not more than one course per scheduled module or two such courses per semester.

AUTO BODY AND FENDER

Associate of Applied Science

Upon successful completion of the requirements set forth in the curriculum, a student may receive the Associate of Applied Science degree. Practical application covers all phases of body and fender repair, including a comprehensive unit in auto painting. The training covers necessary shop 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 of Applied Science degree in Auto Body and Fender include the following:

	Sem. Hrs.
Applied Mathematics	2
Auto Body and Fender	53
English or Vocational Communications	6
Human Relations in Business or Equivalent	3
Physical Education	4
Social Science	6
Electives	2
TOTAL SEMESTER HOURS (Minimum)	76

Suggested Course Sequence
First Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*	*Spring Semester*	*Sem. Hrs.*	*Contact Hrs.*
ABF 100 (Applied Math)	2	32	ABF 120 (Auto Body Repair and Repair & Ref. II)	8	227
ABF 110 (Auto Body Repair and Refinishing I)	8	227	ABF 130 (Auto Reconditioning)	3	77
ABF 140 (Oxyacetylene Welding)	2	47	ABF 150 (Arc Weld.)	2	47
English or Vocational Communications	3	47	English or Vocational Communications	3	47
PER (Physical Education)	2	48	PER (Physical Education)	2	48
	17	401		18	446

Second Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
ABF 200 (Panel and Spot Painting)	6	152
ABF 210 (Frame Rep.)	4	92
ABF 220 (Shop Manag)	3	47
ABF 230 (Auto Body) Rep. and Ref. III)	6	152
Social Science	3	47
	22	490

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
ABF 240 (Auto Body Rep. and Ref. IV)	8	302
ABF 250 (Estimating)	3	47
BUMA 121 (Human Relations in Bus. or equivalent)	3	47
Social Science	3	47
Electives	2	32
	19	475

ELECTRIC LINEMAN

One-Year Certificate of Occupational Proficiency

This program is designed to train highly qualified personnel for employment with electrical service and construction companies. Students receive field training and practical theory in all phases of power-line installation and maintenance. Field training consists of actual experience in an outdoor school laboratory, which covers climbing, setting and removing various sizes of poles, guy work, conductors, transformers, streetlights, installation of services, and the use and care of safety equipment.

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

Requirements for the Certificate of Occupational Proficiency include:

		Sem. Hrs.	*Contact Hrs.*
ELIN 111	(Mathematical Basic Electricity)	5	77
ELIN 120	(Fundamentals of Electricity I)	5	77
ELIN 131	(Electric Distribution Theory I)	4	77
ELIN 132	(Electric Distribution Theory II)	6	115
ELIN 136	(Related Fundamentals I)	4	190
ELIN 137	(Related Fundamentals II)	6	152
ELIN 140	(Underground Procedures)	5	152
ELIN 145	(Hot-Line Procedure)	3	82
PER 265	(Standard First Aid and CPR)	2	32
		40	954

ELECTRONICS TECHNOLOGY

Associate of Applied Science

The Electronics Technology curriculum emphasizes applied electrical science and electronics with emphasis areas in computers (hardware-software concepts and applications) and communications. The electronics technician must be able to: produce practical, workable and safe results quickly and economically, install and operate technical systems, configure hardware from proven concepts, service machines and systems, and provide customer support to technical products and systems.

The graduate typically finds employment in the electronics field in areas such as product support, process control, testing and evaluation, and field engineering. Students entering the program should have at least one year of high school algebra or equivalent knowledge.

Minimum requirements for the Associate of Applied Science in Electronics Technology are the following:

	Sem. Hrs.
DC Passive Circuits and Lab	4
AC Passive Circuits and Lab	4
Shop Processes and Lab	2
Solid State I and Lab	4
Solid State II and Lab	4
Electronic Troubleshooting and Lab	4
Communications Circuits I and Lab	4
Communications Circuits II and Lab	4
Digital Circuits I and Lab	4
Microprocessors I	4
Linear Integrated Circuit Applications	4
Digital Circuits II	4
Microprocessors II	4
Technical Math I or College Algebra	4
Technical Math II or Trigonometry	3
English Composition or Vocational Communications I	3
English Composition or Vocational Communications II or Technical Writing	3
Physical Education (At least three different activities)	4
Social Science	6
TOTAL SEMESTER HOURS (Minimum)	73

Suggested Course Sequence
First Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
ELEC 117 (DC Passive Circuits)	3	50
ELEC 117L (DC Passive Circuits Lab)	1	32
ELEC 118 (AC Passive Circuits)	3	50
ELEC 118L (AC Passive Circuits Lab)	1	32
ETEC 101 (Technical Math I)	4	62
ENGS 111 (English Comp.)	3	47
PER (Physical Education)	2	48
	17	321

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
ELEC 153 (Solid State I)	3	52
ELEC 153L (Solid State I Lab)	1	30
ELEC 154 (Solid State II)	3	52
ELEC 154L (Solid State II Lab)	1	30
ELEC 270 (Linear Integrated Circuit Applications)	3	52
ELEC 270L (Linear Integrated Circuit Applications Lab)	1	36
ETEC 102 (Technical Math II)	4	62
ENGS 115 (Technical Writing)	3	47
	19	361

Second Year

Fall Semester	Sem. Hrs.	Contact Hrs.
ELEC 256 (Communications Circuits I)	3	47
ELEC 256L (Communications Circuits I Lab)	1	30
ELEC 265 (Digital Circuits I)	3	50
ELEC 265L (Digital Circuits I Lab)	1	32
ELEC 275 (Digital Circuits II)	3	50
ELEC 275L (Digital Circuits II Lab)	1	32
ELEC 121 (Shop Processes)	1	17
ELEC 121L (Shop Processes Lab)	1	30
Social Science	3	47
PER (Physical Education)	2	48
	19	383

Spring Semester	Sem. Hrs.	Contact Hrs.
ELEC 230 (Electronic Troubleshooting I)	2	32
ELECT 230L (Electronic Troubleshooting Lab)	2	60
ELEC 257 (Communications Circuits II)	3	47
ELEC 257L (Communications Circuits II Lab)	1	30
ELEC 266 (Microprocessors I)	3	50
ELEC 266L (Microprocessors I Lab)	1	32
ELEC 276 (Microprocessors II)	3	50
ELEC 276L (Microprocessors II Lab)	1	32
Social Science	3	47
	19	380

ELECTRONICS TECHNOLOGY

Two-Year Certificate

Requirements are the same as the AAS degree except for the English, Social Science and Physical Education requirements.

GRAPHIC COMMUNICATIONS

Associate of Applied Science of Graphic Arts Production

A two-year technical program designed to prepare the student to enter business, industry, and education graphics reproduction systems. The student develops basic skills in visual information design, visual information reproduction, and visual information recording, storage, and retrieval. A commercial art option is also available to students as they progress in this program. Information on the Commercial Art option is also available in the Humanities and Fine Arts section.

Minimum requirements for the Associate in Applied Science degree in Graphic Arts Technology include the following:

	Sem. Hrs.
Advertising	3
Art	3
ENGS 111, 112 (English Composition)	6
Graphic Communications	38
Mathematics	2
Physical Education	4
Social Science or Psychology	6
Electives (Typing and Speech recommended)	9
TOTAL SEMESTER HOURS (Minimum)	71

Suggested Course Sequence

First Year

Fall Semester	Sem. Hrs.	Contact Hrs.
Art	3	92
ENGS 111 (English)	3	47
GRCO 130 (Basic Photography I)	2	47
GRCO 140 (Basic Typesetting)	1	17
GRCO 140L (Basic Typesetting Lab)	2	45
PER (Physical Education)	2	48
Social Science or Psychology	3	47
	16	343

Spring Semester	Sem. Hrs.	Contact Hrs.
BUMA 232 (Advertising)	3	47
ENGS 112 (English)	3	47
GRCO 120 (Graphic Arts Layout and Design)	3	47
GRCO 141 (Advanced Typesetting)	1	17
GRCO 141L (Adv. Typsetting Lab)	2	45
PER (Physical Education)	2	48
Social Science or Psychology	3	47
Elective	3	47
	20	345

Second Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
BUGB 141 (Business Mathematics) or	3	47
MATH 110 (Finite Math)	(2)	(32)
GRCO 230 (Process Photography I)	1	17
GRCO 230L (Process Photography I Lab)	3	60
GRCO 240 (Image Preparation I)	1	17
GRCO 240L (Image Preparation I Lab)	3	60
GRCO 250 (Offset Press I)	1	17
GRCO 250L (Offset Press I Lab)	3	60
Elective	3	47
	17	310
	or	or
	18	325

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
GRCO 231 (Process Photography II)	1	17
GRCO 231L (Process Photography II Lab)	3	60
GRCO 241 (Image Preparation II)	1	17
GRCO 241L (Image Preparation II Lab)	3	60
GRCO 251 (Offset Press II)	1	17
GRCO 251L (Offset Press II Lab)	3	60
GRCO 260 (Cost Estimating)	3	47
Elective	3	47
	18	325

COMMERCIAL ART

Associate of Applied Science

A two-year program designed to help prepare the student to enter the advertising industry in agencies or corporate marketing or advertising departments. The student develops basic skills in visual information design, pre-reproduction preparation including typesetting, camera-ready copy and illustration.

Minimum requirements for the Associate in Applied Science degree in Graphic Communications Technology with an emphasis on Commercial Art* include the following:

	Sem. Hrs.
Advertising	3
English	9
Psychology	6
Art	16
Commercial Art (GRCO)	30
Physical Education	4
Elective	3
TOTAL SEMESTER HOURS (Minimum)	71

*Some Commercial Art courses can be used towards a B.A. in Liberal Arts. See School of Humanities & Fine Arts.

Suggested Course Sequence
First Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
ART 100 (Art Foundations)	3	92
ART 151 (Basic Drawing)	3	92
GRCO 110 (Basic Typesetting)	3	62
GRCO 130 (Basic Photography)	2	47
ENGS 111 (English Composition)	3	47
PSY 121 (General Psychology)	3	47
PER (Physical Education	2	48
	19	435

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
ART 251 (Figure Drawing)	3	92
GRCO 140 (Adv. Typesetting)	1	17
GRCO 140L (Adv. Typesetting Lab)	2	45
GRCO 120 (Layout and Design)	3	47
ENGS 112 (English Composition)	3	47
PSY 122 (General Psychology)	3	47
PER (Physical Education)	2	48
	17	343

Second Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
ART 197 (Airbrush)	1	32
ART (Media Choice of 2 or 3 Ink Wash, Pastels or Water Media)	2	62
GRCO 240 (Image Preparation I)	1	17
GRCO 240L (Image Preparation I Lab)	3	60
GRCO 230 (Process Photo. I)	1	17
GRCO 230L (Process Photo. I Lab)	3	60
GRCO 220 (Adv. Layout & Design I)	2	45
Elective	3	47
	16	340

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
ART 292 (Painting: Acrylics)	3	92
ART 257 (Cartooning)	1	32
GRCO 131 (Photo Finishing)	1	17
GRCO 241 (Image Preparation II)	1	17
GRCO 241L (Image Preparation Lab II)	3	60
GRCO 221 (Adv. Layout and Design II)	3	75
GRCO 270 (Portfolio Development)	1	17
ENGS 115 (Technical Writing) or ENGW 251 (Creative Writing)	3	47
BUMK 232 (Advertising)	3	47
	19	404

MECHANICS-AUTOMOTIVE

Associate of Applied Science

The Mechanics-Automotive program covers all facets of domestic and some foreign car repair. Students learn the proper procedures of servicing, maintaining, and repairing all components of the automobile. Students also learn, the proper use of tools and specialized equipment. Diagnosis and troubleshooting receive special emphasis throughout the program. Instruction includes a combination lecture/laboratory situations with the ratio of a classroom to lab hours being determined for each course offering. Extensive laboratory work experience on both mockups and line units is part of the training. Supportive courses in mathematics, communication skills and human relations are also included.

Mesa College is an approved regional Ford Technician Training Center and GMC Technician Testing Center.

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

	Sem. Hrs.
Applied Math for Mechanics	2
Auto Mechanics (from the following list)	61
English or Vocational Communications	6
Human Relations in Business or equivalent	3
Physical Education	4
Social Science	6
TOTAL SEMESTER HOURS (Minimum)	82

Suggested Course Sequence

First Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
MECH 105 (Intro. to Shop Practices)	3	77
MECH 113 (Internal Combustion Engines)	5	77
MECH 121 (Clutches and Standard Transmissions)	2	52
MECH 124 (Electrical Systems)	4	52
MECH 125 (Light Duty Brakes)	3	65
ENGS 106 (Vocational Communications)	3	47
	20	370

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
MECH 111 (Applied Math for Mechanics)*	2	32
MECH 133 (Air Conditioning)	3	52
AMEC 122 (Drivelines and Differentials)	2	52
AMEC 123 (Automotive Tune-up)	7	127
AMEC 142 (Suspension and Alignment)	7	127
BUMA 121 (Human Relations in Business or Approved Equivalent)	3	47
	24	437

Second Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
AMEC 214 (Engine Rebuilding)	7	152
AMEC 227 (Automatic Transmission)	4	65
ENGS 115 (Technical Writing)	3	47
(Social Science requirement)	3	47
PER (Physical Education requirement)	2	48
	19	359

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
AMEC 239 (Emission Control)	4	65
AMEC 243 (Transaxles)	3	52
AMEC 250 (Troubleshooting & Diagnosis)	3	65
AMEC 254 (Automotive Electronics)	4	65
(Social Science requirement)	3	47
PER (Physical Education requirement)	2	48
	19	342

*Students must demonstrate basic mathematics skill through ACT or pre-test before registering for this course. MATH 015 may be required before registering for MECH 111.

MECHANICS - AUTOMOTIVE

One-year Certificate of Occupational Proficiency

The purpose of the certificate program is to offer students who desire a shorter training period the opportunity to take selected essential courses in preparation for beginning jobs in less technical, basic skill areas. The curriculum is designed to be employment directed at the end of two semesters or upon successful completion and performing satisfactorily on a proficiency examination, being accepted into the second year of study required for the Associate of Applied Science degree.

Minimum requirements for the Certificate of Occupational Proficiency are:

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
MECH 105 (Introduction to Shop Practices)	3	77
MECH 113 (Internal Combustion Engines)	5	77
MECH 121 (Clutches and Standard Transmissions)	2	52
MECH 124 (Electrical Systems)	4	52
MECh 125 (Light Duty Brakes)	3	65
ENGS 106 (Vocational Communications)	3	47
	20	370

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
MECH 111 (Applied Math for Mechanics)*	2	32
MECH 133 (Air Conditioning)	3	52
AMEC 122 (Drivelines and Differentials)	2	52
AMEC 123 (Automotive Tune-up)	7	127
AMEC 142 (Suspension and Alignment)	7	127
BUMA 121 (Human Relations in Business of Approved Equivalent)	3	47
	24	437

*Students must demonstrate basic mathematics skill through ACT or pre-test before registering for this course. MATH 015 may be required before registering for MECH 111.

MECHANICS - HEAVY EQUIPMENT/DIESEL

Certificate of Occupational Proficiency

The program is designed to provide a wide range of training in the field of mechanics-heavy equipment/diesel maintenance. The longer the student stays in training, the more advanced skill and job potential will be obtained. Students may enter employment at any lesser skill level or continue through the entire program. The complete two-year program includes training in internal combustion engines, diesel engines, clutches and transmissions, hydraulics, electrical systems, industrial welding and other related areas.

Suggested Course Sequence
First Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
MECH 105 (Introduction to Shop Practices and Vehicle Systems)	3	77
MECH 111 (Applied Math for Mechanics)*	2	32
MECH 113 (Internal Combustion Engines)	5	77
MECH 121 (Clutches and Standard Transmissions)	2	52
MECH 124 (Electrical Systems)	4	52
MECH 125 (Light Duty Brakes)	3	65
DIHY 131 (Heavy Duty Brakes)	4	65
	23	420

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
DIHY 115 (Heavy Equipment Maintenance)	3	52
DIHY 120 (Diesel Engine Reconditioning I)	4	77
DIHY 150 (Hydraulic Systems I)	3	65
DIHY 231 (Heavy Equip. Drivetrains I)	5	102
DIHY 260 (Pneumatic Systems)	3	65
	18	361

Second Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
DIHY 211 (Equipment Painting and Glass Repair)	1	27
DIHY 222 (Fuel Systems)	2	27
DIHY 225 (Diesel Engine Reconditioning II)	4	90
DIHY 232 (Heavy Equipment Drivetrain II)	5	102
IND 220 (Industrial Safety Practice)	3	52
WELD 151 (Industrial Welding I)	2	47
English, Reading & Communications**	3	47
	21	392

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
DIHY 223 (Diesel Engine Analysis and Troubleshooting)	3	77
DIHY 251 (Hydraulic Systems II)	3	65
MECH 133 (Air Conditioning)	3	52
WELD 152 (Industrial Welding II)	2	47
BUMA 121 (Human Relations in Business) or equivalent	3	47
	14	288

*Students must demonstrate basic mathematics skill through ACT or pretest before registering for this course. MATH 015 may be required before registering for MECH 111.
**Exact course to be approved by faculty adviser according to individual need.

MECHANIC-WELDER

Certificate of Occupational Proficiency

Through this program students will have the opportunity to prepare themselves for employment that requires skill in more than one area of expertise. There is a growing tendency for employers to hire people with both general welding and general heavy equipment-mechanics skills. Students may enter the program at any semester and must complete the following:

			Sem. Hr.	*Contact Hrs.*
BUMA	121	(Human Relations in Business or Equivalent)	3	47
DIHY	115	(Heavy Equipment Maintenance)	3	52
DIHY	150	(Hydraulic Systems I)	3	65
DIHY	251	(Hydraulic Systems II)	3	65
DIHY	260	(Pneumatic Systems)	3	65
IND	220	(Industrial Safety Practices)	3	52
ENGS	106	(Vocational Communications I)	3	47
INSW	111	(Oxy-fuel Welding I)	2	47
INSW	112	(Oxy-fuel Welding II)	2	47
MECH	105	(Intro. to Shop Practices/Vehicle Systems)	3	77
MECH	111	(Applied Math for Mechanics)	2	32
MECH	124	(Electrical Systems)	4	52
MECH	125	(Light Duty Brake Systems)	3	65
WELD	110	(Welding Lab I)	8	227
WELD	112	(Welding Theory)	4	70
WELD	120	(Welding Lab II)	8	227
WELD	145	(Metallurgy)	3	47
		TOTAL SEMESTER HOURS (Minimum)	58	1284

WELDING

Associate of Applied Science and Certificate of Occupational Proficiency Programs

Member of American Welding Society

In addition to the Associate in Applied Science degree, both three-semester and four-semester certificate programs are offered.

The courses are designed to give students an adequate 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 various welding occupations. Instruction and shop practice are offered in SMAW, GMAW, GTAW, FCAW and OFW of mild steel in all positions as well as pipe and specialty welding. Various cutting and fabrication methods are also included. Students can arrange work experience as an elective part of the regular program after completing two semesters or more.

Minimum requirements for the Associate of Applied Science degree in Welding include the following:

	Sem. Hrs.
English	6
Physical Education	4
Social Science	6
Electives	5
Welding	58
TOTAL SEMESTER HOURS (Minimum)	79

Associate of Applied Science
First Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*	*Spring Semester*	*Sem. Hrs.*	*Contact Hrs.*
WELD 110 (Welding Laboratory I)	8	227	WELD 120 (Welding Laboratory II)	8	227
WELD 112 (Welding Theory)	4	70	WELD 121 (Blueprint Reading I)	2	47
WELD 115 (Applied Mathematics)	2	32	WELD 131 (Fabrication Layout I)	2	47
English or Vocational Communications	3	47	English or Vocational Communications	3	47
PER (Physical Education)	2	48	PER (Physical Education)	2	48
	20	424		19	418

Second Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*	*Spring Semester*	*Sem. Hrs.*	*Contact Hrs.*
WELD 122 (Blueprint Reading II)	2	47	WELD 132 (Fabrication Layout III)	2	47
WELD 141 (Shop Management and Structural Theory)	4	62	WELD 145 (Metallurgy)	3	47
WELD 230 (Welding Laboratory III)	8	227	WELD 240 (Welding Laboratory IV)	8	227
Social Science	3	47	Social Science	3	47
			Electives	5	77
	18	383		22	445

Welding (3 Semesters)

Minimum Requirements for Certificate of Occupational Proficiency

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*	*Spring Semester*	*Sem. Hrs.*	*Contact Hrs.*
WELD 110 (Welding Lab I)	8	227	WELD 120 (Welding Lab II)	8	227
WELD 112 (Welding Theory)	4	70	WELD 121 (Blueprint Reading I)	2	47
WELD 115 (Applied Math.)	2	32	WELD 131 (Fabrication Layout)	2	47
Vocational Communications	3	47		14	321
	18	376			

Third Semester	*Sem. Hrs.*	*Contact Hrs.*
WELD 122 (Blueprint Reading II)	2	47
WELD 141 (Shop Management & Structural Theory)	4	62
WELD 230 (Welding Lab III)	8	227
	15	336

Welding (4 Semesters)

Minimum Requirements for Certificate of Occupational Proficiency

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
WELD 110 (Welding Lab I)	8	227
WELD 112 (Welding Theory)	4	70
WELD 115 (Applied Math.)	2	32
Vocational Communications	3	47
Advised Elective	3	47
	21	360

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
WELD 120 (Welding Lab II)	8	227
WELD 121 (Blueprint Reading I)	2	47
WELD 131 (Fabrication Layout)	2	47
	14	321

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
WELD 122 (Blueprint Reading II)	2	47
WELD 141 (Shop Management and Structural Theory)	4	62
WELD 230 (Welding Lab III)	8	227
	15	336

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
WELD 132 (Fabrication Layout II)	2	47
WELD 145 (Metallurgy)	3	47
WELD 240 (Welding Lab IV)	8	227
	14	321

SCHOOL OF NATURAL SCIENCES AND MATHEMATICS

William E. Putnam, Dean

Faculty: C. Bailey, R. Ballard, C. Barclay, B. Bauerle, O. Boge, C. Britton, P. Chowdry, J. Davis, D. Foutz, G. Gilbert, D. Hafner, E. Hawkins, J. Henson, E. Hurlbut, J. Johnson, W. Kelley, C. Kerns, J. Kramer, M. Lenc, C. Luke, J. Marshall, G. McCallister, R. Moran, S. Oakley, M. Peters, R. Rice, J. Roadifer, J. Rybak, C. Taylor, J. Wethington, K. White.

PROGRAMS

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

Agriculture	Engineering and Forestry
Agronomy	Engineering Technology
Animal Science	Geology
Astronomy	Home Economics
Biology	Mathematics
Botany	Physics
Chemistry	Statistics
Computer Science	Zoology

COURSE PROFILES

Detailed descriptions of the courses offered by this school are found beginning on page 106 of this catalog. The order is alphabetical by discipline.

DEPARTMENTS

The School of Natural Sciences and Mathematics is mostly organized into departments as follows:

Department of Agriculture and Home Economics,
Maylon D. Peters, Chair
Department of Biological Sciences, Edward C. Hurlbut, Chair
Department of Computer Science, Mathematics, and Engineering,
Edwin C. Hawkins, Chair
Department of Chemistry and Physics,
Gordon Gilbert, Chair
Department of Geology, Jack E. Roadifer, Chair

GENERAL INFORMATION

Professional School Preparation

Preparation for admission into the graduate professional schools of dentistry, medicine, optometry, osteopathic medicine, and veterinary medicine as well as for transfer into baccalaureate studies of medical

technology, pharmacy, and physical therapy is possible at Mesa College. Often, but not as a requirement, a student with one of these interests will study toward a biology emphasis in the Biological and Agricultural Science degree program. Because of the intense competition for admission into other institutions, it is essential that a student plan his or her program in close consultation with a faculty adviser.

Teacher Certification

Certification to teach either mathematics or science in secondary schools can be obtained partially with some studies in the School of Natural Sciences and Mathematics. For further information see "Mesa/Metro Consortium for Teacher Education" in the section of this catalog devoted to the School of Social and Behavioral Sciences.

DEGREES AND CERTIFICATES

Under the aegis of this school, degrees can be earned with study in the disciplines indicated below. For each a detailed list of requirements can be obtained from a faculty adviser or the school office (Wubben Hall 203).

Bachelor of Science

Biological and Agricultural Sciences
- Agriculture emphasis (currently not being offered.)
- Biology emphasis
- Biology emphasis with secondary teacher certification
- Pre-professional (such as pre-medical) studies can be pursued in this area.

Physical and Mathematical Sciences
- Computer Science emphasis
- Computer Science Business Software emphasis
- Geology emphasis
- Mathematics emphasis
- Mathematics emphasis with secondary teacher certification
- Physics Emphasis

Associate of Science

Agriculture
Engineering
Forestry
These programs are the first two years of BS programs that require transfer to another institution to complete.

Associate of Applied Science

Engineering Technology
- Civil Engineering emphasis
- Drafting emphasis

Biological and Agricultural Sciences

PROGRAM DESCRIPTION

The curriculum for this degree is intended to provide a broad education in the biological and agricultural sciences. The student adds to this experience a specialization in one of the disciplines and is thus prepared

for employment or graduate study in his or her area of specialization. Specialization is presently available in biology.

PROGRAM REQUIREMENTS

General Education. Some of the courses required in this program, as in all Mesa College baccalaureate programs, are those classified as general education. It should be understood that in conjunction with certain emphasis disciplines some specific courses outside the discipline are required. In most cases these courses also satisfy general education requirements. Faculty advisers should be consulted about the details.

Core. A second group of courses required in this program is called the core. These courses must be chosen in such a way that 40 hours of credit will be earned from them. Some of the courses are specifically required of every student in the program and others are left as choices as indicated:

Specifically Required	*Sem. Hrs.*
BIOL 105, 105L (Attributes of Living Systems and Lab)	4
BIOL 106, 106L (Principles of Animal Biology and Lab)	5
BIOL 107, 107L (Principles of Plant Biology and Lab)	5
AG 301, 301L (Principles of Genetics and Lab)	4
AG 499 or BIOL 499 (Internship)	4

Choices. Courses yielding 18 semester hours of credit must be selected from at least two of the disciplines in the following list with no more than 10 hours of credit coming from any one:

	Sem. Hrs.
AG 110, 110L (Crop Production and Lab)	4
AG 113, 113L (Introductory Animal Science and Lab	4
AG 142 (Economic Organization of Agriculture)	3
AG 202, 202L (Soils and Lab)	4
AG 251, 251L (Forage Crops and Lab)	4
AG 254 (Livestock Feeding)	3
CHEM 121, 121L, 122, 122L (General and Introduction to Organic Chemistry and Labs)	10
CHEM 131, 131L, 132, 132L (General Inorganic Chemistry and Labs)	10
CHEM 201, 201L (Life Science Organic Chemistry and Lab)	5
CHEM 202, 202L (Biochemistry and Lab)	5
GEOL 101, 101L, 102, 102L (Introduction to Geology and Labs)	10
GEOL 111, 111L (Principles of Physical Geology and Lab)	5
CSCI 111 (Computer Science I)	3
CSCI 131, 131L (FORTRAN Programming and Lab)	4
MATH 113 (College Algebra)	4
MATH 130 (Trigonometry)	3
MATH 146 (Calculus for Biological Sciences)	5
STAT 200 (Probability and Statistics)	3
PHYS 111, 111L, 112, 112L (General Physics and Labs)	10

Emphasis Area. A third group of courses with which 20 semester hours of credit will be earned must be selected from the offerings in the agricultural sciences or the biological sciences.

Electives. The remainder of the program consists of appropriate elective courses producing a minimum of 20 hours of credit.

SUGGESTED COURSE SEQUENCES

The following are suggested course sequences for students with standard high school preparations and are specific for the various baccalaureate emphases and options in this program. They are, however, intended only for general guidance. Faculty advisers should be consulted.

Agriculture - Agronomy

First Year

Fall Semester	*Sem. Hrs.*
ENGS 111 (English Composition)	3
BIOL 105 (Attributes of Living Sytems)	3
BIOL 105L(Attributes of Living Sytems Lab.)	1
AG 113 (Introductory Animal Science)	3
AG 113L (Introductory Animal Science Lab.)	1
AG 142 (Economic Organization of Agriculture)	3
General Ed.	3
PER (Physical Education)	1
	18

Spring Semester	*Sem. Hrs.*
ENGS 112 (English Composition)	3
MATH 113 (College Algebra)	4
AG 205 (Farm and Ranch Management)	5
AG 110 (Crop Production)	3
AG 110L (Crop Production Lab.)	1
PER (Physical Education)	1
	17

Second Year

Fall Semester	*Sem. Hrs.*
BIOL 106 or 107 (Principles of Animal or Plant Biology)	3
BIOL 106L or 107L (Principles of Animal or Plant Biology Lab.)	2
CHEM 121 (General Chemistry)	4
CHEM 121L (General Chemistry Lab.)	1
AG 251 (Forage Crops)	3
AG 251L (Forage Crops Lab.)	1
General Education Requirement	3
PER (Physical Education)	1
	18

Spring Semester	*Sem. Hrs.*
BIOL 106 or 107 (Principles of Animal or Plant Biology)	3
BIOL 106L or 107L (Principles of Animal or Plant Biology Lab.)	2
CHEM 122 (Intro. to Organic Chemistry)	4
CHEM 122L (Intro. to Organic Chemistry Lab.)	1
AG 202 (Soils)	3
AG 202L (Soils Lab.)	1
General Ed.	3
PER (Physical Education)	1
	18

Agriculture - Animal Science

First Year

Fall Semester	*Sem. Hrs.*
ENGS 111 (English Composition)	3
BIOL 105 (Attributes of Living Systems)	3
BIOL 105L (Attributes of Living Systems Lab.)	1
AG 113 (Introductory Animal Science)	3
AG 113L (Introductory Animal Science Lab.)	1
AG 142 (Economic Organization of Agriculture)	3
General Ed.	3
PER (Physical Education)	2
	19

Spring Semester	*Sem. Hrs.*
ENGS 112 (English Composition)	3
MATH 113 (College Algebra)	4
AG 205 (Farm and Ranch Management)	5
AG 260 (Functional Anatomy of Domestic Animals)	3
AG 260L (Functional Anatomy of Domestic Animals Lab)	1
General Ed.	3
	19

Second Year

Fall Semester	*Sem. Hrs.*
BIOL 106 or 107 (Principles of Animal or Plant Biology)	3
BIOL 106L or 107L (Principles of Animal or Plant Biology Lab.)	2
CHEM 121 (General Chemistry)	4
CHEM 121L (General Chemistry Lab.)	1
AG 211 (Introduction to Range Science)	3
AG 211L (Introduction to Range Science Lab.)	1
AG 254 (Livestock Feeding)	3
PER (Physical Education)	1
	18

Spring Semester	*Sem. Hrs.*
BIOL 106 or 107 (Principles of Animal or Plant Biology)	3
BIOL 106L or 107L (Principles of Animal or Plant Biology Lab.)	2
CHEM 122 (Introduction to Organic Chemistry)	4
CHEM 122L (Introduction to Organic Chemistry Lab.)	1
AG 202 (Soils)	3
AG 202L (Soils Lab.)	1
General Ed.	3
PER (Physical Education)	1
	18

Biological Sciences
First Year

Fall Semester	*Sem. Hrs.*
ENGS 111 (English Composition)	3
BIOL 105 (Attributes of Living Systems)	3
BIOL 105L (Attributes of Living Systems Lab.)	1
CHEM 131 (General Inorganic Chemistry)	4
CHEM 131L (General Inorganic Chemistry Lab.)	1
MATH 113 (College Algebra)	4
PER (Physical Education)	2
	18

Spring Semester	*Sem. Hrs.*
ENGS 112 (English Composition)	3
BIOL 106 or 107 (Principles of Animal or Plant Biology Lab.)	3
BIOL 106L or 107L (Principles of Animal or Plant Biology Lab.)	2
CHEM 132 (General Inorganic Chemistry)	4
CHEM 132L (General Inorganic Chemistry Lab.)	1
MATH 146 (Calculus for Biological Sciences)	5
	18

Preprofesssional students should take MATH 119 and MATH 151.

Physical and Mathematical Sciences

PROGRAM DESCRIPTION

The curriculum of this program is intended to provide a broad education in the physical and mathematical sciences. The student adds to this experience an emphasis in one or perhaps two disciplines and is thus prepared for employment or graduate study in his or her area of specialization. Emphases are presently available in computer science, geology, mathematics, and physics.

PROGRAM REQUIREMENTS

General Education. Some of the courses required in this program, as in all Mesa College baccalaureate programs, are those classified as general education. It should be understood that in conjunction with certain emphases some specific courses outside the discipline are required. In most cases these courses also satisfy general education requirements. Faculty advisers should be consulted about the details.

Core. A second group of courses in this program is called the core. These courses must be chosen in such a way that no fewer than 35 and no more than 40 hours of credit will be earned from them. They must be chosen from the disciplines of chemistry, computer science, geology, mathematics, and physics in such a way that no fewer than 9 and no more than 15 hours of credit will be earned in each of three disciplines. Courses which can be used to satisfy the core requirements are listed below. It should be understood that in conjunction with certain emphasis disciplines some choices within the following list are restricted. Faculty advisers should be consulted about these restrictions.

	Sem. Hrs.
CHEM 121, 121L, 122, 122L (General and Introduction to Organic Chemistry and Labs)	10
CHEM 131, 131L, 132, 132L (General Inorganic Chemistry and Labs)	10
CSCI 111 (Computer Science I)	3
CSCI 112 (Computer Science II)	3
CSCI 131, 131L (FORTRAN Programming and Lab)	4
CSCI 133, 133L (PASCAL Programming and Lab)	4
CSCI 230 (Assembly Language Programming)	3
GEOL 101, 101L, 102, 102L (Introduction to Geology and Labs)	10
GEOL 111, 111L (Principles of Physical Geology and Lab)	5
GEOL 112, 112L (Principles of Historical Geology and Lab)	5
GEOL 201, 201L (Stratigraphy and Lab)	3
MATH 113 (College Algebra)	4

MATH 119 (Precalculus Mathematics)	5
MATH 130 (Trigonometry)	3
MATH 151 (Calculus I)	5
MATH 152 (Calculus II)	5
MATH 253 (Calculus III)	4
STAT 200 (Probability and Statistics)	3
PHYS 111, 111L, 112, 112L (General Physics and Labs)	10
PHYS 221, 222 (Engineering Physics)	8
PHYS 223 (Introduction to Electromagnetism)	3
PHYS 222L, 223L (Physics Labs)	2

Emphasis Area. A third group of courses from which 20 additional hours of credit will be earned must be selected from the offerings in computer science, geology, mathematics, or physics.

Electives. The remainder of the program consists of appropriate elective courses producing a minimum of 25 hours of credit.

SUGGESTED COURSE SEQUENCES

The following are suggested course sequences for students with standard high school preparations and are, except for the last one, specific for the baccalaureate emphases and options in this program. This last one, chemistry, is for baccalaureate emphases which cannot presently be completed at Mesa College. All are, however, intended only for general guidance. Faculty advisers should be consulted.

Computer Science and Applied Mathematics

First Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
CSCI 111 (Computer Science I)	3	CSCI 112 (Computer Science II)	3
MATH 151 (Calculus I)	5	CSCI 131 (FORTRAN Programming)	3
ENGS 111 (English Composition)	3	CSCI 131L (FORTRAN Programming Lab)	1
Biology or Psychology	3	MATH 152 (Calculus II)	5
Social Science	3	ENGS 115 (Technical Writing)	3
	17	Biology or Psychology	3
			18

Second Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
CSCI 230 (Assembly Lang. Prog.)	3	CSCI 240 (Computer Architecture)	4
CSCI 250 (Information Struct.)	3	MATH 260 (Differential Equations)	3
MATH 253 (Calculus III)	4	MATH 265 (Linear Algebra)	3
PER (Physical Education)	2	MATH 270 (Discrete Mathematics)	3
Biology or Psychology	3	PER (Physical Education)	2
Hum. & Fine Arts	3	STAT 200 (Prob. & Stat.)	3
	18		18

Computer Science - Business Software

First Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
ENGS 111 (English Composition)	3	ENGS 112 (English Composition) or 115 (Technical Writing)	3
MATH 151 (Calculus I)	5	MATH 152 (Calculus II)	5
BUMA 201 (Principles of Management)	3	BCIS 131 (COBOL Programming I)	3
CSCI 111 (Computer Science I)	3	CSCI 112 (Computer Science II)	3
General Ed.	3	General Ed.	3
	17		17

Second Year

Fall Semester	Sem. Hrs.
BUGB 251 (Business Law I)	3
CSCI 250 (Data Structures)	3
CSCI 230 (Assembly Language Programming)	3
BUAC 201 (Principles of Accounting I)	3
MATH 253 (Calculus III)	4
PER (Physical Education)	2
	18

Spring Semester	Sem. Hrs.
CSCI 131 (FORTRAN Programming)	3
CSCI 131L (FORTRAN Programming Lab.)	1
STAT 200 (Probability and Statistics) or 214 (Business Statistics)	3
BUAC 202 (Principles of Accounting II)	3
General Ed.	6
	16

Geology

First Year

Fall Semester	Sem. Hrs.
GEOL 111 (Principles of Physical Geology)	4
GEOL 111L (Principles of Physical Geology Lab.)	1
ENGS 111 (English Composition)	3
MATH 113 (College Algebra)	4
Speech, Literature, Foreign Language or Biology	3-5
PER (Physical Education)	2
	17-19

Spring Semester	Sem. Hrs.
GEOL 112 (Principles of Historical Geology)	4
GEOL 112L (Principles of Historical Geology Lab.)	1
ENGS 115 (Technical Writing)	3
MATH 130 (Trigonometry)	3
Literature, Foreign Language or Biology	3-5
PER (Physical Education)	2
	16-18

Second Year

Fall Semester	Sem. Hrs.
GEOL 201 (Stratigraphy)	2
GEOL 201L (Stratigraphy Lab.)	1
CHEM 131 (General Inorganic Chemistry)	4
CHEM 131L (General Inorganic Chemistry Lab.)	1
PHYS 111 (General Physics)	4
PHYS 111L (General Physics Lab.)	1
ECON 201 (Principles of Economics) or BUAC 201 (Principles of Accounting I)	3
	16

Spring Semester	Sem. Hrs.
GEOL 203 (Introduction to Environmental Geology)	3
CHEM 132 (General Inorganic Chemistry)	4
CHEM 132L (General Inorganic Chemistry Lab.)	1
PHYS 112 (General Physics)	4
PHYS 112L (General Physics Lab.)	1
ECON 202 (Principles of Economics) or BUAC 202 (Principles of Accounting II)	3
	16

Mathematics

First Year

Fall Semester	Sem. Hrs.
CSCI 111 (Computer Science I)	3
Social Science	4
MATH 151 (Calculus I)	5
ENGS 111 (English Composition)	3
Biology or Psychology	3
	18

Spring Semester	Sem. Hrs.
CSCI 112 (Computer Science II)	3
MATH 152 (Calculus II)	5
CSCI 131 (FORTRAN Programming)	3
CSCI 131L (FORTRAN Programming Lab)	1
ENGS 112 or 115	3
Biology or Psychology	3
	18

Second Year

Fall Semester	Sem. Hrs.
CSCI 230 (Assembly Lang. Prog.)	3
CSCI 250 (Data Structures)	3
MATH 253 (Calculus III)	4
Biology or Psychology	3
Hum. & Fine Arts	3
	16

Spring Semester	Sem. Hrs.
MATH 260 (Differential Equations)	3
MATH 265 (Linear Algebra)	3
PER (Physical Education)	2
Social Science	3
STAT 200 (Probability & Statistics)	3
MATH 270 (Discrete Mathematics)	3
	17

Physics

First Year

Fall Semester	Sem. Hrs.
PHYS 221 (Classical Physics I)	4
MATH 151 (Calculus I)	5
ENGS 111 (English Composition)	3
HIST 101 (Western Civilization)	3
PER (Physical Education)	2
	17

Spring Semester	Sem. Hrs.
PHYS 222 (Classical Physics II)	4
PHYS 222L (Experimental Mechanics Lab.)	1
MATH 152 (Calculus II)	5
ENGS 112 (English Composition)	3
HIST 102 (Western Civilization)	3
PER (Physical Education)	2
	18

Second Year

Fall Semester	Sem. Hrs.
PHYS 223 (Classical Physics III)	3
PHYS 223L (Experimental Electromagnetism Lab.)	1
MATH 253 (Calculus III)	4
BIOL 105 (Attributes of Living Systems)	3
BIOL 105L (Attributes of Living Systems Lab.)	1
CSCI 131 (FORTRAN Programming)	3
CSCI 131L (FORTRAN Programming Lab.)	1
	16

Spring Semester	Sem. Hrs.
PHYS 262 (Methods of Theoretical Physics)	3
MATH 280 (Differential Equations)	3
CHEM 151 (Engineering Chemistry)	4
CHEM 151L (Engineering Chemistry Lab.)	1
ENLW 142 (Introduction to Literature - Poetry)	3
MUS 234 (Music Appreciation)	2
	16

Chemistry

First Year

Fall Semester	Sem. Hrs.
ENGS 111 (English Composition)	3
CHEM 131 (General Inorganic Chemistry)	4
CHEM 131L (General Inorganic Chemistry Lab.)	1
MATH 119 (Precalculus Mathematics)	5
Social Science General Ed.	3
	16

Spring Semester	Sem. Hrs.
ENGS 112 (English Composition)	3
CHEM 132 (General Inorganic Chemistry)	4
CHEM 132L (General Inorganic Chemistry Lab.)	1
MATH 151 (Calculus I)	5
Social Science General Ed.	3
	16

Second Year

Fall Semester	Sem. Hrs.
CHEM 211 (Organic Chemistry)	3
CHEM 211L (Organic Chemistry Lab.)	2
MATH 152 (Calculus II)	5
PHYS 221 (Classical Physics I)	4
PER (Physical Education)	2
	16

Spring Semester	Sem. Hrs.
CHEM 212 (Organic Chemistry)	3
PHYS 212L (Organic Chemistry Lab.)	2
MATH 253 (Calculus III)	4
PHYS 222 (Classical Physics II)	4
PHYS 222L (Experimental Mechanics Lab.)	1
PER (Physical Education)	2
	16

Engineering and Forestry

PROGRAM DESCRIPTION

These programs are designed as the first two years of baccalaureate studies to be completed elsewhere.

PROGRAM REQUIREMENTS

The following course sequences should be considered lists of the requirements of the indicated programs. Successful completion of these courses can result in receipt of an Associate of Science degree and, by formal agreement, in admission with advanced standing into an appropriate baccalaureate program in either of two Colorado institutions. Faculty advisers should be consulted.

Engineering

First Year

Fall Semester	Sem. Hrs.
ENGS 111 (English Composition)	3
CSCI 131 (FORTRAN Programming)	3
CSCI 131L (FORTRAN Programming Lab.)	1
MATH 151 (Calculus I)	5
CHEM 151 (Engineering Chemistry)	4
CHEM 151L (Engineering Chemistry Lab.)	1
PER (Physical Education)	2
	19

Spring Semester	Sem. Hrs.
ENGS 112 (English Composition)	3
ENGR 111 (Engineering Graphics and Design)	3
MATH 152 (Calculus II)	5
PHYS 221 (Classical Physics I)	4
PER (Physical Education)	2
	17

Second Year

Fall Semester	Sem. Hrs.
ENGR 240 (Statics)	3
ENGR 251 (Circuit Analysis)	3
ENGR 251L (Circuit Analysis Lab.)	1
MATH 253 (Calulus III)	4
PHYS 222 (Classical Physics II)	4
PHYS 222L (Experimental Mechanics Lab.)	1
Social Science	3
	19

Spring Semester	Sem. Hrs.
ENGR 241 (Dynamics)	3
ENGR 252 (Circuit Analysis)	3
ENGR 252L (Circuit Analysis Lab.)	1
ENGR 253 (Electromechanical Devices)	2
ENGR 255 (Introduction to Thermal Sciences)	3
MATH 260 (Differential Equations)	3
Social Science	3
	18

Electrical engineering students should enroll in ENGR 252 and 252L and ENGR 253 while others may elect ENGR 252 and 252L or ENGR 253.

Civil engineering students should substitute ENGR 231 and 232 for the Social Science Elective.

MATH 265 and PHYS 223 and PHYS 223L should be strongly considered for transfer to certain programs.

Pre-Forestry

First Year

Fall Semester	Sem. Hrs.
BIOL 105 (Attributes of Living Systems)	3
BIOL 105L (Attributes of Living Systems Lab.)	1
CHEM 121 (General Chemistry)	4
CHEM 121L (General Chemistry Lab.)	1
MATH 113 (College Algebra)	4
ENGS 111 (English Composition)	3
PER (Physical Education)	2
	17

Spring Semester	Sem. Hrs.
BIOL 106 (Principles of Animal Biology)	3
BIOL 106L (Principles of Animal Biology Lab.)	2
CHEM 122 (Introduction to Organic Chemistry)	4
CHEM 122L (Introduction to Organic Chemistry Lab.)	1
MATH 130 (Trigonometry)	3
ENGS 112 (English Composition)	3
PER (Physical Education)	2
	17

Second Year

Fall Semester	Sem. Hrs.
AG 202 (Soils)	3
AG 202L (Soils Laboratory)	1
BIOL 107 (Principles of Plant Biology)	2
BIOL 107L (Principles of Plant Biology Lab.)	2
ECON 201 (Principles of Economics)	3
MATH 148 (Calculus for Biological Sciences)	5
	17

Spring Semester	Sem. Hrs.
BIOL 111 (Conservation of the Environment)	2
BIOL 211 (Ecosystem Biology)	4
BIOL 211L (Ecosystem Biology Lab.)	1
CSCI 131 (FORTRAN Programming)	3
CSCI 131L (FORTRAN Programming Lab.)	1
ECON 202 (Principles of Economics)	3
SPCH 102 (Speechmaking)	3
	17

Engineering Technology

PROGRAM DESCRIPTION

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.

PROGRAM REQUIREMENTS

The following course sequences are the requirements of the indicated programs. Their successful completion can result in the award of an Associate in Applied Science degree. Faculty advisers should be consulted about details.

Drafting

First Year

Fall Semester	Sem. Hrs.	Contact Hrs.
ENGS 111 (English Composition)	3	47
*ETEC 101 (Technical Mathematics I)	4	62
*ETEC 158 (Architectural (Building) Drafting)	2	47
*ETEC 158L (Architectural (Building) Drafting Lab.)	1	45
*ENGR 111 (Engineering Graphics and Design)	3	47
Social Science Elective	3	47
PER (Physical Education)	2	48
	18	343

Spring Semester	Sem. Hrs.	Contact Hrs.
ENGS 115 (Technical Writing)	3	47
*ETEC 102 (Technical Mathematics)	4	62
ETEC 120 (Engineering Economics)	3	47
*ETEC 162 (Architectural (Mechanical and Electrical) Drafting II)	2	47
*ETEC 162L (Architectural (Mechanical and Electrical) Drafting Lab. II)	1	45
CSCI 131 (FORTRAN Programming)	3	47
CSCI 131L (FORTRAN Programming Lab.)	1	75
PER (Physical Education)	2	48
	19	416

Second Year

Fall Semester	Sem. Hrs.	Contact Hrs.
ETEC 241 (Statics and Strength of Materials I)	3	47
*ETEC 251 (Electronics Drafting and Design I	2	47
*ETEC 251L (Electronics Drafting and Design I Lab.)	1	45
*ETEC 254 (Piping Drafting)	2	47
*ETEC 254L (Piping Drafting Lab.)	1	45
ENGR 231 (Surveying I)	2	32
ENGR 231L (Surveying I Lab.)	1	60
ENGR 159 (Introduction to Energy)	3	47
Social Science Elective	3	47
	18	417

Spring Semester	Sem. Hrs.	Contact Hrs.
ETEC 220 (Specifications and Cost Estimates	3	47
ETEC 242 (Strength of Materials II)	3	47
*ETEC 252 (Structural Drafting)	2	47
*ETEC 252L (Structural Drafting Lab.)	1	45
*ETEC 253 (Topographical and Civil Drafting and Design)	2	47
*ETEC 253L (Topographical and Civil Drafting and Design Lab.)	1	45
*ETEC 255 (Electronics Drafting and Design)	2	47
*ETEC 255L (Electronics Drafting and Design Lab.)	1	45
*ETEC 256 (Machine and Electrical Drafting)	2	47
*ETEC 256L (Machine and Electrical Drafting Lab.)	1	45
	18	462

*These courses are the specific requirements of the certificate program in drafting.

Civil

First Year

Fall Semester	Sem. Hrs.	Contact Hrs.
ENGS 111 (English Composition)	3	47
ENGR 111 (Engineering Graphics and Design)	3	47
ETEC 101 (Technical Mathematics I)	4	62
ETEC 125 (Soils Testing and Design)	2	47
ETEC 125L (Soils Testing and Design Lab.)	1	30
Social Science Elective	3	47
PER (Physical Education)	2	48
	18	328

Spring Semester	Sem. Hrs.	Contact Hrs.
ENGS 115 (Technical Writing)	3	47
ETEC 102 (Technical Mathematics II)	4	62
ETEC 120 (Engineering Economics)	3	47
CSCI 131 (FORTRAN Programming)	3	47
CSCI 131L (FORTRAN Programming Lab.)	1	75
Social Science Elective	3	47
PER (Physical Education)	2	48
	19	373

Second Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
ETEC 230 (Pipe Design)	2	47
ETEC 230L (Pipe Design Lab.)	1	45
ETEC 241 (Statics and Strength of Materials I)	3	47
ETEC 245 (Fluid Mechanics and Hydraulics)	2	47
ETEC 245L (Fluid Mechanics and Hydraulics Lab.)	1	45
ETEC 257 (Electrical Power Systems)	3	47
ENGR 231 (Surveying I)	2	32
ENGR 231L (Surveying I Lab.)	1	60
ENGR 159 (Introduction to Energy)	3	47
	18	417

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
ETEC 220 (Specifications and Cost Estimates)	3	47
ETEC 223 (Concrete Testing and Design)	2	47
ETEC 223L (Concrete Testing and Design Lab.)	1	30
ETEC 240 (Timber and Steel Design)	3	47
ETEC 253 (Topographical and Civil Drafting and Design	2	47
ETEC 253L (Topographical and Civil Drafting and Design Lab.)	1	45
ENGR 232 (Surveying II)	2	32
ENGR 232L (Surveying II Lab.)	1	60
	18	355

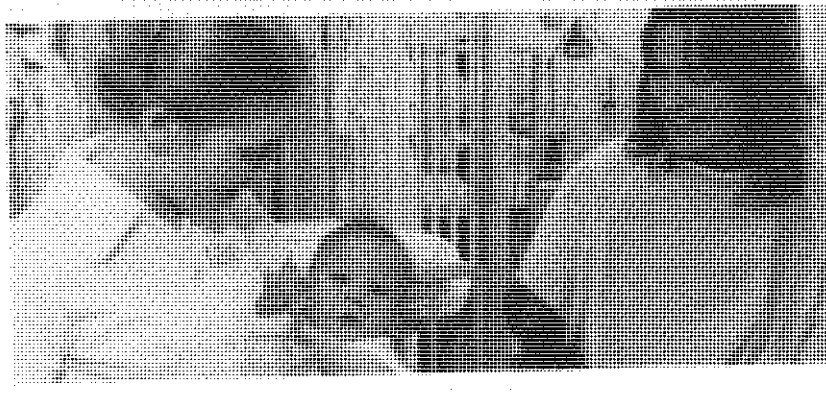
SPECIAL REQUIREMENTS

Laboratories

Many courses in the School of Natural Sciences and Mathematics include lab work. For students' convenience the class and lab 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 lab 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 lab unless credit is also earned for the other.

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.



SCHOOL OF NURSING AND ALLIED HEALTH

Theresa Neofotist, Dean

Faculty: D. Dea, M. Eicher, M. Forrest, H. Gabriel, A. Goley, J. Goodhart, A. Harvey, F. Higgins, J. Kruse, A. Lambeth, B. Magenheim, J. Martinez, E. Mustee, C. Roy, J. VanderKolk, E. Williams.

PROGRAMS

The School of Nursing and Allied Health offers baccalaureate degree curricula in nursing, associate degree curricula in dental assisting with expanded functions, nursing and radiologic technology, plus a certificate program in dental assisting. These programs are: Dental Assisting and Expanded Function (DENT); Baccalaureate, Associate-Degree (NURS); and Radiologic Technology (RADT).

Each of these programs require a separate admission application and have additional admission requirements. Applications for each program must be received by March 1 of the desired year of admission. The program coordinators or directors are:

DEPARTMENTS

Dental — Program Director, Helen Gabriel
Associate Degree Nursing — Coordinator, Diane Dea
RN Baccalaureate Coordinator, Jane VanderKolk
Radiologic Technology — Program Director, Andrea Harvey

COURSE PROFILES

Detailed descriptions of the courses offered by this school are found beginning on page 106 of this catalog. The order is alphabetical by discipline.

DENTAL PROGRAMS

Certificate **DENTAL ASSISTING PROGRAM**
Associate of Science* **Expanded Function Dental Auxiliary Program (EFDA)

*Pending approval by the Colorado Commission on Higher Education.

Mesa College Dental Programs are the only formally accredited programs on the Western Slope of Colorado. The program in Dental Assisting is accredited by the Commission on Dental Accreditation, a specialized accreditation body recognized by the Council on Post Secondary Accreditation and the U.S. Department of Education. The programs are

designed to provide eligible students with the necessary background to perform at various levels in the dental profession.

The Dental Assisting Program provides training in the areas of chairside assisting, lab and office procedures. Upon completion the successful graduate is eligible to take the National Dental Assisting Board Examination to earn the title of Certified Dental Assistant (CDA). This Program involves 3 terms of training (Fall, Spring and Summer) and includes didactic, laboratory and clinical training.

The Expanded Function Dental Auxiliary Program requires 2 additional semesters of training, and prepares the student to accept responsibility for those technical procedures which do not need the expertise of a licensed dentist. An EFDA graduate can perform reversible procedures such as placing, carving and finishing simple and compound amalgam restorations, thus increasing the doctor's production time, and providing more services to the patients. The EFDA student can receive a certificate of completion in the skills mastered, or can complete requirements for an Associate of Science Degree.

The Mesa College Dental Programs have an open entry criteria that allows entrance into the program at various points. This allows a dental auxiliary that meets the criteria to enter the program at a more advanced stage, thus reducing the time of training. This also provides employed auxiliary with opportunities to upgrade their skills for career advancements.

Admission requirements necessary to evaluate the candidate's success in the program include — ACT and GATB scores, high school transcript or GED scores, references and a personal interview with a selection committee.

All applicants must complete requirements for admission to the College. Enrollment is limited, and application materials should be received by March 1st in order to be considered for classes starting in the fall.

Course Sequence
First Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
DENT 110 (Orientation to Dentistry)	3	47
DENT 112 (Dental Science I)	3	47
DENT 113 (Radiology I)	2	32
BIOL 141 (Anatomy and Physiology)	3	47
BIOL 141L (Anatomy and Physiology Lab)	2	60
HEC 211 (Nutrition)	3	47
DENT 118 (Preventative Dentistry)	3	47
	19	327

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
DENT 120 (Dental Science II)	2	32
DENT 130 (Chairside I)	2	32
DENT 130L (Chairside I Lab)	2	60
DENT 140 (Dental Materials)	2	32
DENT 140L (Dental Materials Lab)	2	60
DENT 155 (Radiology II)	1	17
DENT 155L (Radiology II Lab)	1	30
DENT 160 (Dental Office Procedures)	2	32
DENT 160L (Dental Office Procedures Lab)	1	30
PSY 233 (Human Growth and Development)	3	47
SPCH 101 (Interpersonal Communications)	3	47
	21	419

Summer Session (4 weeks)

	Sem. Hrs.	Contact Hrs.
DENT 190 (Clinical Dentistry)	2	32
DENT 190L (Clinical Dentistry Lab)	2	60
DENT 201 (Advanced Odontology)	1	32
	5	124

(8 weeks)

DENT 190E (Clinical Dentistry Clinic)	9	405

Second Year

Fall Semester	Sem. Hrs.	Contact Hrs.
DENT 206 (EFDA I)	2	32
DENT 206L(EFDA I Lab)	3	90
DENT 206E (EFDA I Clinic)	2	60
Social Science	3	47
ENGS 111 (English)	3	47
Advised Electives	5	77
PER (Physical Education)	2	48
	20	401

Spring Semester	Sem. Hrs.	Contact Hrs.
DENT 210 (EFDA II)	2	32
DENT 210E (EFDA II Clinic)	4	120
Social Science	3	47
ENGS 112 (English)	3	47
Advised Electives	5	77
PER (Physical Education)	2	48
	19	371

NURSING PROGRAMS

Mesa College nursing programs include Bachelor of Science in Nursing for individuals who are registered nurses, and an Associate Degree Nursing. The number of students admitted to these programs is limited. Applicants must meet additional requirements of these programs. 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.

A special admissions committee selects students for the nursing programs from applicants who best meet the requirements. Associate Degree applicants should submit all application materials by March 1 in order to be considered for classes starting the following fall. Students will be accepted separately for each program.

All nursing courses must be completed in sequence as numbered for the Associate Degree Program.

Associate Degree Nursing

Associate of 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 of 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 agencies in the community.

Students are required to have at least a 2.0 grade average in nursing courses and to maintain this average each succeeding semester in order to continue in the program. A composite ACT score of 18 or above is

required for admission. In addition applicants must have completed a High School course in each of these areas: biology, chemistry and algebra or its college equivalent.

Course Sequence
First Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
BIOL 141 (Anatomy and Physiology)	5	BIOL 250 (Microbiology)	5
HEC 211 (Nutrition)	3	NURS 123 (Nursing Concepts II)	9
NURS 113 (Nursing Concepts I)	9	PER (Physical Education)	2
PER (Physical Education)	2	PSY 233 (Human Growth and Development)	3
	19		19

Second Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
BIOL 241 (Pathophysiology)	4	Social Science	3
ENGS 111 (English)	3	ENGS 112 (English)	3
PSY 122 (Gen. Psy)	3	NURS 230 (Nursing Concepts IV)	10
NURS 210 (Nursing Concepts III)	10	NURS 273 (Issues in Nursing) or *NURS 320 (Matrix)	2
	20		18

*Associate degree students planning to pursue the BSN degree may substitute NURS 320 for NURS 273.

Bachelor of Science in Nursing

The baccalaureate program in nursing is designed for registered nurses (RNs) who are graduates either of community colleges with an associate degree in nursing or of hospital-based programs. The curriculum provides educational experiences which prepare a professional nurse generalist to practice in a variety of health care settings. Individuals from diploma and non-accredited associate degree programs must seek advanced standing through validation examinations. The program is accredited by the National League for Nursing. Clinical experience in a variety of agencies is required in courses with a laboratory.

REQUIREMENTS FOR ADMISSION:

1. Current Colorado licensure as a Registered Nurse (RN) and professional liability insurance;
2. An overall grade point average of 2.5 with a grade of "C" or better in all nursing courses;
3. A grade of "C" or above is required to continue in the program;
4. Completed the following prerequisite lower division support courses:

Prerequisites	*Sem. Hrs.*
Chemistry	6-8
Anatomy and Physiology	5-6
Pathophysiology	3-4
Microbiology	3-4
Nutrition	3
Human Growth and Development	3
Psychology	3
TOTAL SEMESTER HOURS	26-31 hrs.

In addition to these prerequisites, general education requirements for a bachelor of science degree must be met.

*Associate degree students planning to pursue the BSN degree may substitute NURS 320 for NURS 273.

Suggested Course Sequence

Third Year

Fall Semester	*Sem. Hrs.*
NURS 320 (Matrix Course)	3
NURS 340 (Health Assessment—Physical)	3
NURS 340L (Health Assessment—Physical Lab)	1
Social Science	3
STAT 200 (Probability and Statistics)	3
	13

Spring Semester	*Sem. Hrs.*
NURS 350 (Community Health Nursing I Concepts)	2
NURS 330 (Research Techniques)	3
Electives—Upper Division	3
CSCI 100 (Computers in Our Society)	3
	11

Fourth Year

Fall Semester	*Sem. Hrs.*
NURS 420 (Community Health Nursing II Concepts)	2
NURS 420L (Community Health Nursing II Concepts Lab)	5
NURS 430 (Health Assessment—Psychosocial)	3
NURS 430L (Health Assessment—Psychosocial Lab)	1
NURS 441 (Nursing Management)	2
NURS 441L (Nursing Management Lab)	1
	12

Spring Semester	*Sem. Hrs.*
NURS 442 (Nursing Management II)	2
NURS 442L (Nursing Management II Lab)	1
NURS 450 (Advanced Nursing in Episodic Settings)	2
NURS 450L (Advanced Nursing in Episodic Settings Lab)	2
NURS 460 (Health Delivery)	2
Elective—Upper Division	3
	12

RADIOLOGIC TECHNOLOGY

Associate of Applied Science

The Radiologic Technology Program is accredited by the Committee of Allied Health Accreditation of the American Medical Association. Upon completion of the prescribed course of study, which is two calendar years in length, the graduate receives an Associate of Applied Science degree, and is eligible to take the examination administered by the American Registry of Radiologic Technologists.

Radiologic technologists enjoy a variety of career opportunities. Most are employed in hospital radiologic departments, where they perform duties of diagnostic radiography. Others were 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.

The curriculum is designed to allow students flexibility in the first semester. Applications for Spring semester must be received by November 1st and March 1st for Summer session. Admissions are limited because of the number of clinical facilities in the area. A pre-admission interview with the program director is required. Students are selected on the basis of academic preparation, ACT scores, aptitude for service within the field and positions available. It is recommended that applicants complete high school courses in each of these areas: biology, physics, algebra and college equivalent. Applicants continuing in the program must maintain a 2.0 average each semester and receive no grade lower than a "C" in Radiologic Technology courses.

Course Sequence
First Year

Spring Semester or Summer Session	*Sem. Hrs.*	*Contact Hrs.*
RADT 110 (Radiologic Introduction)	3	47
ENGS 111 (English Composition)	3	47
PSY 121 (General Psychology)	3	47
CSCI 100 (Computers in Our Society)	3	47
PER (Physical Education)	2	48
	14	236

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
BIOL 141 (Human Anatomy and Physiology)	3	47
BIOL 141L (Human Anatomy and Physiology Lab)	2	60
RADT 121 (Radiologic Technology I)	2	32
RADT 121L (Radiologic Technology I Lab)	1	30
RADT 122 (Radiologic Principles I)	2	32
RADT 122L (Radiologic Principles I Lab)	1	30
RADT 123 (Clinical Experience I)	4	180
RADT 125 (Radiologic Science I)	2	32
PER (Physical Education)	1	24
	18	467

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
ENGS 115 (Technical Writing)	3	47
PSY 122 (General Psychology)	3	47
RADT 131 (Radiologic Technology II)	2	32
RADT 131L (Radiologic Technology II Lab)	1	30
RADT 132 (Radiologic Principles II)	2	32
RADT 132L (Radiologic Principles II Lab)	1	30
RADT 133 (Clinical Experience II)	4	180
RADT 135 (Radiologic Science II)	2	32
PER (Physical Education)	1	24
	19	454

Second Year

Summer Session	*Sem. Hrs.*	*Contact Hrs.*
RADT 243 (Clinical Experience III)	10	480

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
RADT 251 (Radiologic Technology III)	3	47
RADT 253 (Clinical Experience IV)	10	512
	13	559

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
RADT 261 (Radiologic Technology IV)	3	47
RADT 263 (Clinical Experience V)	10	512
	13	559

A shared classroom experience.

SCHOOL OF SOCIAL AND BEHAVIORAL SCIENCES

Donald A. MacKendrick, Dean

Faculty: J. Allman, D. Arosteguy, V. Beemer, L. Chere, R. Cortese, P. Fink, K. Ford, T. Graves, M. Heinrich, C. Humphries, P. Lachance, T. Madigan, W. Meeker, L. Morton, W. Nelson, I. Nicholson, J. O'Connor, J. Perrin, K. Perrin, M. Perry, P. Reddin, D. Rees, A. Sanders, D. Schakel, C. Shepherd, G. Starbuck, T. Swanson, H. Tiemann, E. Tooker, B. Wiehe, C. Wignall.

PROGRAMS

Anthropology
Archaeology
Career Counseling and Guidance
Dance
Early Childhood Education
Economics
Education
Geography
History
Human Services
Law Enforcement
Military Science (ROTC)
Physical Education
Political Science
Psychology
Recreation
Social Science
Sociology

Course work in these disciplines is taught through the following departments:

Behavioral Sciences — Harry Tiemann, Chair
Physical Education and Recreation — Wayne Nelson, Chair
Social Sciences — Daniel Arosteguy, Chair

COURSE PROFILES

Detailed descriptions of the courses offered by this school are to be found beginning on page 106 of this catalog. The order is alphabetical by discipline.

DEGREES AND CERTIFICATES

SOCIAL AND BEHAVIORAL SCIENCES

Bachelor of Arts

This is an interdisciplinary curriculum designed around a general core of courses with several discipline emphases. Its purpose is to provide students with a broad background in the social and behavioral sciences together with more specialized knowledge and skills in a particular discipline or emphasis area. The curriculum seeks to serve the needs of students wishing to pursue careers as para-professionals in the human services or in career guidance and counseling, to obtain entry level positions in business and government service, or to pursue post-baccalaureate study leading to professional or graduate degrees in law, public administration, social work, psychology, sociology, history, education, economics and other related fields.

General and Core Requirements for the Degree

1. *General Requirements:* Candidates for the degree in social and behavioral sciences must meet all general college requirements including general education requirements and earn 124 hours of credit, 40 hours of which must be at the upper division level.
2. *Core Requirements:* Candidates for the degree in social and behavioral sciences must complete minimum core requirements distributed between the social sciences and the behavioral sciences. Actual core requirements are listed below under Emphases.
   a. **Social Science** (15 semester hours)
      1) One of the following series of courses:
         ECON 201, 202 (Principles of Macro and Microeconomics)
         HIST 101, 102 (Western Civilizations)
         HIST 131, 132 (United States History)
         POLS 101, 102 (American Government)
      2) Nine (9) additional semester hours of credit in social science selected from economics, geography, history, political science, or general social science.
   b. **Behavioral Science** (15 semester hours)
      1) One of the following series of courses:
         ANTH 101, 102 (Physical and Cultural Anthropology)
         PSY 121, 122 (General Psychology)
         SOC 260, 264 (General Sociology and Social Problems)
      2) Nine (9) additional semester hours of credit in behavioral science selected from anthropology, education, human services, career counseling and guidance, psychology or sociology.

Degree Emphases

In addition to meeting the general and core requirements described above, degree candidates must select an emphasis area and earn at least eighteen (18) semester hours of upper division credit. The actual number of hours in the discipline area and required courses may vary as indicated below. The following emphasis areas are currently available:

1. *Economics*
   A. **Core Requirements:**
      1) **Social Science:** ECON 201, 202, 320, 442, 443 and six (6) additional hours of economics, geography, history, political science or general social science (either upper division or lower division).
      2) **Behavioral Science:** ANTH 101 and 102, or SOC 260 and 264, or PSY 121 and 122. Nine (9) additional hours of anthropology, education, human services, career counseling and guidance, psychology or sociology (either upper division or lower division).
   B. **Emphasis Requirements:** Eighteen (18) hours of upper division economics courses selected from: ECON 301, 310, 312, 401, 410, 420, 496.
2. *History*
   A. **Core Requirements:**
      1) **Social Science:** ECON 201, 202; HIST 101, 102, 131, 132; and either HIST 136 or 137 or some other social science course.
      2) **Behavioral Science:** ANTH 101, 102; SOC 260, 264 and three additional hours of anthropology, education, human services, career counseling, psychology or sociology courses (either upper or lower division).
   B. **Emphasis Requirements:**
      1) Two of the following courses: HIST 300, 330, 332, 400, 430; POLS 302.
      2) Two of the following courses: HIST 320, 342, 344, 346, 410, 420; ECON 310.

3) Two of the following courses: HIST 310, 340, 401, 403.
4) HIST 404.

3. *Human Services*
   A. **Core Requirements:**
      1) **Social Science:** ECON 201 and 202, or HIST 101 and 102, or HIST 131 and 132, or POLS 101 and 102, and nine additional hours of economics, geography, history, political science or general social science courses (either upper or lower division).
      2) **Behavioral Science:** CCG 420; HS 301, 401; SOC 260, 264; and either SOC 410 or SOCS 310; and three additional hours of anthropology, education, human services, career counseling, psychology or sociology courses (either upper or lower division).
   B. **Emphasis Requirements:** Eighteen semester hours of coursework selected from: CCG 320; HS 310, PSY 310, 320, 340, 350; SOC 314, 316, 330, 350, 360.
4. *Career Counseling and Guidance*
   A. **Core Requirements:**
      1) **Social Sciences:** ECON 201 and 202; and nine additional hours of economics, geography, history, political science or general social science (either upper or lower division).
      2) **Behavioral Science:** CCG 320; EDU 251; BUMA 121, 371; PSY 400; SOC 260, 264.
   B. **Emphasis Requirements:** CCG 324, 420, 422, 424; and two of the following courses: CCG 497, 499.
   C. **Occupational Studies:** Consult with the Director of the Program for details about this requirement.
5. *General Social Science*
   A. **Core Requirements:**
      1) **Social Science:** ECON 201, 202; GEOG 101, 102; and either HIST 101, 102 or HIST 131, 132.
      2) **Behavioral Science:** ANTH 101, 102; SOC 260, 264; and three additional hours of anthropology, education, human services, career counseling, psychology, or sociology courses (either upper or lower division).
   B. **Emphasis Requirements:** Twenty-one semester hours of upper division anthropology, economics, history, political science, general social science or sociology distributed over three different disciplines with at least three hours but not more than nine hours in each discipline. Actual course selection should be made in close consultation with your faculty adviser.
6. *Political Science*
   A. **Core Requirements:**
      1) **Social Science:** HIST 131, 132; POLS 101, 102, 256; and six additional hours of economics, geography, history, political science or general social science (either upper or lower division).
      2) **Behavioral Science:** ANTH 102; SOC 260, 264; and six additional hours of anthropology, human services, career counseling, psychology or sociology courses (upper or lower division).
   B. **Emphasis Requirements:** Eighteen hours of coursework selected from: POLS 302, 310, 312, 313, 350; SOC 300; SOCS 351, 352. In addition either POLS 399A or POLS 399B may be counted as three hours in meeting the emphasis requirement.
7. *Psychology*
   A. **Core Requirements:**
      1) **Social Science:** ECON 201 and 202, or HIST 101 and 102, or HIST 131 and 132, or POLS 101 and 102; and nine additional hours of econom-

ics, geography, history, political science or general social science courses (either upper or lower division).

2) **Behavioral Science:** PSY 314, 320, 322, 414; SOC 260, 264; SOCS 310.

B. **Emphasis Requirements:** Eighteen hours of coursework selected from: HS 301, 310; PSY 310, 312, 330, 332, 340, 350, 400, 412, 420, 422.

8. *Sociology*

A. **Core Requirements:**

1) **Social Science:** ECON 201 and 202, or HIST 101 and 102, or HIST 131 and 132, or POLS 101 and 102; and, nine additional hours of economics, geography, history, political science or general social science courses (either upper or lower division).

2) **Behavioral Science:** SOC 260, 264, 400, 410; SOCS 310; and six additional hours of anthropology, education, human services, career counseling, psychology or sociology courses (either upper or lower division).

B. **Emphasis Requirements:** Eighteen hours of upper division coursework selected from: HS 301, 310; SOC 300, 310, 312, 314, 316, 330, 350, 360; SOCS 351, 352.

RECREATION AND LEISURE SERVICES
Bachelor of Arts

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 499 (Internship)	12
	36

2. *Emphasis area:* 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 Management
Camp Management
Industrial Recreation
Therapeutic Recreation
Art
Dance
Performing Arts
Recreational Sports

Detailed course requirements for each emphasis area are available from the Chair, Department of Physical Education and Recreation or from Recreation staff members.

3. *Internship:* Each student 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 contact a week while in service. Students must plan their course of study to accommodate this requirement. Arrangements for internship *must* be made at least one semester prior to the proposed internship.

SELECTED STUDIES
Bachelor of Arts

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.

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 major and/or minors. In any case, the School offering the courses that a student proposes 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.

*A second minor of concentration for students may be approved by the Dean of the School of Social and Behavioral Sciences to implement a curriculum in professional education (Teacher Certification). If a student receives this approval the major area of concentration must be at least 46 credit hours, one half of which must be at the upper division level.

Early Childhood Education
Associate of Applied Science

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 cooperative day-care centers, nursery schools, children's homes, institutions for exceptional children, hospitals, etc. Placement is dependent

upon individual maturity and professional growth. A physical examination is required to enter program.

PROGRAM REQUIREMENTS

	Sem. Hrs.	Contact Hrs.
English Composition	6	94
Social Science and Literature	6	94
Psychology	6	94
Early Childhood Education	41	866
Physical Education Activity	4	96
Elective	1	17
	64	1261

Suggested Course Sequence
First Year

Fall Semester	Sem. Hrs.	Contact Hrs.
ENGS 111 (English Composition)	3	47
PSY 121 (General Psychology)	3	47
ECED 110 (Toddler Curriculum)	2	32
THEA 213 (Creative Play Activities—Drama)	3	47
ECED 121 (Introduction to Early Childhood)	2	32
ART 110 (Early Childhood Art)	3	47
	16	252

Spring Semester	Sem. Hrs.	Contact Hrs.
ENGS 112 (English Composition)	3	47
PSY 122 (General Psychology)	3	47
ECED 111 (Curriculum in Early Childhood Education)	3	74
MUS 241 (Music and Methods in Early Childhood)	2	32
SPCH 111 (Speech Pathology)	3	47
PER (Physical Education)	2	48
	16	295

Second Year

Fall Semester	Sem. Hrs.	Contact Hrs.
SOC 144 (Marriage & Family)	3	47
HEC 238 (Childhood Dev.)	3	47
PER 265 (First Aid)	2	32
ENSS 240 (Children's Lit.)	3	47
ECED 252 (Student Teaching)	5	240
	16	413

Spring Semester	Sem. Hrs.	Contact Hrs.
HEC 141 (Meals Mgt.)	4	95
ECED 260 (Child-Care Center Management)	3	47
HEC 211 (Nutrition)	3	47
PER (Physical Education)	2	48
Literature or Social Science	3	47
Elective	1	17
	16	301

Certificate Program in Early Childhood Education

PROGRAM REQUIREMENTS

1. *Courses Required for State Certification:*

	Sem. Hrs.	Contact Hrs.
PSY 121 (General Psychology)	3	47
HEC 211 (Nutrition)	3	47
HEC 238 (Child Development)	3	47
ECED 252 (Student Teaching)	5	240
ECED 260 (Child-Care Center Management)	3	47
ECED 111 (Curriculum in Early Childhood Education)	3	74
SOC 144 (Marriage and the Family)	3	47
	23	549

2. *First Aid Certificate:* Students must have a current Red Cross First Aid Certificate for certification in this program. Certification may be obtained by successfully completing

3. *Additional Requirements:* (Two courses must be taken)

ART 110 (Early Childhood Art)	3	47
ENSS 240 (Children's Literature: Pre-school, Primary to Third Grade)	3	47
THEA 213 (Creative Play Activities—Drama)	3	47
MUS 241 (Music and Methods in Early Childhood)	2	32
ECED 121 (Introduction to Early Childhood)	2	32

Minor in Early Childhood Education

Students pursuing the program leading to certification as elementary school teachers in the Mesa/Metro Education Consortium may develop a minor in early childhood education. For details, consult with the Director of Early Childhood Education in the Early Childhood Education Center.

LAW ENFORCEMENT

Associate of Applied Science

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 in the evening school and in other communities in Western Colorado.

PROGRAM REQUIREMENTS

	Sem. Hrs.	*Contact Hrs.*
English Composition	6	94
Social Science	15	235
Psychology	6	94
Science	6	94
Speech	3	47
Physical Education Activity	4	96
Law Enforcement	24	376
	64	1036

Suggested Course Sequence
First Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*	*Spring Semester*	*Sem. Hrs.*	*Contact Hrs.*
ENGS 111 (English Composition)	3	47	ENGS 112 (English Composition)	3	47
POLS 101 (American Government)	3	47	POLS 102 (American Government)	3	47
*Physical Science, Math or Computer Science	3	47	*Physical Science, Math or Computer Science	3	47
LEN 111 (Introduction to Administration of Justice)	3	47	LEN 112 (Police and Society)	3	47
LEN 121 (Criminal Law)	3	47	LEN 122 (Juvenile Delinquency and Procedures)	3	47
PER (Physical Education)	2	48	PER (Physical Education)	2	48
	17	283		17	283

*Select from CSCI 131, 133; CHEM 100; GEOL 100, 103; MATH 110, 113; PHYS 100, 101.

Second Year

Fall Semester	*Sem. Hrs.*	*Contact Hrs.*
PSY 121 (General Psychology)	3	47
SOC 260 (General Sociology)	3	47
POLS 256 (State and Local Government)	3	47
LEN 222 (Police Patrol Operations)	3	47
LEN 251 (Laws of Arrest, Search and Seizure)	3	47
	15	235

Spring Semester	*Sem. Hrs.*	*Contact Hrs.*
PSY 122 (General Psychology)	3	47
SOC 144 (Marriage & Family) or SOC 264 (Social Problems)	3	47
SPCH 102 (Speechmaking)	3	47
LEN 204 (Probation and Parole)	3	47
LEN 275 (Management Principles in Criminal Justice)	3	47
	15	235

Mesa/Metro Consortium for Teacher Education

Dr. Mary S. Ryder, Coordinator

The Metropolitan State College teacher certification program is available on the Mesa College campus. Students will complete all coursework on the Mesa College campus, register and pay all tuition and fees at Mesa but follow the approved and accredited Metropolitan State College curriculum leading to recommendation for Colorado Teacher Certification.

Requirements:

Candidates for Colorado certification must maintain a 2.75 grade-point average in all college work, in their major (or teaching area), and in all education courses. Students must have completed 200 clock hours of volunteer service by the end of their sophomore year and pass the California Achievement Test, Level 19, at the 75th percentile before they enter any field experience laboratories.

Professional coursework leading to Elementary certification consists of 68 semester hours including extensive field experience and student teaching at the elementary level.

Professional coursework leading to Secondary certification consists of 37 semester hours including extensive field experience and student teaching in the student's major area. Candidates preparing to teach in the Secondary schools (grades 7 through 12) must have a major area of study and must have teaching methods course work. Secondary areas of certification available at Mesa College are mathematics, science, social studies, English, physical education and music.

Minors:

A minor in special education is available to both Elementary and Secondary certification students. This minor prepares teachers to work with exceptional students in any educational setting. Nineteen semester hours of coursework are required for completion of the minor. Students who wish to earn endorsement on their teaching certificate for teaching the educable mentally handicapped (EMH) must complete 37 semester hours of coursework which includes student teaching. This endorsement is available to certified teachers who wish to add to their professional expertise. Also, a minor is available in Reading. The Reading minor is designed to produce well trained classroom teachers. In the sophomore and junior years, students take course work in methods and techniques of reading and supervise a reading group for a semester in a school classroom setting. In the senior year, students learn to administer a complete reading diagnosis, write a comprehensive case report based on the study of current remedial theory, develop materials for

students with reading difficulties and work on a one-to-one basis with students with severe reading problems. Eighteen hours are required in the minor with 10 additional course hours available and highly recommended.

Students who have earned their Bachelor's degree also may obtain Colorado Teacher Certification by completion of necessary coursework to comply with the Metropolitan State College certification program.

Students interested in any of the programs offered through the Mesa/Metro Consortium for Teacher Education should contact Dr. Mary Ryder in Houston Hall 212 for detailed information and advising.

Mesa/Western State Consortium for Teacher Education

Mr. Dan MacKendrick, Coordinator

Mesa College students also may pursue a course of study in Elementary Education only that will lead to a recommendation for Colorado Teacher Certification by the Division of Education at Western State College.

This program requires one or more semesters of residency on the Western State College campus at Gunnison, Colorado. All other coursework may be completed on the Mesa College campus.

Students interested in this program should consult with the the Dean, School of Social and Behavioral Sciences, in Elm Hall 33 for details.

Physical Education (Mesa/Metro Consortium)

Students desiring certification to teach physical education in the secondary schools of Colorado may receive recommendation for certification by successfully completing a program of study arranged by Mesa College in consortium with Metropolitan State College in Denver the essential features of which are described below. More detailed information about this program may be obtained from the Department of Physical Education.

Core Requirements

1. *Professional Methods and Activity Courses* (25 hours)
   Candidates for Secondary Physical Education Certification must present proof of proficiency in the skills and methods of teaching fifteen different activities. A total of 25 credits will be counted toward completion of this requirement. The following categories of requirements must be met:

   a. *Basic Skills* (all of the following courses): Sem. Hrs.
      PER 212 (Fundamentals of Movement) 1
      PER 213 (Methods of Physical Fitness) 2
      PER 214 (Methods of Tumbling) 1

   b. *Team Sports* (three of the following courses):
      PER 215 (Methods of Softball) 2
      PER 216 (Methods of Flag Football) 2
      PER 222 (Methods of Basketball) 2
      PER 223 (Methods of Volleyball) 2
      PER 228 (Methods of Soccer) 2

c. *Individual Sports* (five of the following courses):

PER 217	(Methods of Racquetball & Handball)	2
PER 218	(Methods of Personal Defense)	2
PER 221	(Methods of Apparatus Gymnastics)	2
PER 224	(Methods of Golf)	2
PER 225	(Methods of Tennis)	2
PER 226	(Methods of Badminton & Archery)	2
PER 227	(Methods of Track & Field)	2
PER 231	(Methods of Bowling)	2
PER 250	(Advanced Lifesaving)	2

d. *Miscellaneous Activities* (three of the following courses) :

PER 219	(Methods of Ballroom Dancing)	2
PER 220	(Methods of Square & Folk Dance)	2
PER 232	(Methods of Wrestling)	2
PER 233	(Methods of Weight Training)	2
PER 260	(School and Personal Health)	3
PER 326	(Methods of Teaching Ballet and Modern Dance)	3

2. *Theory Courses* (All of the following courses are required): (20 hours)

PER 200	(Introduction to Physical Education)	1
PER 301	(Tests and Measurements in Physical Education)	2
PER 309	(Anatomical Kinesiology)	2
PER 370	(Biomechanics)	2
PER 370L	(Biomechanics Laboratory)	1
PER 403	(Physiology of Exercise)	2
PER 403L	(Physiology of Exercise Lab)	1
PER 407	(Organization, Administration and Curriculum Development in Physical Education)	3
PER 408	(Methods of Teaching Physical Education in Secondary Schools)	3
PER 472	(Adaptive Physical Education and Recreation for the Physically Disabled)	3

3. *Electives:* At least three hours of electives approved by the Chair, Department of Physical Education *prior to* registration in the course. (Recommended Courses: PER 234, 251, 260, 265, 375)

4. A current Red Cross Standard First Aid and Cardio-Pulmonary Resuscitation Card is required of all students. Also, all majors must enroll in beginning swimming or demonstrate proof of swimming proficiency.

5. *Professional Education Courses* (all of the following courses are required) (30 hours)
(Consult with Dr. Mary Ryder, Houston Hall 212, on the proper sequencing of this series). These courses are given by Metropolitan State College on the Mesa College Campus.

EDU 221	(Processes of Education in Urban Secondary Schools)	3
EDU 222	(Field Experiences in Urban Secondary Schools) (The above courses must be taken concurrently)	2
EDU 320	(The Adolescent as Learner)	3
RDG 328	(Teaching of Reading in the Content Areas: Secondary)	3

EDU 321 (Materials & Techniques of Instruction for Secondary School Teachers).....3
EDU 322 (Field Experience in Tutoring & Materials Construction).....3
EDU 361 (The Use of Media in Education).....3
(The three above courses are to be taken concurrently not earlier than two semesters before student teaching).
EDU 429 (Student Teaching and Seminar: Secondary).....12

6. *Electives* to bring total hours to at least 124 hours. Students are urged to consider taking courses in Sports Theory, Sports Officiating, Care & Prevention of Athletic Injuries, and Philosophy & Psychology of Coaching to supplement the above program if career plans involve coaching.

SECONDARY EDUCATION MAJOR IN PHYSICAL EDUCATION WITH A MINOR IN COACHING

Suggested Course Sequence

First Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
ENGS 111 (English Composition)	3	ENGS 112 (English Composition)	3
BIOL 141 & 141L (Human Anat. & Phys. & Lab)	5	Literature	3
PER 200 (Intro. to Physical Ed.)	1	Phys. Science/Math	3
Social Science	3	PER 213 (Methods of Physical Fitness)	2
PER (Req. Methods Crs.)	2	PER (1 Methods Crs.)	2
PER (Physical Education Activity)	1	Biology/Psychology	3
		Coaching Minor/Elective	1
	15		17

Second Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
SPEECH 102 (Speechmaking)	3	Phys. Science/Math	3
PER (Req. Methods Crs.)	1	Social Science	3
Social Science	3	PER (2 Methods Crs.)	4
Phys. Science/Math	3	Literature	3
EDU 221 & EDU 222 (Proc. Urban Sec. Sch.)	5	PER (Physical Education Activity)	1
PER (Physical Education Activity)	1	Education Crs	3
PER (1 Methods Crs.)	2		
	18		17

Third Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
PER 309 (Anatomical Kinesiology)	2	PER 370 & 370L (Biomechanics)	3
PER (3 Methods Crs.)	6	PER 301 (Tests & Measurements)	2
PER 265 (First Aid/CPR)	2	PER (2 Methods Crs.)	4
PER (Physical Education)	1	EDU 321 & EDU 322 (Materials & Tech.)	5
Coaching Minor/Elective	4	Coaching Minor/Elective	3
Education Crs	3		
	18		17

Fourth Year

Fall Semester	*Sem. Hrs.*	*Spring Semester*	*Sem. Hrs.*
PER 403, 403L (Phys. of Exercise)	3	PER 472 (Adaptive P.E.)	3
PER 407 (Orgn. Adm. & Curr. Dev.)	3	EDU 429 (Student Teaching)	12
PER 408 (Methods of Teach. P.E.)	3		
PER (2 Methods Crs.)	4		
Coaching Minor/Elective	2		
Education Crs	3		
	18		15

Military Science/Reserve Officers Training Corps (ROTC)

The Department of Military Science presents instruction in general military subjects, with an emphasis on leadership and management, to provide the student with the opportunity to qualify for a commission as an officer in the United States Army, the United States Army Reserve, or the National Guard. Courses in the ROTC program are designed to complement a student's academic major and develop the qualities of leadership and citizenship which are desirable in both military and civilian enterprise.

Basic ROTC.

Participation in the first two years of the ROTC program is completely voluntary and no military obligation is incurred during this time. It is during these two years that a student is afforded the opportunity to evaluate the military as a career alternative and qualify for enrollment in Advanced ROTC.

Basic Camp

A freshman or sophomore enrolled in College can complete Basic ROTC by attending a six week ROTC Basic Camp. Participation in Basic Camp is completely voluntary and no military obligation is incurred during this time. Basic Camp affords a student the opportunity to evaluate the military as a career and qualifies the student for enrollment in Advanced ROTC by giving credit for Basic ROTC.

Advanced ROTC.

Participation in the last two years of the ROTC program is both elective and selective. Completion of this program and completion of the degree requirements qualify the student for a commission as a second lieutenant in the U.S. Army Reserve or National Guard. Therefore, applicants must demonstrate academic proficiency indicating a reasonable likelihood of completing degree requirements and must exhibit leadership qualities during the first two years of ROTC. A physical examination is required. The Advanced Course includes four semesters of military-science courses on campus and a six-week summer camp to provide training and leadership opportunities not available on campus.

ROTC Activities.

To provide students with a variety of areas for developing leadership ability, the Department of Military Science sponsors several extracurricular activities in connection with the ROTC program. The activities include a physical training program, an outdoor adventure training program, a drill team and a color guard.

ROTC Credit.

Students enrolled in ROTC can utilize ROTC credits toward graduation from Mesa College.

Veterans, Reservists and National Guardsmen.

Students with prior military service, Reservists and Guardsmen who have completed basic training, may receive advanced placement credit and enter the ROTC program at the Advanced Course level.

Military Supplies.

All Military Science textbooks, uniforms and accessories are issued free of charge to students enrolled in both the Basic and Advanced ROTC Courses. Additionally, Advanced Course students receive a subsistence allowance of $100 per month during the school year.

Regular Army Commission.

Senior military students who have demonstrated academic proficiency in all subjects and who have shown outstanding leadership may be designated as "Distinguished Military Students." This designation enables a student to apply for a regular Army commission during the senior year and, if appointed, enter military service as a second lieutenant, regular Army, upon graduation.

ROTC Scholarships.

The United States Army offers qualified male or female applicants one, two and three year fully paid ROTC Scholarships to attend Mesa College. ROTC scholarships pay all tuition and fees, buy all books and supplies required in college courses and pay the student a subsistence allowance of $100 per month during the school year for the duration of the scholarship. Upon graduation, ROTC scholarship students receive commissions and are required to serve four years of active duty in the Army. Individuals interested in applying for an ROTC scholarship should contact high school counselors or the Assistant Professor of Military Science, Mesa College, Room 15, Elm Hall.

Commissioning Requirements

		Sem. Hrs.
MS I - Freshman Year	MIL 101 (Personal Leadership)	1
	MIL 102 (Organizational Leadership)	1
MS II - Sophomore Year	MIL 201 (Leadership Development)	2
	MIL 202 (Leadership Assessment)	2
MS III - Junior Year	MIL 302 (Applied Leadership)	3
	MIL 303 (Advanced Camp)	3
	HIST 332 (History of Modern Warfare)	3
MS IV - Senior Year	POLS 302 (International Relations)	3
	or POLS 261 or 262 (Comparative Governments)	3
	MIL 401 (Military Assumption of Command)	3
TOTAL SEMESTER HOURS (Minimum)		24

AREA VOCATIONAL SCHOOL

Recognizing the national need for better-trained manpower, Mesa College as an approved Area Vocational School provides a variety of training opportunities for persons who wish to become more skilled. Numerous jobs await those who have the skills and abilities demanded by business and industry.

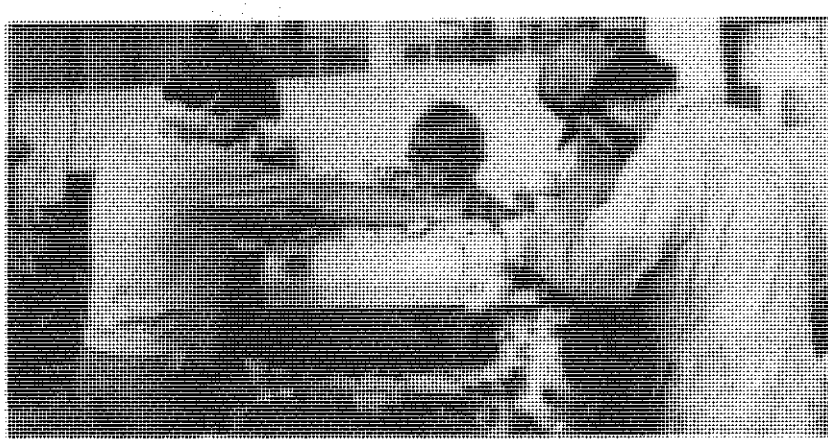
Programs and course offerings are structured to provide job entry, retraining or upgrading skills. The further the student progresses in a program area the greater the degree of skill development.

Students who wish to earn a degree or a certificate 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 for enrollment in programs greater than one year in length. They must also meet all general education requirements and follow the suggested curriculum for the skill training in which they enroll. Students who **do not** seek a degree may enroll in individual courses as desired.

OCCUPATIONAL EDUCATION COURSES AND PROGRAMS INCLUDE:

- Accounting
- Data Processing
- Auto Body and Fender
- Auto Mechanics
- Electric Lineman
- Mining/MSHA
- Civil Engineering Technology
- Computer Information Systems
- Drafting Technology
- Early Childhood Education
- Law Enforcement Technology
- Medical Office Assistant
- Secretarial Programs and Upgrading
- Travel, Recreation and Hospitality Management
- Electronics Technology
- Graphic Communications
- Welding
- Heavy Equipment/Diesel Mechanics
- Mechanic-Welder
- Nursing, Associate Degree
- Radiologic Technology

Courses designed to meet special employment needs are designed and offered at various locations and times throughout Mesa County if minimum enrollment can be met.



Vocational-technical students analyzing a diesel engine in class.

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. The Office of Continuing Education serves many 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.

The College cooperates with various other colleges and universities in the state to provide facilities for on- 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.

A complete class schedule and information is available from the Office of Continuing Education, Mesa College, Houston Hall, Rm. 110.

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, Business, Data Processing, Engineering, Fine Arts, Home Economics, Humanities, Mathematics, Nursing and Allied Health, Physical Education, Physical Science, Social Science, and Occupational Education.

The typical session will include a twelve-week term and two six-week terms. Registration is usually scheduled on or about May 18. 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.

COURSE PROFILES

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.

In the detailed course descriptions following, the course numbers after the prefix, indicate the college year in which the courses should ordinarily be taken. Courses numbered 1-99 are preparatory in nature and not intended for transfer purposes or degree requirements.

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

NOTE: Course descriptions are arranged in alphabetical order by subject.

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 description.

Mesa College reserves the right to withdraw from its offerings any program or course which the enrollment or availability of instructor 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.

Accounting

(School of Business)

BUAC 201 Principles of Accounting I (3)
Suitable for all those interested in obtaining the basic skills necessary to understand an accounting system and financial statements. (Fall/Spring/Summer.)

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, partnership accounting, for bonds and interest, cost accounting and managerial accounting. Prerequisite: BUAC 201. (Fall/Spring/Summer.)

BUAC 205 Ten-Key Operations (1)
Designed to develop skills essential to accountants in the operation of the ten-key electric calculator with emphasis on both speed and accuracy. Enrollment is limited to accounting students. Prerequisite: BUAC 201. (Fall/Spring.)

BUAC 298 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 311 Managerial Accounting (3)
Designed to apply accounting information to managerial decision-making. Major topics are budgeting for planning or control, cost-volume-profit relationships, and capital budgeting. Prerequisite: BUAC 202. (Fall/Summer).

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 BUAC 321. Prerequisite: BUAC 321. (Spring.)

BUAC 331 Cost Accounting I (3)
Gives the student a better understanding of costs and their relationship to planning, controlling and inventory valuation, and decision making. Prerequisite: BUAC 202. (Fall/Summer.)

BUAC 332 Cost Accounting II (3)
A continuation of BUAC 331. Major topics are capital budgeting, cost allocation, cost-volume-profit relationships, standard costs and internal control. Prerequisite: BUAC 331. (Spring/Summer.)

BUAC 395 Independent Study (1, 2)
See BUMA 395 course description. (On Demand.)

BUAC 401 Advanced Accounting I (5)
Taught in two modules. One module covers accounting procedures related to governmental and non-profit institutions. The second module covers accounting theory as it relates to financial statements. Prerequisite: BUAC 322. (Fall.)

BUAC 402 Advanced Accounting II (5)
Taught in two modules. One module provides in-depth coverage of consolidated financial statements. The other module covers partnership accounting, bankruptcy, estates and trusts and international operations. Prerequisite: BUAC 322. (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. Concentrating 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)
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 accounting major requirements. (Spring.)

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 311. (Spring—even numbered years)

BUAC 441 Income Tax (5)
Designed for accounting majors covering in depth the Federal Income Tax Law as it deals with individual taxpayers. It also introduces the student to the various tax reference sources that deal with this subject. Prerequisite: 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, partnerships, estates, trusts and gifts. It also includes comprehensive and complex tax problems requiring the use of various tax reference sources and emphasizing research methods and techniques. In addition, the student will be required to participate in the "VITA" program in order to acquire practical experience in preparing tax returns. Prerequisite: BUAC 441. (Spring.)

BUAC 472 Computerized Auditing (3)
Designed to cover the current professional requirements and auditing standards as they apply to audits of computer based accounting systems, the techniques used to meet the standards and actual practical experience using these techniques on computerized systems. Co-requisite: BUAC 412. (Spring.)

BUAC 498 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 298 course description for additional information. (Fall/Spring.)

BUAC 499 Internship (2, 3, 5)
Supervised accounting work experience in business and industry. Prerequisites: junior status and consent of the Dean of the School of Business. (On Demand.)

Agriculture

(School of Natural Sciences and Mathematics)

AG 101 Agricultural and Natural Resource Occupations (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. (Fall.)

AG 110 Crop Production (3)
AG 110L Crop Production Lab (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 lab session per week. (Alternate, Spring.)

AG 112 Farm Power (2)
AG 112L Farm Power Lab (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 lab session per week. (Alternate, Fall.)

AG 113 Introduction to Animal Science (3)
AG 113L Introduction to Animal Science Lab (1)
An introduction to the livestock industry including production, management and marketing of livestock products. Three lectures and one two-hour lab session per week. (Fall.)

AG 142 Economic Organization of Agriculture (3)
A study of economic principles as they apply to agriculture. Three lectures per week. (Fall.)

AG 151 Basic Landscaping (2)
AG 151L Basic Landscaping Lab (1)
Basic principles of home landscape design, construction and maintenance, with an emphasis on low maintenance and water conservation. Two lectures and one two-hour lab session per week. (Irregularly On Demand.)

AG 201 Environmental Horticulture (3)
AG 201L Environmental Horticulture Lab (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 lab session per week. (Fall.)

AG 202 Soils (3)
AG 202L Soils Lab (1)
A study of the formation, properties and management of soils. Special attention is given to all conditions that affect crop yields. Prerequisite: CHEM 121 or CHEM 131. Three lectures and one two-hour lab session per week. (Alternate, Spring.)

AG 203 Artificial Insemination (1)
AG 203L Artificial Insemination Lab (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 lab session per week. (Alternate, Fall.)

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. (Spring.)

AG 211 Introduction to Range Science (3)
AG 211L Introduction to Range Science Lab (1)
An introduction to ecological principles and management practices required for proper utilization of rangeland. Three lectures and one two-hour lab session per week. (Alternate, Spring.)

AG 222 Livestock Judging and Selection (1)
AG 222L Livestock Judging and Selection Lab (1)
Evaluation and selection of livestock. One lecture and one two-hour lab session per week. (Irregularly On Demand.)

AG 251 Forage Crops (3)
AG 251L Forage Crops Lab (1)
Study of the important aspects of forage crop production. Three lectures and one two-hour lab session per week. (Irregularly On Demand.)

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. (Fall.)

AG 260 Functional Anatomy of Domestic Animals (2)
AG 260L Functional Anatomy of Domestic Animals Lab (1)
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. Two lectures and one two-hour lab session per week. (Alternate, Spring.)

AG 295 Independent Study (1, 2)
A course which allows individualized study in some area of agriculture. Prerequisite: Approval of instructor and agricultural background. (Fall/Spring/Summer.)

AG 299 Internship (2)
Work experience in a wide variety of agricultural fields. Hours of work required for credit will be determined by the department. (Fall/Spring/Summer.)

AG 301 Principles of Genetics (3)
AG 301L Principles of Genetics Lab (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. Prerequisites: BIOL 105 or consent of instructor. Three lectures and one two-hour lab session per week. (Spring.)

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. (Alternate, Fall.)

AG 311 Range Ecology (3)
Structure, distribution and interrelationship of rangeland plant and animal communities. Prerequisites: AG 211, BIOL 107 or consent of instructor. Three lectures per week. (Irregularly On Demand.)

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. (Irregularly On Demand.)

AG 321 Fruit Production (2)
AG 321L Fruit Production Lab (1)
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 manage-

ment, fertilizing and irrigation. Prerequisite: Five hours of plant science, AG 201, or consent of instructor. Two lectures and one three-hour lab session per week. (Alternate, Spring.)

AG 322 Greenhouse Management (2)
AG 322L Greenhouse Management Lab (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 lab session per week. (Irregularly On Demand.)

AG 323 Plant Propagation (2)
AG 323L Plant Propagation Lab (1)
A study of techniques used in propagation of plants. Two lectures and one two-hour lab session per week. (Irregularly On Demand.)

AG 332 Weed Control (3)
AG 332L Weed Control Lab (1)
Study of weed control through predators, parasites, pathogens, attractants, irradiation, chemosterilants and integrated control. Three lecture and one two-hour lab session per week. (Alternate, Fall.)

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. (Alternate, Fall.)

AG 334 Animal Hygiene (3)
Principles of animal sanitation in relation to disease prevention and control. Prerequisite: AG 113 or consent of instructor. Three lectures per week. (Alternate, Fall.)

AG 343 Environmental Insects (2)
AG 343L Environmental Insects Lab (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 lab session per week. (Alternate, Spring.)

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. (Alternate, Fall.)

AG 346 Horse Management (3)
Study of the general principles and practices of stabling, training and caring for horses. Three lectures per week. (Alternate, Spring.)

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. (Alternate, Spring.)

AG 348 Swine Production (3)
A study of commercial and purebred swine production and management. Both business aspects and applications of the principles of nutrition, genetics and physiology will be presented. Prerequisite: AG 113 or consent of instructor. Three lectures per week. (Alternate, Fall.)

AG 352 Applied Animal Nutrition (2)
AG 352L Applied Animal Nutrition Lab (1)
Composition, characteristics and nutritive value of feeds and ration additives: 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 or consent of instructor. Two lectures and one two-hour lab session per week. (Alternate, Spring.)

AG 403 Soil Fertility and Fertilizer (2)
AG 403L Soil Fertility and Fertilizer Lab (1)
A study of the principles of soil fertility and fertilizer practices. Two lectures and one two-hour lab session per week. (Alternate, Fall.)

AG 411 Range Techniques (2)
AG 411L Range Techniques Lab (1)
Techniques used to inventory range resources, determine rangeland condition and trend, determine forage utilization and proper stocking rates and develop management plans. Prerequisites: AG 311 or consent of instructor. Two lectures and one two-hour lab session per week. (Irregularly On Demand.)

AG 442 Animal Nutrition (3)
AG 442L Animal Nutrition Lab (1)
Metabolism of proteins, carbohydrates, fats, minerals, vitamins and the relationship of proper nutrition as it relates to livestock production. Prerequisites: AG 352, CHEM 122 or consent of instructor. Three lectures and one two-hour lab session per week. (Irregularly On Demand.)

AG 450 Reproductive Physiology (3)
AG 450L Reproductive Physiology Lab (1)
Intensive study of the reproductive efficiency of farm animals and the anatomical and physiological factors involved in reproduction. Prerequisite: AG 260 or consent of instructor. Three lectures and one two-hour lab session per week. (Alternate, Spring.)

AG 494 Seminar (1)
Discussions of current problems, topics, and research procedures in agriculture. Topics of the seminar announced each semester. Prerequisite: Sophomore classification and consent of the instructor. (Fall/Spring.)

AG 499 Internship (2, 4, 6, 8, 10)
A student may receive credit for work experience obtained on a job where the assignments are appropriately related tot he agriculture 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: agriculture student, senior standing and consent of instructor. (Fall/Spring/Summer.)

Anthropology

(School of Social and Behavioral Sciences)

ANTH 101 Physical Anthropology (3)
A survey of the basic concepts of physical anthropology including the biological nature of man, evolution theory, evaluation of primates, including man, genetics, the emergence of cultural essentials and human variation. (Fall.)

ANTH 102 Cultural Anthropology (3)
A survey of basic concepts of cultural anthropology including; the nature of culture, the development and history of culture, cultural institutions and the process of cultural change. (Spring.)

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. (Fall, 1986.)

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. (Spring, 1987.)

ANTH 230 Myth, Magic and Religion (3)
Comparative studies of myth, magic and religion from the Upper Paleolithic through the earliest civilizations using anthropological, archaeological and psychological sources. (Fall, 1985.)

ANTH 232 Primitive Science and Religion (3)
A comparative study of primitive man's attempt to understand and control the world through ritual, magic, witchcraft and divination. The roles of shamans, ghosts and ancestor worship, astrology and alchemy and anthropological theories which explain them are examined. (Spring, 1986.)

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. (Summers, on demand.)

ANTH 301 The North American Indian (3)
A survey of the cultural systems of the North American Indian; major cultural areas, languages and behavior patterns. Case studies of selected groups. Prerequisites: ANTH 101, 102. (Summers.)

ANTH 361, 362 Archaeological Excavation II (3, 6)
Training in archaeological excavation of prehistoric sites including administration, excavation strategy, recordation, photography, sampling, laboratory work and report preparation. Prerequisites: upper division standing and/or consent of instructor. (Summers, on demand.)

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 100 Art Foundations (3)
An introduction to visual art form and content with projects in both two and three dimensional media. Fee charged for materials. Lecture: 2 hours; Studio: 4 hours. (Spring.)

ART 110 Early Childhood Art (3)
Theory and practice of art education for young children. Lecture, lab and practice teaching culminate in resources for teaching. Lecture: 2 hours; Lab: 2 hours. (Fall.)

ART 115 Art Appreciation (3)
Some of the hows, whys and whos of painting, sculpture and functional design in selected periods and places. Lecture: 3 hours. (Fall.)

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

ART 130 Fibers (1)
An elective studio course in several fiber processes including weaving and dyeing. A fee is charged for materials. Studio: 2 hours. (On Demand.)

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. (On Demand.)

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. (Spring, 1986.)

ART 151 Basic Drawing (3)
An introduction to freehand drawing: Figural and environmental subjects, perceptual exercises and common drawing media; Studio: 6 hours. (Fall/Spring.)

ART 154 Ink Drawing (1)
A studio class dealing with illustration techniques in pen, brush and ink, and ink wash. Studio: 2 hours. (Fall.)

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. (Spring, 1986.)

ART 180 Sculpture (1)
A studio course for students who want to make an object in clay to be cast, using the waste mold process. Forms appropriate to the materials and processes are emphasized. Fee charged for materials. Studio: 2 hours. (On Demand.)

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

ART 192 Pastels (1)
A studio class dealing with dry color media for use in illustration; Studio: 2 hours. (Fall.)

ART 193 Airbrush (1)
A studio course in the use of airbrush for illustration and painting. Studio: 2 hours. (Fall/Spring.)

ART 211, 212 Art History (3, 3)
A chronological study of art periods and comparative analysis of styles in western art from prehistory to 1900. Lecture: 3 hours. (Fall/Spring.)

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 Metalsmithing (On Demand.) (3)
ART 231 Fibers (On Demand.) (3)
ART 241, 242 Ceramics (Fall/Spring, concurrent.) (3, 3)
ART 271 Printmaking—Relief and Intaglio (Fall.) (3)

ART 272 Printmaking—Lithography and Serigraphy (Spring.) (3)
ART 281 Sculpture—Modeling and Mold Making (Fall, 1985.) (3)
ART 282 Sculpture—Foundry (Fall, 1986.) (3)
ART 283 Sculpture—Carving and Construction (Spring, 1986.) (3)
ART 291, 292 Painting (Spring.) (3, 3)

ART 251 Figure Drawing (3)
Studio drawing emphasizing the tradition of the human figure. Contemporary concepts of composition and techniques, 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 or equivalent. (Spring.)

ART 257 Cartooning (1)
A studio course in the fundamentals of exaggeration, caricature, gesture, sequence, technique and presentation. Studio: 2 hours. (Spring.)

ART 300 Exhibitions and Management (2)
The business of art, including art law, studio management, sales practices, presentation of art work, conservation practices and gallery design. Lecture: 1 hour; Lab: 2 hours. (Fall.)

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 through slides and reading. Lecture: 3 hours. Prerequisite: ART 211, 212 or permission of instructor. (Spring.)

Advanced Studios (300 level)
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 100, 151; 211, 212; and at least 3 hours of the same Processes and Media (200 level) Studio. Lecture: 1 hour; Studio: 5 hours.

ART 321, 322 Metalsmithing (On Demand.) (3, 3)
ART 341 Pottery Production (Fall.) (3)
ART 342 Ceramic Sculpture (Spring.) (3)
ART 351, 352 Drawing (On Demand.) (3, 3)
ART 371, 372 Printmaking (On Demand.) (3, 3)
ART 381, 382 Sculpture (On Demand.) (3, 3)
ART 391, 392 Painting (Fall/Spring.) (3, 3)

ART 395 Independent Study (2)
Consent of instructor. (Fall.)

ART 400 Exhibitions and Portfolio (1)
Theory and preparation of competitive exhibitions and presentation of the senior portfolio and exhibition. Lab: 2 hours. Prerequisite: ART 300. (Spring.)

ART 410 Elementary Art Education Methods (3)
Theory and methods of art education K-6: teaching art to children; lesson planning and materials; the unique role of art in education. Lecture: 2 hours. Lab: 2 hours. (Spring.)

ART 412 Secondary Art Education Methods (3)
A study of theory, methods and materials for teaching art in secondary schools. Lecture: 2 hours. Lab: 2 hours. (On Demand.)

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. Prerequisite: At least 3 hours in the same studio at 300 level.

ART 421, 422 Metalsmithing
(On Demand.) (3, 3)
ART 441 Glaze Calculation
(Spring, 1986.) (3)
ART 442 Kiln Construction
(On Demand.) (3)
ART 451, 452 Drawing
(On Demand.) (3, 3)
ART 471, 472 Printmaking
(On Demand.) (3, 3)
ART 481, 482 Sculpture
(On Demand.) (3, 3)
ART 491, 492 Painting
(On Demand.) (3, 3)

ART 494 Seminar (2)
A seminar for senior students dealing with topics related to art criticism, history and aesthetics. (Fall.)

ART 495 Independent Study (2)
Consent of instructor. (Fall/Spring.)

Auto Body and Fender

(School of Industry and Technology)

ABF 100 Applied Mathematics (2)
A brief review of the arithmetic, shop mathematics and algebra needed to handle the mathematical aspects of auto body. (Fall/Spring.)

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. (Fall/Spring.)

ABF 120 Auto Body Repair and Refinishing II (8)
A continuation of ABF 110. Prerequisite: ABF 110 or consent of instructor. (Fall/Spring.)

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; and general automotive detail procedures. (Spring.)

ABF 140 Oxyacetylene Welding (2)
Theory and practice of oxyacetylene welding/brazing of mild steel; identification of where and when brazing should be utilized instead of welding. Welding and brazing in a flat and vertical position is also stressed. Special emphasis on root penetration and fusion of welding materials. (Fall.)

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. (Spring.)

ABF 200 Panel and Spot Painting (6)
Paint composition, refinishing products and their correct usage, color matching and procedures to be used in making a lacquer or acrylic spot repair. (Fall.)

ABF 210 Frame Repair (4)
Inspection, measurement and repair methods used to repair unitized and conventional frames. (Fall.)

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. (Fall.)

ABF 230 Auto Body Repair and Refinishing III (6)
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. (Fall/Spring.)

ABF 240 Auto Body Repair and Refinishing IV (8)
A continuation of ABF 230. Prerequisite: ABF 230 or consent of instructor. (Fall/Spring.)

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

ABF 295 Independent Study (1, 2)
Specialized studies related to student's field of training beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration. Prerequisite: Sophomore standing or equivalent. (Fall/Spring.)

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. Two lectures per week. (Spring.)

BIOL 101, 102 General Biology (2, 2)
BIOL 101L, 102L General Biology Lab (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 lab session per week. (Fall/Spring.)

BIOL 105 Attributes of Living Systems (3)
BIOL 105L Attributes of Living Systems Lab (1)
A study of organization, stability and change in living systems. Three lectures and one two-hour lab session per week. (Fall/Spring.)

BIOL 106 Principles of Animal Biology (3)
BIOL 106L Principles of Animal Biology Lab (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 lab sessions per week. (Spring.)

BIOL 107 Principles of Plant Biology (3)
BIOL 107L Principles of Plant Biology Lab (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 lab sessions per week. (Fall.)

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. (Spring.)

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. (Spring.)

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. (Fall.)

BIOL 141 Human Anatomy and Physiology (3)
BIOL 141L Human Anatomy and Physiology Lab (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 lab sessions per week. (Fall.)

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 that are important in treating dental and medical patients. Three lectures per week. (Fall.)

BIOL 201 Developmental Biology (4)
BIOL 201L Developmental Biology Lab (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 lab session per week. (Spring.)

BIOL 202 Cellular Biology (3)
BIOL 202L Cellular Biology Lab (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 lab session per week. (Spring.)

BIOL 203 Evolution (3)
A study of evolution emphasizing its importance as the unifying theory of biology. The consequences of natural selection on the genetic structure of plant and animal populations. Prerequisites: BIOL 101, BIOL 102, or BIOL 105. Three lectures per week. (Spring.)

BIOL 211 Ecosystem Biology (4)
BIOL 211L Ecosystem Biology Lab (1)
A course to provide an elementary understanding of ecology utilizing the population biology concepts of population genetics, energetics, dynamics, distribution and sociology. Overnight and/or weekend field trips may be required. Four lectures and one two-hour lab session per week. (Fall.)

BIOL 221 Plant Identification (1)
BIOL 221L Plant Identification Lab (2)
Identification of flowering plants, chiefly of this region. Emphasis is on family recognition and the use of keys in identification. This course is designed to be taken concurrently with BIOL 320. Prerequisite: BIOL 107. One lecture and two two-hour lab sessions per week. (Fall.)

BIOL 231 Invertebrate Zoology (3)
BIOL 231L Invertebrate Zoology Lab (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 two two-hour lab sessions per week. (Spring.)

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. (Fall.)

BIOL 250 General Microbiology (3)
BIOL 250L General Microbiology Lab (2)
An introductory program covering the general biology of the microorganisms. Three lectures and two two-hour lab sessions per week. (Spring.)

BIOL 295 Independent Study (1, 2)
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. (Fall/Spring/Summer.)

BIOL 311 Multiple Resource Management (3)
BIOL 311L Multiple Resource Management Lab (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 lab session per week. (Alternate, Spring.)

BIOL 315 Epidemiology (3)
A study of the characteristic patterns of communicable disease occurrence as related to individuals, geographic location and time. The factors affecting disease occurrence, the nature of vital statistics and study design and sampling procedures also introduced. Three lectures per week. (Alternate, Spring.)

BIOL 320 Plant Systematics (3)
Study of the principles of systematic botany. This course will encompass the principles of classification and nomenclature and an evaluation of current classifications of the angiosperms. This course is designed to be taken concurrently with BIOL 221. Three lectures per week. (Alternate, Fall.)

BIOL 321 Taxonomy of Grasses (1)
BIOL 321L Taxonomy of Grasses Lab (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 lab sessions per week. (Alternate, Fall.)

BIOL 341 General Physiology (3)
BIOL 341L General Physiology Lab (1)
A study of the functions of the circulatory, nervous, respiratory, digestive, urinary, reproductive and endocrine systems of the human body. Prerequisite: BIOL 106 or consent of instructor. Three lectures and one two-hour lab session per week. (Alternate, Fall.)

BIOL 342 Histology (2)
BIOL 342L Histology Lab (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 lab sessions per week. (Alternate, Fall.)

BIOL 343 Immunology (2)
BIOL 343L Immunology Lab (1)
A study of immunologic phenomena and techniques. Two lectures and one two-hour lab session per week. (Alternate, Spring.)

BIOL 393 Teaching Science in the Secondary School (3)
Designed for those students preparing for teaching science in the secondary school. Course content will include methods of teaching, examination of existing curricular models and construction of curricula. To be taken not more than two semesters before student teaching. Prerequisite: Teaching major or teaching minor in science. Three lectures per week. (Spring.)

BIOL 395 Independent Study (1, 2)
See description and prerequisites under BIOL 295. (Fall/Spring/Summer.)

BIOL 411 Mammalogy (2)
BIOL 411L Mammalogy Lab (1)
The classification, life histories and ecology of mammals together with practice in the preparation of skins for study. Overnight and/or weekend field trips may be required. Two lectures and one two-hour lab session or three-hour field trip per week. (Alternate, Fall.)

BIOL 412 Ornithology (2)
BIOL 412L Ornithology Lab (1)
The classification and life histories of birds, including identification in the field. Overnight and/or weekend field trips may be required. Two lectures and one two-hour lab session or three-hour field trip per week. (Alternate, Fall.)

BIOL 413 Fauna of Western Colorado (2)
BIOL 413L Fauna of Western Colorado Lab (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. (Summer, On Demand.)

BIOL 414 Aquatic Biology (2)
BIOL 414L Aquatic Biology Lab (1)
Classification, life history and ecology of aquatic animals. Overnight and/or weekend field trips may be required. Two lectures and one two-hour lab session per week. (Alternate, Fall.)

BIOL 415 Tropical Ecosystems (2)
A field course to evaluate coral reef, rain forest, and arid desert ecosystems on Caribbean islands. Ten two-hour lectures, ten two-hour labs, and ten six-hour field trips conducted at the marine station and primate colony of the University of Puerto Rico. Prerequisites: One year of biological sciences and consent of instructor. (Spring Break, On Demand.)

BIOL 421 Plant Physiology (3)
BIOL 421L Plant Physiology Lab (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 lab sessions per week. (Alternate, Spring.)

BIOL 422 Field Botany (2)
BIOL 422L Field Botany Lab (1)
A field-oriented botany course dealing with the structure and analysis of plant communities. This course will encompass plant identification (not classification), vegetation sampling, data analysis (i.e., dominant species determination), and plant collection techniques. Two lectures and one two and one-half hour field session per week. (Summer, On Demand.)

BIOL 423 Plant Anatomy (3)
BIOL 423L Plant Anatomy Lab (2)
Study of the form, variability and structure of the tissues comprising the higher plant body. Prerequisites: BIOL 105, BIOL 107, and BIOL 107L. Three lectures and two two-hour lab sessions per week. (Alternate, Spring.)

BIOL 425 Molecular Genetics (3)
The study of the nature and expression of genetic information in prokaryotic and eukaryotic organisms. Prerequisite: AG 301. Three lectures per week. (Alternate, Spring.)

BIOL 430 Penned Animal Hygiene (2)
BIOL 430L Penned Animal Hygiene Lab (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 lab session per week. (Alternate, Fall.)

BIOL 431 Animal Parasitology (3)
BIOL 431L Animal Parasitology Lab (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 lab session per week. (Alternate, Fall.)

BIOL 441 Endocrinology (3)
BIOL 441L Endocrinology Lab (1)
Lectures cover the anatomy and physiology of the endocrine system of vertebrates while the lab emphasizes its normal and abnormal functions. Prerequisite: BIOL 106 or consent of instructor. Three lectures and one two-hour lab session per week. (Alternate, Fall.)

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. (Spring.)

BIOL 494 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. (Alternate, Fall.)

BIOL 499 Internship (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 2.8 grade-point average in major courses or consent of faculty. (Fall/Spring/Summer.)

Business

(School of Business)

BUGB 101 Introduction to Business (3)
How the American business 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. (Fall/Spring.)

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. (Fall/Spring.)

BUGB 211 Business Communications (3)
The student develops a non-defensive, supportive communication system effectively applied to interpersonal and written transactions within the business organization. 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 231 Survey of Business Law (3)
For those interested in knowing the application of the law as it applies to employees and individuals not dealing with legal matters of organizations. Topics will include contracts, agency law, personal property, business organization and form, and commercial paper. This course is especially suited for non-business majors. Students contemplating or enrolled in a four year degree program should take BUGB 351 and 352. No credit allowed if credit already established in BUGB 351. (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 and introduction to investment. (Spring.)

BUGB 351 Business Law I (3)
Covers contracts (formation, requirements, interpretation, discharge, and enforcement); agency law; and other contracting parties. Includes analysis of the concepts of personal property and an introduction to the partnership form of ownership. Prerequisites: Junior or senior standing or permission of instructor. (Fall.)

BUGB 352 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) and real property. Prerequisite: BUGB 351 and junior or senior standing or permission of instructor. (Spring.)

Career Counseling and Guidance

(School of Social and Behavioral Sciences)

CCG 290 Occupational Studies (24)
This general program requirement may be completed in the following ways: (1) Work experience may be submitted for evaluation for a possible maximum credit award of 24 semester hours; (2) the student may use a coursework in business, vocational technical, or other career oriented courses approved by the Program Director; or, (3) a combination of options (1) and (2) (On Demand).

CCG 320 Career Development (3)
Topics include theories of, and factors influencing career development as well as assessment, career maturity, decision making, problem solving, and planning. Current developments in adult career and life development will be discussed, including life stages, transitions, midlife crisis, stress and adjustments necessary for career development effectiveness. (Fall, 1986.)

CCG 324 Career Information and Decision Making (3)
Analysis of the types and sources of career information and its various uses in career counseling with special emphasis on decision making theories and processes. (Fall, 1985.)

CCG 420 Counseling Processes and Techniques (3)
Exploration and examination of counseling principles and practices which facilitate interpersonal communication and effective personal and social development. Counseling skills in attending behavior, listening, problem exploration, responding, understanding and modes of action are examined, discussed and applied in classroom counseling situations. (Spring.)

CCG 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 all BBA candidates. (Spring, 1987.)

CCG 424 Group Guidance Processes and Techniques (3)
Emphasis is on group procedures and processes for helping others to develop self-understanding and other personal and social skills. Recently developed career guidance and counseling materials and programs are discussed. (Spring, 1986.)

CCG 497 Practicum (4)
Students are required to complete a practicum designed to give the beginning counseling student basic inter-personal training in the practice of counseling. Taken during the senior year, the practicum places the student under professional supervision to gain counseling practice and refine counseling skills. A typed paper/journal must be submitted for approval and course credit. (Fall/Spring/Summer.)

CCG 499 Internship (4)
Designed to provide further counseling experience in external field locations according to the needs and career goals of the student and by approval of the faculty adviser. A typed paper/journal must be submitted for approval and course credit. (Fall/Spring/Summer.)

Chemistry

(School of Natural Sciences and Mathematics)

CHEM 100 Chemistry and Society (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. (Irregularly, On Demand.)

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. (Fall/Spring.)

CHEM 121L General Chemistry Lab (1)
Lab 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. (Fall/Spring/Summer.)

CHEM 122 Introduction to 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. (Spring.)

CHEM 122L Introduction to Organic Chemistry Lab (1)
Lab work designed to acquaint the student with several fundamental organic lab procedures, properties of selected classes of compounds, and some of the methods of preparative organic chemistry. One three-hour session per week. (Spring.)

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, stoichoimetry, 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. (Fall/Spring.)

CHEM 131L, 132L General Inorganic Chemistry Lab **(1, 1)**
Experiments in descriptive chemistry, gas laws, equilibrium, electrochemistry, and inorganic qualitative analysis. One three-hour session per week. (Fall/Spring.)

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. Corequisite: MATH 113. Prerequisites: high school chemistry and satisfactory ACT scores or CHEM 121. Four lectures per week. (Fall.)

CHEM 151L Engineering Chemistry Lab **(1)**
Experiments in descriptive chemistry, gas laws, equilibrium, electrochemistry, and inorganic qualitative analysis. One three-hour session per week. (Fall.)

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, steroisomerism, and reactions are stressed. Particular emphasis is placed on biological applications. Prerequisite: CHEM 132 or consent of instructor. Four lectures per week. (Irregularly, On Demand.)

CHEM 201L Life Science Organic Chemistry Lab **(1)**
Lab 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. (Irregularly, On Demand.)

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. (Irregularly, On Demand.)

CHEM 202L Biochemistry Lab **(1)**
Lab 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. (Irregularly, On Demand.)

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. (Fall/Spring.)

CHEM 211L, 212L Organic Chemistry Lab **(2, 2)**
Lab 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. (Fall/Spring.)

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. (Irregularly, On Demand.)

CHEM 221L Instrumental Methods of Analysis Lab (2)
Lab work providing experiences in instrumental analytical methods. Because of the instruments available, emphasis is on inorganic analyses by spectroscopic methods. Two three-hour sessions per week. (Irregularly, On Demand.)

CHEM 295 Independent Study (1,2)
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 originial: 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. (Fall/Spring.)

Computer Information Systems, Business

(School of Business)

BCIS 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).

BCIS 102 Computer Literacy (1)
Introduction to the basic concepts of computers. Focus is on understanding terminology, hardware, software and implication of computers in today's world. (Fall/Spring/Summer.) (First offering will be Fall, 1986.)

BCIS 103 Business Computer Concepts (1)
Introduction to the various aspects of business use of computers including discussion of computer security, privacy of information, future implications, purchasing computers and software, and business application. Prerequisite: BCIS 102 or equivalent. (Fall/Spring/Summer.) (First offering will be Fall, 1986.)

BSIC 104 Basic Programming (1)
Introduction to BASIC programming. The student will learn the basic concepts of programming through the use of BASIC language. Several BASIC programs will be written. Prerequisite: BCIS 102 or equivalent. (Fall/Spring/Summer.) (First offering will be Fall, 1986.)

BCIS 105 Introduction to Business Software (1)
Introduction to the use of current business software. The student will learn to use electronic spread sheets, word processing and data base software at a beginning level. Prerequisite: BCIS 102 or equivalent. (Fall/Spring/Summer.) (First offering will be Fall, 1986.)

BCIS 131 COBOL Programming I (3)
Students write program 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: BCIS 101 or consent of instructor. (Spring/Summer.)

BCIS 231 Assembler Language (3)
A beginning course in assembler language programming. Includes data representation concepts, instruction formats, core dump analysis, basic assembler language instructions and register usage. Prerequisite: at least one programming course. (Fall.)

BCIS 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: BCIS 101 or consent of instructor. (Fall/Spring.)

BCIS 234 RPG Programming (3)
Writing business programs in RPG II, with emphasis on learning the internal logic cycle of RPG. Development of programming logic through use of decision tables. Prerequisite: BCIS 101 or consent of instructor. (Spring.)

BCIS 295 Independent Study (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).

BCIS 298 Related Work Experience (1, 2)
See BUAC 298 course description.

BCIS 305 Advanced Business Software (3)
Advanced understanding and use of prewritten business software. The student will become proficient, through a combination of lecture, demonstration and projects in the use of electronic spread sheets, word processing and data base management software. Prerequisite: BCIS 105. (Spring.) (First offering will be Spring, 1987.)

BCIS 332 COBOL Programming II (3)
A continuation of BCIS 131. Disk processing, including sequential, indexed sequential and random processing; and use of operating system resources for systems development. Prerequisite: BCIS 131. (Fall.)

BCIS 391 Automated Systems (3)
Students analyze actual business applications and convert them to a computerized system, gaining an indepth knowledge of systems design procedures and an appreciation of the intricacies and detail involved in designing a complete system. Prerequisites: BUAC 202 and at least 2 programming courses or consent of instructor. (Spring.)

BCIS 441 Computers in Management (3)
The use of computers by management to run their business more effectively. Particular attention is paid to the advantages of using computers, the problems associated with computerized processing and the controls which are necessary to insure that output is correct. An indepth look at the primary applications of A/R, A/P, P/R, G/L, and Inventory Control as well as the latest concepts such as Data Base allow the student to see the practical application of data processing. The course is appropriate for management and accounting majors as well as data processing majors. Prerequisites: BCIS 101. (Fall.)

BCIS 471 Management Information Systems (3)
Designed to follow BCIS 391 and will integrate management information needs and decision-making criteria and the design of manager/computer interactive systems. Computerized management control systems for all major functional modules of an organization will be investigated. Other topics that will be covered include: computer simulations, data base management systems, distributed processing, and structured systems development. Prerequisites: BUAC 311 and BCIS 391 or permission of the instructor. (Fall.)

Computer Science

(School of Natural Sciences and Mathematics)

CSCI 100 Computers in Our Society (3)
A study of the impact of computers on society and individuals, how they do what they do, and how they are programmed. Intended for students in disciplines outside the natural sciences and mathematics. Three lectures per week. (Fall/Spring.)

CSCI 101 Computer Literacy (Module 1) ..... (1)
CSCI 102 BASIC Programming (Module 2) ..... (1)
CSCI 103 BASIC Plus (Module 3) ..... (1)

CSCI 111 Computer Science I (3)
An introduction to the fundamental topics of computer science. Includes an overview of computer architecture, algorithms, control structure, trees and stacks, and compilation of arithmetic statements. The PASCAL language is employed as the programming vehicle. Corequisite: MATH 119 or consent of instructor. Three lectures per week. (Fall/Spring.)

CSCI 112 Computer Science II (3)
A continuation of CSCI 111. Includes all constructs of the PASCAL language, data structures such as hasing stores, arithmetic calculations, more on compiling, finite state machines and pushdown automata, and proof of correctness of programs. Prerequisite: CSCI 111 or consent of instructor. Three lectures per week. (Fall/Spring.)

CSCI 131 FORTRAN Programming (3)
CSCI 131L FORTRAN Programming Lab (1)
Various mathematics, science and engineering problems are put in FORTRAN language and then run on the 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 consent of instructor. Three lectures and two one-hour labs per week. (Fall/Spring.)

CSCI 133 PASCAL Programming (3)
CSCI 133L PASCAL Programming Lab (1)
An introduction to PASCAL 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: MATH 113. Three lectures and two one-hour labs per week. (Fall/Spring.)

CSCI 135 COBOL Programming (3)
See the BCIS 131 course description. Computer science students normally enroll in BCIS 131 but are offered this course upon demand when BCIS 131 is not offered. Three lectures per week. (Fall/Spring.)

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. (Fall/Spring.)

CSCI 240 Computer Architecture (3)
A survey of computer architectures, memory structures and addressing, arithmetic schemes, data channels, order codes, microprogramming, and multiprocessors. Prerequisites: CSCI 112 and CSCI 230 recommended. Three lectures per week. (Fall/Spring.)

CSCI 250 Data 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. Prerequisite: CSCI 112. Three lectures per week. (Fall/Spring.)

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 230, 240, 250. Three lectures per week. (Fall/Spring.)

CSCI 335 The C Programming Language (2)
An in-depth study of the C programming language. The capabilities and limitations of the language are learned by actual C program writing. Prerequisite: CSCI 330. Two lectures per week. (Alternate, Spring.)

CSCI 341 Analog and Digital Computer Electronics (3)
Basic elements and technologies used to fabricate analog and digital computers; lab experience in constructing simple computer subsystems. Theory and application of hybrid computers. Prerequisite: CSCI 240. Three lectures per week. (Fall/Spring.)

CSCI 350 ADA Programming (3)
An introduction to the ADA programming language. The advanced concepts of the language: subprograms, packages, exceptions, tasks, generics and software engineering will be stressed. Prerequisite: CSCI 330. Three lectures per week. (Spring.)

CSCI 373 Computer Software Systems (3)
Assembly systems, macros, I/O programming, executive systems, protection techniques, generation and maintenance, priority and scheduling techniques for batchprocessing. Prerequisite: CSCI 240, CSCI 250. Three lectures per week. (Fall/Spring.)

CSCI 380 Operations Research (3)
Methods of linear and dynamic programming; inventory and replacement models; queing theory; game theory; PERT and CPM and simulation. Prerequisites: MATH 152, STAT 200, CSCI 131. Three lectures per week. (Spring/Odd Years Only.)

CSCI 445 Computer Graphics (3)
Use of the computer to produce images. One, two, and three, dimensional graphics. Algorithms and data structures for hidden lines and surfaces, shading and reflections. Prerequisites: MATH 265, and CSCI 250. Three lectures per week. (Fall.)

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. (Fall/Spring.)

CSCI 460 Data Base Design (3)
An introduction to the design and implementation of data base systems. The network, hierarchical, and relational approaches to design will be discussed. Also, the problems of security and integrity will be described. Prerequisite: CSCI 250. Three lectures per week. (Fall/Spring.)

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 373. Three lectures per week. (Fall/Spring.)

CSCI 494 Seminar (1, 2)
Seminars conducted by faculty, students and visiting professors. A total of fifteen hours needed for one seminar credit. (Fall/Spring.)

CSCI 495 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. (Fall/Spring.)

Dental Auxiliary and Expanded Function

(School of Nursing and Allied Health)

DENT 110 Orientation to Dentistry (3)
An introduction to the dental health profession. Concepts introduced include the dental health team, history of dentistry, professional organizations, ethics and jurisprudence, and an introduction to clinical dentistry.

DENT 112 Dental Science I (3)
A study of head and neck anatomy, dental histopathology and embryology, dental anatomy and tooth morphology.

DENT 113 Radiology I (2)
An introduction to dental radiography with an emphasis on radiation safety. The focus of the course is on the principles and the need for proper safety precautions.

DENT 118 Preventative Dentistry (3)
Introduction to the basic principles of proper oral hygiene, the roles of plaque and calculus as etiological factors in common oral diseases and basic components of a plaque control program. Students will be required to design a control program for community and office use.

DENT 120 Dental Science II (2)
Anatomy of individual teeth in both the maxillary and mandibular arch. An introduction to oral diseases, clinical characteristics, etiological factors, processes and effects of disease, as well as treatment.

DENT 130 Chairside I (2)
DENT 130L Chairside I Lab (2)
Introduction to basic chairside procedures, dental equipment, laboratory procedures and preventative dentistry. Students will gain a knowledge of instruments, tray set-ups and procedures, and basic public relations of dealing with dental patients during reception, operative procedures and education.

DENT 140 Dental Materials I (2)
DENT 140L Dental Materials I Lab (2)
A comprehensive study of all materials as used in the practice of dentistry. 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 155 Radiology II (1)
DENT 155L Radiology II Lab (1)
Emphasizes exposure angulation and evaluation of films. Techniques for patient management that will facilitate increased proficiency in exposing radiographs.

DENT 160 Dental Office Procedures (2)
DENT 160L Dental Office Procedures Lab (1)
Designed to give the student sufficient knowledge to maintain appointment control and recall systems, place and receive telephone calls, record financial transactions, maintain a bookkeeping system (pegboard, computer), complete insurance forms and maintain a supply inventory.

DENT 190 Clinical Dentistry (2)
DENT 190L Clinical Dentistry Lab (2)
DENT 190E Clinical Dentistry Clinic (9)
Classroom and laboratory instruction in dental specialties. This includes armamentarium and chairside procedures, manipulation of materials and application of radiographic procedures specific to the various specialties. Also includes clinical experiences in community dental offices.

DENT 201 Advanced Odontology (1)
A detailed study of tooth morphology and anatomy which includes occlusal patterns and their relationship to restorative dentistry.

DENT 206 Expanded Functions Dental Assistant (EFDA I) (2)
DENT 206L EFDA I Lab (3)
DENT 206E EFDA I Clinic (2)
An introduction to expanded functions, includes modules on expanded functions in each dental specialty, introduction to restorative expanded functions. Clinical component in dental specialties.

DENT 210 Expanded Functions Dental Assistant II (EFDA II) (2)
DENT 210E EFDA II Clinic (4)
Leadership theories and team management in a dental practice are presented. Clinical experience under supervision placing, carving and finishing amalgam and composite restorations.

Economics

(School of Social and Behavioral Sciences)

ECON 201 Principles of Macroeconomics (3)
ECON 202 Principles of Microeconomics (3)
A survey of basic concepts of economics. Not open to freshmen. Must be taken in sequence. (Fall/Spring.)

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 BBA candidates. (Spring.)

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 BBA candidates. (Fall.)

ECON 312 Economic History of the United States (3)
Traces the economic development of the United States and the nation's economic institutions from the colonial period to the present. Prerequisites: ECON 201, 202 or HIST 131, 132 or permission of the instructor. (Fall.)

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. (Fall, 1986.)

ECON 395 Independent Study (1, 2)
Prerequisites: six hours of economics and permission of the instructor. (Fall/Spring.)

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 BBA candidates. (Spring.)

ECON 410 Public Finance (3)
A study of revenue and expenditure policies of governments and their relation to the national economy. Prerequisite: ECON 201, 202 or equivalent. Counts as a Management course for BBA candidates. (Fall.)

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. (Spring, 1986.)

ECON 442 Intermediate Macroeconomic Theory (3)
Theory of national income and employment. Primary emphasis placed on the description and use of macroeconomic models. Prerequisites: ECON 201, 202 or permission of the instructor. (Fall.)

ECON 443 Intermediate Microeconomic Theory (3)
Production, price and distribution theory. Primary emphasis placed on theories under conditions of varying market structures. Prerequisites: ECON 201, 202 or permission of the instructor. (Spring.)

ECON 496 Topics (3, 3)
Coursework in the various fields of Economics. Semester topics will vary: e.g., Natural Resource Economics, Comparative Economic Systems, Radical Political Economy. Prerequisites: ECON 201, 202 or equivalent. (Spring, 1987.)

Education

(School of Social and Behavioral Sciences)

EDUC 221 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. (Fall.)

EDUC 222 Introduction to the Classroom (3)
A basic course for the future educator. The student is placed in a local school to observe and take part in the educational process. Prerequisite: Education 221. (Fall.)

Education, Early Childhood

(School of Social and Behavioral Sciences)

ECED 100 Parent Education and Preschool (1)
Parents learn and practice parenting skills in a preschool situation. Enrollment of both parent and child are required. (Fall/Spring.)

ECED 110 Infant and Toddler Curriculum (2)
Includes curriculum for the age group 0-2½ years. Emphasis is placed on maintaining healthful, safe environmental activities to stimulate social, language, emotional, intellectual, and physical development. (Fall.)

ECED 111 Curriculum in Early Childhood Education (3)
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. (Spring.)

ECED 121 Introduction to Early Childhood (2)
Acquaints 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. Licensing and health regulations for children's centers are considered in this course. (Fall.)

ECED 196 Topics (1)
Designed to allow for flexible scheduling of various topics in Early Childhood Education. (On Demand.)

ECED 252 Student Teaching (5)
Students spend a minimum of three hours per day working in licensed centers under a qualified teacher. Students are also supervised by a college instructor, with conference periods and evaluation of student's progress. (Fall/Spring.)

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. (Spring.)

ECED 295 Independent Study (1, 2)
Prerequisite: Permission of instructor. (Fall/Spring.)

Electric Lineman

(School of Industry and Technology)

ELIN 111 Mathematical Basic Electricity (5)
Emphasis is placed on mathematical formulas used in voltage, amperage, resistance, and power determination; also, metering problems, power factor correction, and line design problems are studied. (Fall.)

ELIN 120 Fundamentals of Electricity (5)
A study of the generation, transmission, and distribution of electricity, beginning with the basic unit the electron and its function, which is to transport electric power to homes and industry. (Fall.)

ELIN 131 Electrical Distribution Theory I (4)
Covers pole setting techniques, framing methods and specifications, climbing, sagging and splicing of conductors, energizing and deenergizing of lines, and installation of protective grounds. (Fall.)

ELIN 132 Electrical Distribution Theory II (6)
Installation and operation of protective equipment, transformer hookups, voltage regulation, hotstick maintenance, troubleshooting, and gloving from the pole. (Spring.)

ELIN 136 Related Fundamentals I (4)
Examination of the national electric safety code, truck maintenance, equipment operation, material records, electrical test meters, and introduction to tranformers. (Fall.)

ELIN 137 Related Fundamentals II (6)
First aid, meter safety, connector installation, street lighting, rubber coverup, and public relations are studied. (Spring.)

ELIN 140 Underground Procedure (5)
Safety practices, terminology, fault finding, cable locating, switching procedure, installation of terminal devices, splicing and transformer application. (Spring.)

ELIN 145 Hotline Procedures (3)
Two weeks of training by outside specialists in hotline maintenance and underground installation. (Spring.)

ELIN 195 Independent Study (1, 2)
Specialized studies related to student's field of training beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration. Prerequisite: Second semester standing or consent of instructor. (Fall/Spring.)

Electronics Technology

(School of Industry and Technology)

ELEC 117 DC Passive Circuits (3)
ELEC 117L DC Passive Circuits Lab (1)
Basic DC circuits with resistors, capacitors and inductors. Applications of Ohm's and Kirchhoff's laws, and use of standard test equipment. Co-requisite: ETEC 101 or MATH 113 or consent of instructor. (Fall.)

ELEC 118 AC Passive Circuits (3)
ELEC 118L AC Passive Circuits Lab (1)
Analysis of AC Circuits containing resistors, capacitors and inductors and use of standard test equipment. (Fall.)

ELEC 121 Shop Processes I (1)
ELEC 121L Shop Processes I Lab (1)
Soldering and circuit construction techniques. Requires the purchase of electronic components for class project. Prerequisite: ELEC 118 or consent of instructor. (Fall.)

ELEC 153 Solid State I (3)
ELEC 153L Solid State I Lab (1)
Analysis of solid state diodes and bipolar transistor amplifier circuits. Prerequisite: ELEC 118 or consent of instructor. (Spring.)

ELEC 154 Solid State II (3)
ELEC 154L Solid State II Lab (1)
Analysis of field effect transistor amplifier circuits, amplifier frequency response, thyristors, unijunction transistors, optoelectronic devices, and circuits. Prerequisite: ELEC 153 or consent of instructor. (Spring.)

ELEC 230 Electronic Troubleshooting (2)
ELEC 230L Electronic Troubleshooting Lab (2)
Troubleshooting of electronic circuits to include power supplies, multistage transistor amplifiers, operational amplifiers and digital circuits. Prerequisite: ELEC 154 or consent of instructor. (Spring.)

ELEC 254 Industrial Circuits (3)
ELEC 254L Industrial Circuits Lab (1)
Solid state circuits in industrial control circuits. Prerequisite: ELEC 154 or consent of instructor. (Spring.)

ELEC 256 Communication Circuits I (3)
ELEC 256L Communication Circuits I Lab (1)
Covers the applied aspects of electronic communication technology in circuits, systems and transmission. Prerequisite: ELEC 154 or consent of instructor. (Fall.)

ELEC 257 Communication Circuits II (3)
ELEC 257L Communication Circuits II Lab (1)
Continuation of ELEC 256. Prerequisite: ELEC 256 or consent of instructor. (Spring.)

ELEC 265 Digital Circuits I (3)
ELEC 265L Digital Circuits I Lab (1)
Binary logic, combinational design and minimization. Introduction to sequential circuits. Introduction to digital computer principles. Prerequisite: ELEC 154 or consent of instructor. (Fall.)

ELEC 266 Microprocessors I (3)
ELEC 266L Microprocessors I Lab (1)
The 6800 microprocessor is used to teach machine language programming, computer arithmetic, organization of microprocessors, interfacing and input/output operations. Prerequisite: ELEC 265 or consent of instructor. (Spring.)

ELEC 270 Linear Integrated Circuit Applications (3)
ELEC 270L Linear Integrated Circuit Applications Lab (1)
Differential and operational amplifier circuitry, feedback configurations, op-amps errors, compensations, and applications. Prerequisite: ELEC 154 or consent of instructor. (Spring.)

ELEC 275 Digital Circuits II (3)
ELEC 275L Digital Circuits II Lab (1)
Continuation of ELEC 265. Prerequisite: ELEC 265. (Fall.)

ELEC 276 Microprocessors II (3)
ELEC 276L Microprocessors II Lab (1)
Covers operation of the Apple computer, additional interfacing, ROM programming, and introduction to 16 bit microprocessors. Prerequisite: ELEC 266 or consent of instructor. (Spring.)

ELEC 295 Independent Study (1, 2)
Specialized studies in an area related to the electronics field, but which is beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration for the course. Prerequisite: Sophomore standing. (Fall/Spring.)

Engineering

(School of Natural Sciences and Mathematics)

ENGR 105 Basic Engineering Drawing (2)
ENGR 105L Basic Engineering Drawing Lab (1)
Fundamentals of drawing including 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 lab sessions per week. (Fall/Spring.)

ENGR 111 Engineering Graphics and Design (3)
An introduction to basic problem-solving techniques as used in engineering and the sciences. Topics covered include graphics, modeling, experimental methods, data analysis, value judgments, design processes, and decision-making in realistic engineering situations. Prerequisite: ENGR 105 and ETEC 105 or MATH 130, or equivalents. Three lectures per week. (Fall/Spring.)

ENGR 159 Energy and Society (3)
A survey of energy and modern energy production technology for nonengineering students. Topics include oil, natural gas, coal, hydropower, solar, wind, geothermal, biomass, nuclear, thermonuclear, MHD and ocean energy sources together with their impact on society. Prerequisite: MATH 113 or equivalent. Three lectures per week. (Fall/Spring.)

ENGR 230 Topographical Surveying (2)
ENGR 230L Topographical Surveying Lab (1)
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 130 or consent of instructor. Two lectures and two two-hour lab sessions per week. (Fall/Spring.)

ENGR 231 Surveying I (2)
ENGR 231L Surveying I Lab (1)
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 130 or consent of instructor. Two lectures and two two-hour lab sessions per week. (Fall/Spring.)

ENGR 232 Surveying II (2)
ENGR 232L Surveying II Lab (1)
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 lab sessions per week. (Fall/Spring.)

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. Prerequisites: MATH 152 and PHYS 221. Corequisites: MATH 253 and PHYS 222. Three lectures per week. (Fall/Spring.)

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. (Fall/Spring.)

ENGR 251, 252 Circuit Analysis I, II (3, 3)
ENGR 251L, 252L Circuit Analysis I, II Lab (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 one-hour lab sessions per week. (Fall/Spring.)

ENGR 253 Electromechanical Devices (2)
Operating principles and analysis of electromechanical devices including transformers, motors and generators. Prerequisite: ENGR 251. Two lectures per week. (Fall/Spring.)

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. (Fall/Spring.)

ENGR 295 Independent Study (1, 2)
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. (Fall/Spring.)

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. (Fall/Spring.)

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. Prerequisite: ETEC 101. Four lectures per week. (Fall/Spring.)

ETEC 120 Engineering Economics (3)
Methods of determining, evaluating, and controlling economic factors in engineering projects and designs. Three lectures per week. (Fall/Spring.)

ETEC 125 Soils Testing and Design (2)
ETEC 125L Soils Testing and Design Lab (1)
Properties of soils with compaction, consistency, classification, moisture, frostaction, permeability, strength, lateral pressures, bearing capacity, piling foundations, soil exploration, spread-footings, subgrades and pavements. Earth dams. Prerequisite: MATH 020 or high school algebra. Three lectures and two one-hour lab sessions per week. (Fall/Spring.)

ETEC 158 Architectural (Buildings) Drafting I (2)
ETEC 158L Architectural (Buildings) Drafting I Lab (1)
Architectural fundamentals of perspective drawings, shadows and architectural rendering. Symbols, use of templates and special equipment. Working drawings and specifications. Corequisite: ENGR 111. Three lectures and three one-hour lab sessions per week. (Fall/Spring.)

ETEC 162 Architectural (Mechanical and Electrical) Drafting II (2)
ETEC 162L Architectural (Mechanical and Electrical) Drafting II Lab (1)
The mechanical and electrical aspects of architecture, including plumbing, heating, ventilating, air conditioning, solar effects, lighting, and wiring. Prerequisites: ETEC 158 and ENGR 105, or high school drafting. Three lectures and three one-hour lab sessions per week. (Fall/Spring.)

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 and ETEC 102. Three lectures per week. (Fall/Spring.)

ETEC 223 Concrete Testing and Design (2)
ETEC 223L Concrete Testing and Design Lab (1)
An introduction to cement, aggregates, selection and design of concrete mixtures, and sampling and testing procedures. Corequisite: ETEC 242. Three lectures and two one-hour lab sessions per week. (Fall/Spring.)

ETEC 230 Piping Design (2)
ETEC 230L Piping Design Lab (1)
Methods employed in design and lay-out of piping for storm drainage, sewage, irrigation, power plants, and industrial plants. Prerequisite: ETEC 101. Three lectures and three one-hour lab sessions per week. (Even, Spring.)

ETEC 240 Timber and Steel Design (3)
Design of structures composed of steel and timber members. Prerequisites: ETEC 102 and 241. Corequisite: ETEC 242. Three lectures per week. (Fall/Spring.)

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. (Fall/Spring.)

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. (Fall/Spring.)

ETEC 245 Fluid Mechanics and Hydraulics (2)
ETEC 245L Fluid Mechanics and Hydraulics Lab (1)
Properties of fluids, viscosity, steady, laminar and turbulent flow. Reynolds number. Hydrostatic pressure on submerged plane surfaces. Bernouli's energy theoerm. 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 lab sessions per week. (Fall/Spring.)

ETEC 251 Electronics Drafting and Design I (2)
ETEC 251L Electronics Drafting and Design I Lab (1)
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 111 or consent of instructor. Three lectures and three one-hour lab sessions per week. (Fall/Even Years Only.)

ETEC 252 Structural Drafting (2)
ETEC 252L Structural Drafting Lab (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: ENGR 111 or consent of instructor. Corequisite: ETEC 242. Three lectures and three one-hour lab sessions per week. (Fall/Odd Years Only.)

ETEC 253 Topographical and Civil Drafting & Design (2)
ETEC 253L Topographical and Civil Drafting & Design Lab (1)
A study of the history, fundamentals, and methods of mapmaking. Prerequisite: ENGR 111 and either ENGR 230, ENGR 231, or consent of instructor. Three lectures and three one-hour lab sessions per week. (Fall/Spring.)

ETEC 254 Piping Drafting (2)
ETEC 254L Piping Drafting Lab (1)
Helps develop skills in designing and drawing piping and plumbing systems ranging from an industrial to a residential scope. Prerequisite: ENGR 111 or consent of instructor. Three lectures and three one-hour lab sessions per week. (Fall/Spring.)

ETEC 255 Electronics Drafting and Design II (2)
ETEC 255L Electronics Drafting and Design II Lab (1)
Drafting and artwork techniques used in the design of printed circuit boards. Also included are the design and detail considerations for the remaining parts of the electromechanical systems as well as the basics of printed circuit board logic. Prerequisites: ETEC 251 and 251L. Three lectures and three one-hour lab sessions per week. (Spring/Odd Years Only.)

ETEC 256 Machine and Electrical Drafting (2)
ETEC 256L Machine and Electrical Drafting Lab (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 111. Corequisite: ETEC 242. Three lectures and three one-hour lab sessions per week. (Spring/Even Years Only.)

ETEC 257 Electrical Power Systems (3)
Basic principles concerning the production, distribution, control, conversation and measurement of electrical power. Prerequisite: ETEC 102. Three lectures per week. (Spring/Odd Years Only.)

ETEC 295 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. (Fall/Spring.)

English

(School of Humanities and Fine Arts)

Skills

ENGS 101, 102, 103 English Skills (Modular Concept)
Designed for students who have specific deficiencies in one or more of the following: (On Demand.)

ENGS 101: Basic Grammar (Module 1) ..... (1)
ENGS 102: The Sentence (Module 2) ..... (1)
ENGS 103: Punctuation (Module 3) ..... (1)

ENGS 106, 107 Vocational Communications (3, 3)
Designed for students enrolled in the School of Industry and Technology. Emphasis on business communications. Meets requirements for the AAS degree. (Fall/Spring.)

ENGS 110 English Grammar (3)
Review of grammar and usage. Students with ACT scores of 13 or below in English must enroll in ENGS 110 before ENGS 111. All students must take ENGS 111, 112 to meet general education requirements. (Fall/Spring.)

ENGS 111, 112 English Composition (3, 3)
These Freshman English classes are designed to aid the student in learning effective communication of ideas. Steps of writing clear, concise and well-planned papers are stressed. The student is presented with theory and strategy of research and critical writing, two skills necessary as one progresses toward a college degree. (Fall/Spring.)

ENGS 115 Technical Writing (3)
An intensive second-semester freshman composition course designed to give students experience with writing they may encounter in technicial professions. Requires the traditional research paper, a technical report, graph with text, questionnaire, description or definition, application letter and resume, and technical speech. Prerequisite: ENGS 111. (Fall/Spring.)

ENGS 121 English: Spelling/Vocabulary (3)
Spelling improvement based on 600 most commonly misspelled words. Emphasis is on basic rules and pronunciation. Vocabulary has emphasis on Greek and Latin roots, prefixes and suffixes. (On Demand.)

ENGS 126, 127 Honors English (3, 3)
Designed for students whose high school records and ACT scores are in the 85th percentile or higher. Concentration: sentence structure, patterns of organization, panel discussions, impact of scientific thought on the humanities and fine arts. Requirements during the two semesters include critical reviews, a short thesis, a long research paper, and an essay involving a critical analysis of a novel. (Fall.)

Writing

ENGW 251 Creative Writing: Formulas in Fiction (3)
The art of creating fiction through the design of the short story and narrative by studying Literary Constructs. (Fall.)

ENGW 252 Creative Writing: Style in Fiction (3)
Stylistic methods are studied through the creation of short works and continued focus on Literary Constructs. (Spring.)

ENGW 394 Seminar (3)
Professional writing through the creation of magazine fiction and non-fiction.

Literature

ENLA 261, 262 United States Literature (3, 3)
Development of American literature from 17th century to the present. (Fall/Spring.)

ENLA 316 American Novel (3)
Distinctive American novels, from beginning to present. (Fall.)

ENLA 318 Frontier American Literature (3)
A survey of historical themes in American literature and a study of literary realism and the West which paved the way for the pervasive theme of contemporary literature: the social rebel. (Spring.)

ENLA 411 American Drama (3)
A study of American plays from the first American playwright to the plays of today. (Spring.)

ENLA 415 American Folklore (3)
Introduction to American folklore with an emphasis on collecting Colorado and especially Western Colorado lore. (Spring.)

ENLA 416 Contemporary American Poetry (3)
Survey of contemporary American poets since 1940. (On Demand.)

ENLA 445 American Poetry from 1870 to 1940 (3)
A survey of traditionalist and experimental schools in American Poetry from 1870 to 1940. Poets studied will include Whitman, Robinson, Sandburg, Masters, Stevens, Frost, Williams, Cummings, Crane, Moore, Jeffers, Eliot and MacLeish. (Fall.)

ENLE 254, 255 English Literature (3, 3)
From Beowulf to the present. (Fall/Spring.)

ENLE 350 Chaucer (3)
A study of the major works of the 14th century poet. (Spring.)

ENLE 355 Shakespeare (3)
The study of both early and mature plays, including genres of comedy, history, tragedy, and romance. Emphasis will be on close textual reading in conjunction with cultural and intellectual contexts. (Fall.)

ENLE 360 Milton (3)
Survey of thought and poetry of John Milton. (Fall.)

ENLE 370 18th Century English Literature (3)
The writers will be selected from such figures as Burke, Fielding, Defoe, Gay, Pope, Swift, Johnson and Dryden. (Spring.)

ENLE 380, 381 19th Century British Literature (3, 3)
A study of 19th century British literature based upon representative works of major poets, novelists, and prose writers. ENLE 380 encompasses Romantic Period writers and Early Victorians to 1850; ENLE 381, Late Victorian writers through the eighteen nineties. Prerequisite: 6 hours of literature. (Fall/Spring.)

ENLE 382 The Romantics (3)
Explores humanities deepest, personal feelings, the world, and God in order to discover a higher reality than that offered by materialism or rationalism. American and British authors represented: Irving, Cooper, Bryant, Poe, Longfellow, Whittier, Blake, Coleridge, Wordsworth, Bryon, Shelly and Keats. (On Demand.)

ENLE 410 The British Novel (3)
Survey of the themes and styles of representative novelists of British literature, including the works of Defoe, Fielding, Conrad, Dickens, Lawrence, Bronte, Austen and Huxley. (Spring.)

ENLE 435 17th Century English Literature (3)
Survey of the poetry and prose of the 17th century, including the works of Donne, Herbert, Vaughan, and Crashaw and the works of the cavalier poets (Herrick, Carew, Suckling and Lovelace). (Fall.)

ENLW 131, 132 World Literature (3, 3)
Survey of major works of Western literature. ENLW 131, Classical, Medieval and Renaissance periods including Homer and Dante; ENLW 132, post-Renaissance through modern periods including Goethe and Cervantes. (Fall/Spring.)

ENLW 134 Mythology (Classical) (3)
Study of the basic myths of the Greeks and Romans, the cultures that produced them and modern concepts of the classical tradition. (Fall.)

ENLW 135 Mythology (Medieval) (3)
Survey of Ancient, Oriental, Northern and Medieval myths, the cultures that produced them and concepts of them in today's society. (Spring.)

ENLW 141 Introduction to Literature—Fiction (3)
A structural approach to short stories and novels, by American, English and European authors of the 19th and 20th centuries. (Fall/Spring.)

ENLW 142 Introduction to Literature—Poetry (3)
A study of the techniques of literature as used by the poets from ancient to modern times. (Fall/Spring.)

ENLW 143 Introduction to Literature—Drama (3)
Reading of dramatic literature from the Greeks to the modern dramatists. (Spring.)

ENLW 145 Introduction to Oriental Literature (3)
Prose, poetry, and plays of early India, China, and Japan. (Spring.)

ENLW 324 Short Story (3)
Introduces the genre of the short story; provides the history and examples of short stories which reveal the development of plot, setting, character, symbol, point of view, theme, humor, satire, and fantasy. (Fall.)

ENLW 326 World Drama I (3)
Survey of drama: Greek through Elizabethan. ENLW 326 and 327 may count for either Humanities or Fine Arts requirement for the Bachelor of Arts degree in Liberal Arts. (Fall.)

ENLW 327 World Drama II (3)
Continuation of ENLW 326. (Spring.)

ENLW 330 Women in World Thought and Literature (3)
World literature by and about women: fiction, mythology, drama, essays in sociology, philosophy, psychology, and religion. (Fall.)

ENLW 335 The Bible as Literature (3)
Study of the Old Testament as a literary masterpiece. (Fall.)

ENLW 340 Classical Literature in Translation: The Greek Tradition (3)
Readings in English of outstanding Greek authors. Major classical genres emphasizing the development of epic, comedy, tragedy, and lyric poetry against the background of Greek history, philosophy, and religion. (Fall.)

ENLW 341 Classical Literature in Translation: The Latin Tradition (3)
Works by Virgil, Ovid Lucretius, Petronius, Terence and Plautus, Horace and Catullus in English translation are considered in the light of the humane and religious tradition of Europe. (Spring.)

ENLW 413 Contemporary Drama (3)
A study of the realistic and absurd playwrights of the world within the past 25 years. (Fall.)

Special Studies

ENSS 240 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. (Fall.)

ENSS 295 Independent Study (1, 2, 3)
Student may work with a faculty member in English or literature. Prerequisite: Consent of instructor and 6 semester hours of English. (On Demand.)

ENSS 365 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. (Spring.)

ENSS 395 Independent Study (1, 2, 3)
See ENSS 295. Prerequisite: Consent of instructor and 8 semester hours of English. (On Demand.)

ENSS 421 History of Literary Criticism (3)
The development of literary criticism from the classical period through the 19th century emphasizing the relationship between criticism and tradition in developing the art and substance of western literature. (Fall.)

ENSS 422 Forces in Contemporary Criticism (3)
A study of 20th century critics, critical schools and theories. (On Demand.)

ENSS 424 Literature and Science (3)
Study of literature's relations with science affecting the fine arts, social thought, and value. (Spring.)

ENSS 440 History of the English Language (3)
The historical development of English which provides a sound basis for understanding modern English through its inflectional, grammatical, syntactical and social influences. (Spring.)

ENSS 450 Linguistics (3)
Covers the basic principles of and provides practice in language analysis and description in the areas of phonology, morphology and syntax. Covers language universals, semantics, sociolinguistics, applied linguistics, historical linguistics and field linguistics. (Spring.)

ENSS 455 Methods of Teaching English (3)
Introduction to the theory and practice of teaching English in the junior and senior high schools: current techniques, materials, media for the teaching of composition, literature and the English language. Prerequisite: Senior standing in the teacher certification program. (Spring.)

ENSS 496 Topics (3)
Special topics in literature. Prerequisite: Upper-division standing. (On Demand.)

Finance

(School of Business)

BUFN 338 Fundamentals of Investments (3)
An introductory course designed to provide basic information with regard to the investment environment, the valuation of equity securities, portfolio theory and the analysis of investments other than equity securities. Prerequisites: Junior standing or consent of instructor.

BUFN 339 Managerial Finance (4)
Acquisition, allocation, and management of funds within the business enterprise. Financial goals, funds flows, capital budgeting and financing strategies. Prerequisites: BUAC 202, MATH 121, STAT 214. (Fall.)

BUFN 439 Problems in Managerial Financie (3)
Case studies and readings in financial management involving concepts, practices and techniques introduced and developed in BUFN 339. Prerequisite: BUFN 339. (Spring.)

BUFN 441 Theory of Financial Management (3)
Financial theory pertaining to capital structure, dividend policy, valuation, cost of capital and capital budgeting. Prerequisite: BUFN 339. (Spring.)

Fine Arts

(School of Humanities and Fine Arts)

FA 101 Man Creates (3)
An interdisciplinary survey of human creative efforts as they relate to each other. Art, drama and music are compared, with similarities stressed. (Fall/Spring.)

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 in relation to economics, politics and religion. (Fall/Spring.)

FA 402 Arts Management (3)
(On Demand.)

FA 494 Seminar (3)
Theory and practice of arts criticism. (Fall.)

FA 499 Internship **(8, 15)**
Part or full-time work in various aspects of arts management. Sites may include galleries; musical, theatrical or other performing organizations; arts centers or other situations that meet the instructors approval. Half-time equals 8 credit hours/full-time equals 15 credit hours. Prerequisite: Junior standing in visual or performing arts; may also require selected courses in business, social science, etc. as may be appropriate to the internship sought. (Summer/Fall/Spring.)

Foreign Languages

(School of Humanities and Fine Arts)

French

FLAF 111, 112 First-Year French **(3, 3)**
An introduction to the French language and culture. (On Demand.)

FLAF 251, 252 Second-Year French **(3, 3)**
Grammar review, vocabulary distinction and readings in the French language. Prerequisites: Two years of high school French; FLAF 111, 112, or permission of instructor. (On Demand.)

German

FLAG 111, 112 First-Year German **(3, 3)**
An introduction to the German language. (Fall/Spring.)

FLAG 251, 252 Second-Year German **(3, 3)**
Grammar review, vocabulary distinction and readings in the German language. Prerequisites: Two years of high school German; FLAG 111, 112; or permission of instructor. (On Demand.)

FLAG 295 Independent Study **(1, 2)**
Offered with consent of instructor. (On Demand.)

Spanish

FLAS 111, 112 First-Year Spanish **(3, 3)**
A beginning program designed to develop basic competency in understanding, speaking, reading and writing for the student who simply wants to travel as well as for the student who wants to fulfill a college foreign language requirement. (Fall/Spring.)

FLAS 114, 115 Conversational Spanish **(3, 3)**
A beginning level class for evening adult students who wish to develop a basic vocabulary for speaking and understanding Spanish socially, on the job or south of the border. (Fall/Spring.)

FLAS 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 air transportation; agriculture; automotive services; business; child care; education; engineering; geology; hotel, motel, restaurant and resort management; law enforcement; pre-dentistry; nursing; pre-medicine; ranching; retail sales; social work; and travel, recreation and hospitality management. (Fall/Spring.)

FLAS 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. Prerequisite: Two years of high school Spanish; FLAS 111, 112, or permission of the instructor. (Fall/Spring.)

Other Languages

FLAN 295, 395 Independent Study **(1, 2, 3)**
Currently offered through Outreach are: Ancient Greek, Latin, Portuguese, Russian and advanced French, German and Spanish. See Outreach catalog. (With availability of instructor, On Demand.)

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. (Fall/Spring.)

Geology

(School of Natural Sciences and Mathematics)

GEOL 100 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. (Spring.)

GEOL 101, 102 Introduction to Geology **(4, 4)**
GEOL 101L, 102L Introduction to Geology Lab **(1, 1)**
Deals with the earth and its origin, structure, composition, atmosphere and hydrosphere. Includes physical changes, evolution of life, astronomy, meterology and lab work with rocks, minerals, fossils and topographic maps. Recommended for non-science students. Four lectures and one two-hour lab session per week. (Fall/Spring.)

GEOL 103 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 the earth's general air curculation, seasons, heating, cooling, air masses, and the formation and classification of clouds. Three lectures per week. (Fall.)

GEOL 105 Geology of Colorado **(3)**
Common rocks, minerals and geologic time scale with specific study of scenery, geology and natural resources of Colorado. One-day field trip is required. (Fall/Spring.)

GEOL 111 Principles of Physical Geology **(4)**
GEOL 111L Principles of Physical Geology Lab **(1)**
Deals with materials of the earth, landform processes and interaction between surface and interior. Includes lab studies of topographic maps, earthquakes, mountains, sea floor and plate tectonics. Four lectures and one two-hour lab session per week. (Fall.)

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. (Spring.)

GEOL 112L Principles of Historical Geology Lab (1)
Lab work employing topographic and geologic maps, reconstruction exercises and fossils to interpret regional and general geologic history. One two-hour session per week. (Spring.)

GEOL 201 Stratigraphy (2)
Lectures on the fundamentals of sedimentary rock classification, correlation, sedimentary environments and regional stratigraphic column. Prerequisite: GEOL 112 or consent of the instructor. Two lectures per week. (Fall.)

GEOL 201L Stratigraphy Lab (1)
Lab and field studies of sedimentary rock descriptions and field procedures with local sedimentary outcrops. Two one-day field trips required. One two-hour lab session per week. (Fall.)

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. (Spring.)

GEOL 295 Independent Study (1, 2)
Courses in which a student with a previously developed interest in and knowledge of a specialized subject can continue his or her own work. Combinations of conferences, reading, lab work, and field work. (Fall/Spring.)

GEOL 301 Earth Tectonics (3)
Lectures on the nature and origin of rock structures. Included are both local and large-scale deformation. Prerequisites: GEOL 111 and MATH 130. Three lectures per week. (Fall.)

GEOL 301L Earth Tectonics Lab (1)
Structural problems solved by graphical, geometrical and stereographic methods. Included is work with maps and cross sections. One two-hour session per week. (Fall.)

GEOL 310 Geologic Mapping and Illustration (3)
Lectures on plane table surveying and other methods of geologic mapping. Included are geologic maps, cross-sections, contours, profiles, rock symbols, and lettering aids. Some off-campus areas are mapped. Prerequisite: consent of instructor. Three lectures per week. (Fall.)

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: CHEM 131 or consent of instructor. Three lectures per week. (Fall.)

GEOL 331L Mineral Studies Lab (1)
Lab 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. (Fall.)

GEOL 333 Geology of the Grand Canyon (1)
Lectures on and field study of the historical geology of the Grand Canyon. Interpretation of the formations present and of the uplift and erosion of the canyon. A backpacking trip into the canyon is required. Prerequisite: GEOL 112. (Spring Break, On Demand.)

GEOL 340 Petrology (3)
Lectures on the origin, composition, and classification of igneous, metamorphic and sedimentary rocks. Prerequisite: GEOL 331. Three lectures per week. (Spring.)

GEOL 340L Petrology Lab (1)
Lab 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. (Spring.)

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 two semesters of chemistry, or consent of instructor. Two lectures per week. (Irregularly, On Demand.)

GEOL 360 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: CHEM 131 or consent of instructor. Five lectures per week. (Spring.)

GEOL 380 Field Studies (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 and GEOL 340. Four eight-hour field sessions and one eight-hour lab session per week. (Summer.)

GEOL 395 Independent Study (1, 2)
See Independent Study course description under GEOL 295. (Fall/Spring.)

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. (Fall.)

GEOL 402L Applications of Geomorphology Lab (1)
Lab 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 lab session or one four-hour field trip per week. (Fall.)

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. (Fall.)

GEOL 404L Geophysical Prospecting Lab (1)
Field work employing geophysical instruments and lab work interpreting data from various sources. One two-hour session per week. (Fall.)

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, 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. (Irregularly, On Demand.)

GEOL 411 Paleontology (2)
Lectures on the Taxonomy, morphology and geologic age of most groups of invertebrate fossils. Also included is recognition of depositional environments of rock formations based on the fossils present. Prerequisite: GEOL 201 or consent of instructor. Two lectures per week. (Spring.)

GEOL 411L Paleontology Lab (1)
Lab and field studies of fossils; their identification and geologic age. One one-day field trip required. One two-hour lab session per week. (Spring.)

GEOL 415 Introduction to Ground Water (2)
Includes relationship of ground water to other water sources, hydrologic cycle, water balance, hydrologic characteristics of rocks, hydraulics and equations defining flow and aquifer characteristics, ground water quality, techniques of exploration, and water law. Prerequisites: CHEM 121, CHEM 122 or CHEM 131, CHEM 132, MATH 130, and GEOL 331. Two lectures per week. (Irregularly, On Demand.)

GEOL 475 Petrography (2)
A comprehensive introduction to the petrographic microscope and its use in the description and classification of rocks. Prerequisites: GEOL 331, GEOL 340, and PHYS 212. Two lectures per week. (Irregularly, On Demand.)

GEOL 476 Optical Mineralogy and Petrography (2)
An introduction to the theories and principles of optical mineralogy and the use of the petrographic microscope in the description and classification of rocks. Prerequisites: GEOL 331, GEOL 340 and PHYS 212. Two lectures per week. (Spring.)

GEOL 476L Optical Mineralogy and Petrography Lab (2)
Lab analysis of samples in thin-section using the petrographic microscope and the techniques of optical mineralogy. Two two-hour lab sessions per week. (Spring.)

GEOL 495 Independent Study (1, 2)
See course description under GEOL 295. (Fall/Spring.)

GEOL 496 Topics (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. (Spring.)

Graphic Communications

(School of Industry and Technology)

GRCO 120 Basic 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. (Spring.)

GRCO 130 Basic Photography (2)
Development of skills in the production of black and white photography, including camera and printmaking techniques. Two hours lab per week. (Fall/Spring.)

GRCO 131 Photo Finishing (1)
Development of skills in the techniques of brush and airbrush photo retouching, image intensification and reduction on negatives and photo prints, and mounting and matting. Prerequisuite: GRCO-130. (Spring.)

GRCO 140 Basic Typesetting (1)
GRCO 140L Basic Typesetting Lab (3)
Study of basic typesetting functions with emphasis on operation of photo typesetting systems and production of camera-ready type. (Fall.)

GRCO 141 Advanced Typesetting (1)
GRCO 141L Advanced Typesetting Lab (3)
Study of advanced typesetting functions with emphasis on operation of photo typesetting systems and production of camera-ready type. (Spring.)

GRCO 220 Advanced Layout and Design I (3)
Given the necessary knowledge, skills, and techniques, the student will demonstrate an advanced understanding and working knowledge of advertising art and corporate commercial art through the design and production of layout projects using the various techniques and media applicable to advertising and corporate art production. Prerequisites: ART 151, GRCO 120. (Fall.)

GRCO 221 Advanced Layout and Design II (3)
Continuation of studies started in GRCO 220. The student will produce both realistic layouts and camera-ready artwork using the various techniques and media applicable to corporate commercial art, advertising commercial art, and illustration. Emphasis is placed on the production of projects equal to the standards of the commercial art industry, and on the many different aspects and areas involved in commercial design. Prerequisite: GRCO 220. (Spring.)

GRCO 230 Process Photography I (1)
GRCO 230L Process Photography I Lab (3)
Basic techniques of process camera work and darkroom procedures, including calibration, line work, photo mechanical transfer, flat preparation and platemaking. Four hours lab per week. (Fall.)

GRCO 231 Process Photography II (1)
GRCO 231L Process Photography II Lab (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. Four hours lab per week. (Spring.)

GRCO 240 Image Preparation I (1)
GRCO 240L Image Preparation I Lab (3)
Basics of camera-ready copy preparation for reproduction using composing machines and paste-up techniques. Four hours lab per week. Prerequisite: GRCO 140. (Fall.)

GRCO 241 Image Preparation II (1)
GRCO 241L Image Preparation II Lab (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 lab per week. Prerequisite: GRCO 240. (Spring.)

GRCO 250 Offset Press I (1)
GRCO 250L Offset Press I Lab (3)
Basic offset press operation; principles of offset including inks, fountain solutions, and plates; and maintenance of presses. Four hours lab per week. (Fall.)

GRCO 251 Offset Press II (1)
GRCO 251L Offset Press II Lab (3)
Advanced offset press operation, multiple-color printing, basics of paper-press relationships and a web offset press operation. Four hours lab per week. Prerequisite: GRCO 250. (Spring.)

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. (Spring.)

GRCO 270 Portfolio Construction (1)
By participating in class lectures, discussions and lab exercises, the student will learn to design, develop and assemble a portfolio which will be used as part of the student's employment materials. The student will apply knowledge and skills in preparing the portfolio format, devising and upgrading existing samples to be included, and the development of new samples for inclusion in the portfolio. Prerequisite: Sophomore Commercial Art students only. (Spring.)

GRCO 295 Independent Study (1, 2)
Specialized studies related to student's field of training beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration. Prerequisite: Sophomore standing or equivalent. (Fall/Spring.)

History

(School of Social 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. (Fall/Spring.)

HIST 120 History of Colorado (3)
Survey from pre-historic to modern times. (Fall/Spring.)

HIST 131, 132 United States History (3, 3)
Survey from the Colonial period to modern times. (Fall/Spring.)

HIST 136 Introduction to the Afro-American Experience (3)
A historical introduction to the Afro-American experience from beginnings in Africa to the present. (Fall,1985.)

HIST 137 Introduction to the Chicano Experience (2)
A historical approach to an initial study of the Chicano including consideration of Spanish and Indian backgrounds and the social, cultural, economic, and political roles of Chicanos in the United States since 1848. (Spring, 1986.)

HIST 205 Introduction to the Civilization of China and Japan (3)
Survey of the history of China and Japan from earlist times to the present. (Fall, 1985.)

HIST 206 The Civilizations of Western and Southern Asia (3)
An introduction to Islamic, Indian and Southeast Asian civilizations. (Spring, 1986.)

HIST 300 History of England (3)
A survey of English history from ancient times to the opening of the Modern period. Prerequisites: HIST 101, 102, or equivalents or permission of the instructor. (Fall, 1986.)

HIST 310 Latin American Civilization (3)
A study of the historical development of Latin America from Pre-Columbian times to the present. Prerequisite: HIST 102 or permission of the instructor. (Fall, 1985.)

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. Prerequisites: HIST 131, 132, or HIST 125, 126 or equivalents or permission of instructor. (Spring, 1987.)

HIST 330 History of Modern Europe (3)
History of modern Europe from the Congress of Vienna (1814) to the present. Prerequisites: HIST 101, 102 or permission of the instructor. (Spring, 1987.)

HIST 332 History of Modern Warfare (3)
A study of war, its causes, consequences and impact on history from the 18th century to the present day. (Fall, 1986.)

HIST 340 History of the Islamic World (3)
A study of the origins, spread and influence of the Islamic world, including the Middle East and North Africa with emphasis on its position in modern world affairs. Prerequisites: HIST 101, 102 or permission of instructor. (Spring, 1986.)

HIST 342 The Age of Jefferson and Jackson (3)
A study of social and intellectual developments in America from 1800-1850 with special emphasis on the influences of President Thomas Jefferson and Andrew Jackson. Prerequisites: HIST 131, 132 or permission of instructor. (Fall, 1986.)

HIST 344 The Age of Industry in America (3)
Designed to introduce history majors and other interested persons to the social, intellectual, and political events in the United States from the end of the Civil War to the beginning of the Great Depression. Prerequisites: HIST 131, 132 or permission of instructor. (Fall, 1985.)

HIST 346 History of Modern America (3)
Designed to introduce history majors and other interested persons to the social, intellectual, and political events in the United State from the Great Depression to the present. Prerequisites: HIST 131, 132 or permission of instructor. (Spring, 1986.)

HIST 395 Independent Study (1, 2)
Prerequisites: 6 hours of history and permission of the instructor. (Fall/Spring.)

HIST 400 The Soviet Union and Eastern Europe (3)
The history of imperial Russia, the Soviet Union and Eastern Europe from 1900 to the present. Prerequisite: HIST 102 or permission of instructor. (Spring, 1986.)

HIST 401 East Asia: The Formative Period (3)
A study of the history of China, Japan, Korea and Vietnam before the coming of the West. Prerequisites: HIST 205 or permission of the instructor. (Fall, 1986.)

HIST 403 East Asia and the Modern World (3)
A history of China, Japan, Korea and Vietnam since 1840. Prerequisites: HIST 205 or permission of instructor. (Spring, 1987.)

HIST 404 Introduction to Historical Research (1)
An introduction to history-specific research with emphasis on utilization of primary documents and practice in the conduct of research and reporting results. (Fall.)

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. Prerequisites: HIST 131, 132 or equivalents or permission of instructor. (Spring, 1986.)

HIST 420 Civil War and Reconstruction (3)
A study of the causes and outcomes of the American Civil War and reconstruction periods. Prerequisites: HIST 131, 132 or permission of instructor. (Spring, 1987.)

HIST 430 The Ancient Mediterranean World (3)
A study of the Mediterranean world from pre-classical times to the fall of the Roman Empire. Prerequisites: HIST 101, 102 or permission of instructor. (Fall, 1985.)

Home Economics

(School of Natural Sciences And Mathematics)

HEC 141 Meal Management in Early Childhood (2)
HEC 141L Meal Management in Early Childhood Lab (2)
Principles of food preparation and meal service for pre-school children and lab work on their application. Two lectures and two two-hour sessions per week. (Spring.)

HEC 151 Foreign Food Cookery (1)
HEC 151L Foreign Food Cookery Lab (1)
Preparation and service of foods as they are commonly prepared and served in countries outside the United States. One lecture and one-two hour lab session per week. (Fall.)

HEC 211 Nutrition (3)
Nutrients and their relation to physical and mental health. Three lectures per week. (Fall/Spring.)

HEC 212 Infant and Child Nutrition (2)
Principles of nutrition for maternal, infant and child health. Prerequisite: HEC 211. Two lectures per week. (Spring.)

HEC 238 Child Development (3)
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 through adolescence. Three lectures per week. (Fall/Spring.)

Humanities

(School of Humanities and Fine Arts)

HUM 295 Independent Study (1, 2)
(On Demand.)

HUM 395 Independent Study (1, 3)
(On Demand.)

HUM 499 Internship (8)
(On Demand.)

Human Services

(School of Social and Behavioral Sciences)

HS 301 Introduction to Human Services (3)
Human services agencies, programs, funding, philosophies, history and career opportunities. Prerequisites: PSY 121, 122 and SOC 260, 264 or permission of the instructor. (Fall.)

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. (Fall.)

HS 320 Drugs in Society (3)
A survey of the pharmacological and, especially, the social-psychological effects of many of the drugs commonly self-administered today. Consequences of abuse, and strategies for limiting abuse are emphasized. Prerequisites: PSY 121, 122 or permission of instructor. (On Demand.)

HS 499 Internship (4)
Social and behavioral science students can pursue special interests or 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. This course requires regular weekly meetings on campus with a faculty supervisor in addition to an off-campus internship. Prerequisites: senior status in the Bachelor of Arts program in social and behavioral sciences and permission of the instructor. (Fall/Spring/Summer.)

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. (Summer.)

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, ethics, education and training for professionalism in the system. (Fall.)

LEN 112 Police and Society (3)
An analysis of the institution of law enforcement in a generic sense as encompassing a wide variety of formal social control mechanisms with particular attention to the relationship between major police problems and the cultural context in which they exist. (Spring.)

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. (Fall.)

LEN 122 Juvenile Delinquency and Procedures (3)
A survey of the various federal and state statutes and court decisions involved in juvenile justice procedures. A discussion of the causes and effects of juvenile crime. (Spring.)

LEN 204 Probation and Parole (3)
A course tracing the history of the personnel and problems related to delivering probation and parole services including a discussion of the current thinking in organizational goals and structure, the roles of treaters, the use of volunteers and ex-offenders. (Spring.)

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. (Fall.)

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. (Fall.)

LEN 275 Management Principles in Criminal Justice (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. (Spring.)

LEN 295 Independent Study (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. (Fall/Spring.)

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. (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 298 Related Work Experience (1, 2)
See BUAC 298 course description.

BUMA 301 Organizational Behavior (3)
Study of human behavior, its causes and effects in organizational settings. This course is concerned with developing an understanding of and describing human behavior in such settings. 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, BUMK 231 and three hours of BUAC courses beyond 202. (Spring.)

BUMA 331 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 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 371 Personnel Management (3)
A study of the effective use 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. (Spring/Even Years Only.)

BUMA 395 Independent Study (1, 2)
An opportunity for a student with a previously developed interest in and knowledge of a specialized subject to conduct a comprehensive research program. Requires the use of in-depth academic research and reporting methodology. Student must prepare a comprehensive proposal outlining the study and its justification and complete an application 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 hae a cumulative grade-point average of 2.75 or higher will be allowed to enroll for credit in this upper-division course. Permission of instructor required. (Fall/Spring/Summer.)

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: BUMA 302 and/or permission of instructor. (Spring.) (Not necessary to complete BUMA 401 before 402)

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 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 BUFN 339. (Spring/Even Years Only.)

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 BBA majors during the last semester of the senior year. Prerequisites: All required management and accounting courses and senior standing. (Spring.)

BUMA 498 Related Work Experience **(1, 2)**
See BUAC 498 course description.

BUMA 499 Internship **(15)**
An opportunity for the student to learn more about management functions and activities through exposure to an 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/Summer.)

Marketing

(School of Business)

BUMK 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.)

BUMK 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. A contrast is made between the two marketing institutions, wholesaling and retailing. (Fall.)

BUMK 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.)

BUMK 325 Retailing **(3)**
A look at the retailing environment including retail opportunities, sales stimulation, operating policies and practices, control and service. Case studies and outside speakers supplement the class lectures. Prerequisites: BUMK 231. (Fall.)

BUMK 395 Independent Study **(1, 2)**
See BUMA 395 course description. (Fall/Spring.)

BUMK 432 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: BUMK 231. (Fall.)

BUMK 433 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: BUMK 432, BUMA 331. (Spring.)

Mass Communications

(School of Humanities and Fine Arts)

MSCM 101 Mass Media in America **(3)**
A survey of mass communications and the role media play in the everyday lives of citizens; how media impact society economically. (Fall.)

MSCM 121 Introduction to Broadcasting (3)
An introductory course concerned with the broadcasting media of radio, television and cable. Basic theory, history, economic aspects and impact on society are covered. (Spring.)

MSCM 131 Introduction to Journalism (3)
A survey course introducing the history of journalism, advertising, social effects of journalism, and equal/ethical considerations of news gathering. (Fall.)

MSCM 221 Radio Production and Announcing (3)
Theory and operation of all technical equipment in a radio control room and studio. (Fall.)

MSCM 231 News Writing and Reporting (3)
Fundamentals of newsgathering and writing, interviewing, reporting and writing of newsworthy events and personalities are stressed. Stories are submitted for publication. Prerequisite: MSCM 121 or MSCM 131 or permission of the instructor. (Fall.)

MSCM 241 Persuasion Communications (3)
Contemporary public relations with emphasis on the persuasion process and ethics, and a survey of propaganda and advertising techniques in the mass media. (Spring, 1985.)

MSCM 321 Broadcast Writing (3)
Techniques and practice in writing broadcast scripts, including news, advertising and documentary; and voice development and reading for broadcasting. Prerequisite: MSCM 231 or permission of instructor. (Spring.)

MSCM 341 Copy Editing and Make-up (3)
News evaluation, copy reading, headline writing, page make-up and similar duties of a publications copy editor. Prerequisite: MSCM 231 or permission of instructor. (Spring, 1986.)

MSCM 351 Public Affairs and Feature Reporting (3)
Reporting governmental agencies, including courts, police, city and county governments, school boards, and legislatures, with emphasis on interpretive skills. Feature reporting, including sports, human interest and series articles. Prerequisite: MSCM 231 or permission of instructor. (Spring, 1985.)

MCSM 361 Television Production (3)
Television studio and control room operation; emphasis on video console equipment, cameras, microphones, stagecraft and lighting. Prerequisite: MSCM 221 or permission of instructor. (Spring.)

MSCM 397 Practicum (1)
See MSCM 497 course description.

MSCM 421 Journalism Law and Ethics (3)
Ethical principles and state and federal laws affecting the reporting of news, expression of opinion, news photos, advertising, and publication of newspapers. Prerequisite: Upper class standing or permission of instructor. (Fall, 1986.)

MSCM 494 Seminar (3)
Major issues of the media in modern culture. Prerequisite: Upper division standing. (Spring.)

MSCM 497 Practicum (1)
Experience with campus media, includes publications and/or radio station, under faculty supervision. Prerequisites: MSCM 121 or MSCM 131 or permission of instructor. (On Demand.)

MSCM 499 Internship (8, 12, 15)
Part-time or full-time work in mass communications industry. May include newspapers, radio, television, advertising or public relations positions, or other situations that meet instructor's approval. Prerequisite: MSCM 231, MSCM 421, plus either MSCM 341 and MSCM 351 or MSCM 361. (On Demand.)

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 five-week modules as follows: Three lectures per week. (Fall/Spring.)

MATH 016 (Module 1).....(1)
MATH 017 (Module 2).....(1)
MATH 018 (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. (Fall/Spring.)

MATH 101 Programming (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. (On Demand.)

MATH 105, 106 Elements of Mathematics I, II (3, 3)
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. (Fall/Spring.)

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. (On Demand.)

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. (Fall/Spring.)

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. (Fall/Spring.)

MATH 119 Precalculus Mathematics (5)
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. (Fall/Spring.)

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. (Fall/Spring.)

MATH 127 Mathematics of Finance (3)
Derivations of mathematical formulae and methods for the solution of finance problems. Included are simple interest and discount, compound interest and discount, annuities, perpetuities and the purchase of bonds as investments. Finding payment size and outstanding principle, constructing amortization schedules, and dealing with financing problems are of special interest. Prerequisite: MATH 113 or consent of instructor. Three lectures per week. (Fall/Spring.)

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. (Fall/Spring.)

MATH 131 Logarithms (Module 1) ..... (1)
MATH 132 Right and Oblique Triangles (Module 2) ..... (1)
MATH 133 Conditional Equations and Trigonometric Identities (Module 3) ..... (1)

MATH 134, 135 Advanced Trigonometry (1, 1)
A modular continuation of MATH 130. Includes inverse functions and vectors. One lecture per week. (On Demand.)

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. (On Demand.)

MATH 151 Calculus I (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 consent of instructor. Five lectures per week. (Fall/Spring.)

MATH 152 Calculus II (5)
Special emphasis on the transcendental functions and polar coordinates, conic sections, hyperbolic functions and vectors in a plane. The formulas and methods of integration and application of integration are included. Prerequisite: MATH 151. Five lectures per week. (Fall/Spring.)

MATH 161 Programmable Calculator (1)
Theory and operation of the programmable calculator. Prerequisite: MATH 130 or consent of instructor. One lecture per week. (On Demand.)

MATH 253 Calculus III (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. (Fall/Spring.)

MATH 260 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, and inverse differential operators. Laplace transforms, and nonlinear equations. Prerequisite: MATH 253 or consent of instructor. Three lectures per week. (Fall/Spring.)

MATH 265 Linear Algebra (3)
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 students for advanced work by developing their powers of abstract reasoning. Prerequisite: MATH 253 or consent of instructor. Three lectures per week. (Fall/Spring.)

MATH 270 Discrete Mathematics I (3)
Properties of finite sets, mathematical induction definitions, combinatorics, tree diagrams, recurrence relations and algorithms will be covered. Recommended for computer science and certain other majors. Prerequisites: MATH 121 or MATH 151 or equivalent. Three lectures per week. (Fall.)

MATH 310 Number Theory (3)
A study of classical number theory to include topics such as fundamental theorem of arithmetic, congruences and linear diophantine equations. Prerequisite MATH 152. Three lectures per week. (On Damand.)

MATH 347 Methods of Teaching Secondary Mathematics (3)
Methods and techniques of teaching mathematics at the secondary education level. Prerequisite: MATH 265 or consent of instructor. Three lectures per week. (On Demand.)

MATH 361 Numerical Analysis (4)
Elementary numerical analysis using the hand-held programmable calculator. 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, eigen-value problems, relaxation techniques, approximations and error analysis. Prerequisites: CSCI 131 and MATH 152. Four lectures per week. (Fall.)

MATH 370 Mathematical Logic and Theory (3)
Mathematical logic, algebra of sets, equivalence and order relations, functions, cardinal and ordinal numbers, and the paradoxes of naive set theory. Prerequisite: MATH 265. Three lectures per week. (Spring.)

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. (Spring.)

MATH 385, 386 Modern Geometry I, II (2, 2)
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. (Fall.)

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. (Spring.)

MATH 450 Complex Variables (3)
Complex differentiation and integration, analyticity, Cauchy's integral theorem and formula, Taylor and Laurent series, calculus of residues. Prerequisites: MATH 253. Three lectures per week. (Fall.)

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. (Spring.)

MATH 495 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 faculty member of the department and the consent of the instructor are requisites. (On Demand.)

Mechanics

(School of Industry and Technology)

Automotive

AMEC 122 Drivelines and Differentials (2)
Designed to provide a comprehensive study of drivelines and differentials, theory of operation, service and repair procedures. Parts nomenclature and identification, testing and diagnosis of noises and malfunctions, gear and bearing failure and adjustment of components receive special attention. (Spring.)

AMEC 123 Automotive Engine Diagnosis, Tune-up and Performance (7)
A comprehensive study of carburetion, fuel injection, and ignition systems using recent model components, with emphasis on diagnosis. Students learn to diagnose problems, test and repair or replace carburetors, fuel pumps, injector pumps, and injectors, as well as beginning the study of certain electronic control devices as they relate to the function of carburetion, fuel injection, and ignition systems. Basic testing of emission control devices is also included. (Spring.)

AMEC 142 Suspension and Alignment (7)
A comprehensive study of automotive suspension systems, theory of operation, component parts, identification and repair procedures. Testing procedures, diagnosis of suspension, alignment and wheel balance problems receive special emphasis. Repair or replacement of worn or defective suspension, steering, parts and related parts is included. The course covers the theory and practice of the five basic angles of steering geometry, diagnosing tire wear, steering problems and alignment of the front end. The Bear Teleliner is used for instructional purposes. This is a seven credit hour course. The class meets for three (3) hours for a period of ten (10) weeks. (Spring.)

AMEC 214 Engine Rebuilding and Repairs (7)
Designed to develop the basic skills needed in the specialized field of engine reconditioning, rebuilding or repair. The course includes testing, diagnosing, analyzing, identifying mechanical problems within the engine. It includes engine removal and installation, disassembly and assembly, components service and repairs; to include reconditioning cylinder heads, grinding valves, bearing replacement, piston and cylinder block service. Prerequisite: MECH 113 Internal Combustion Engines. (Fall.)

AMEC 227 Automatic Transmissions (4)
The principles of operation of planetary-gear sets, fluid couplings, torque converters, servo bands, clutch packs and control circuits. (Fall.)

AMEC 239 Emission Control (4)
A comprehensive study of emission-control systems dealing with types, design, principles of operation and problems encountered with these systems plus the necessary adjustments and repairs. (Spring.)

AMEC 243 Standard Trans-Axles (3)
The application of principles of power transmission both standard and automatic to the use, maintenance, troubleshooting and repair of transaxle systems in frontwheel drive and rear engine foreign and domestic vehicles. Prerequisites: Sophomore standing, MECH 121 and AMEC 227 or appropriate work experience and consent of instructor. (Spring.)

AMEC 250 Troubleshooting and Diagnosis Procedures (3)
A working shop simulation through which students will gain additional experience and skill troubleshooting and diagnosing automotive problems on vehicles as they come in. The student will be expected to develop use of a logical approach to troubleshooting and prepare a concise written diagnosis on each vehicle assigned. Prerequisites: Sophomore standing and consent of instructor. (Spring.)

AMEC 254 Automotive Electronics (4)
Advanced studies in automotive electronics as they relate to solid state systems, command computers and electronic advances in technology. Prerequisites: Sophomore standing and MECH 124 or appropriate work experience and consent of instructor. (Spring.)

AMEC 295 Independent Study (1, 2)
Specialized studies related to student's field of training beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration. Prerequisite: Sophomore standing or equivalent. (Fall/Spring.)

MECH 105 Introduction to Shop Practices & Vehicle Systems (3)
Shop procedures, shop and personal safety, tool identification and use, use of proper terminology, test equipment identification fasteners and basic rigging as such apply to automotive/heavy equipment systems and working shops. (Fall.)

MECH 111 Applied Math for Auto Mechanics (2)
A brief review of the arithmetic, shop math and algebra needed to handle the mathematical aspects of mechanics. (Fall/Spring.)

MECH 113 Internal Combustion Engines (5)
A basic study of the internal combustion engine designed for the Auto Mechanics or Diesel Mechanics/Heavy Equipment student. Includes types, design construction, principles of operation, function of components, parts recognition and identification of basic parts. Disassembly and assembly of the four cycle gasoline engine, measuring of parts, inspection and diagnosis of parts and recognition of worn, damaged or broken parts is included. Introduction to valve and seat reconditioning, valve guide repair or replacement and proper assembly procedures are also included in the course. (Fall.)

MECH 121 Clutches and Standard Transmissions (2)
Designed to develop a working knowledge of the clutch assembly and standard transmission, this course includes theory of operation, removal and installation, and disassembly procedures. Special emphasis is given to the diagnosis and correction of malfunction. (Fall.)

MECH 124 Electrical Systems (4)
Fundamentals of D.C. Electrical Systems. Theory and practice including safety, charging systems, starting systems, circuits and the components of each. Emphasis on care and use of meters and testing equipment required to diagnose, maintain and repair vehicle electrical systems. (Fall.)

MECH 125 Light Duty 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. (Fall.)

MECH 133 Air Conditioning (3)
Provides an introduction to the principles of refrigeration; methods of operation and control; proper handling of refrigeration, use of testing equipment; leak tests; efficiency tests; service procedures (including evacuation, purging and charging the system); component and compressor replacement and repair, and general maintenance. Testing and diagnosis of malfunctions are emphasized. Prerequisite: Consent of instructor. (Spring.)

Heavy Equipment—Diesel

DIHY 115 Heavy Equipment Maintenance (3)
The study and practical applications of diesel fuels, lubricants, coolants, filters as well as bearings, seals, cooling and lubricating systems, chain and belt drives and tires. Also, an introduction to pumps and air systems. Preventive maintenance and maintenance records will be emphasized. (Spring.)

DIHY 120 Diesel Engine Reconditioning I (4)
A study of the two-cycle engine's cylinder block, crankshaft and bearings, piston and connecting rod assemblies, camshaft, gear train, engine timing, cylinder head assembly, intake and exhaust systems and components. (Spring.)

DIHY 131 Heavy Duty Brake Systems (4)
Fundamentals and repair of different type brake systems used on heavy equipment. The student will also demonstrate correct disassembly, inspection, reassembly, adjustment and troubleshooting procedures on these systems. (Fall.)

DIHY 150 Hydraulic Systems I (3)
Theory of various hydraulic systems including terminology, pressure flow, mathematical applications, hoses, fittings and cylinders. Emphasis is on types of systems and how they function. (Spring.)

DIHY 211 Equipment Painting and Glass Repair (1)
Covers the fundamentals of preparing heavy equipment for field painting, use of painting equipment, replacing glass in vehicle cabs and making basic fiberglass repairs. (Fall.)

DIHY 222 Fuel Systems (2)
A study of design, construction, repair, and maintenance of fuel injection systems, components, pollution control devices and governors. (Fall.)

DIHY 223 Diesel Engine Analysis and Trouble-shooting (3)
The study and application of analysis and trouble-shooting techniques, and adjustment of diesel engines for optimum operating performance. (Spring.)

DIHY 225 Diesel Engine Reconditioning II (4)
Follows Diesel Engine Reconditioning I and deals specifically with the four-cycle diesel engine. Upon completion, the student will understand and be able to disassemble, inspect, repair and reassemble a four-cycle diesel engine according to operating specifications. (Fall.)

DIHY 231 Heavy Equipment Drivetrains I (5)
The first of a series of two. The student will gain knowledge and skill in the areas of power train component operating principles, construction, basic repair and maintenance, according to standard operating procedure. (Spring.)

DIHY 232 Heavy Equipment Drivetrains II (5)
The second in a two-course sequence in which the students perform repair on final drives, steering clutches, undercarriages, powershift transmissions and drivelines. Analysis of condition and testing are included as a part of this course. (Fall.)

DIHY 251 Hydraulic Systems II (3)
The study and application of hydraulic fluids, conductors, reservoirs, pumps, pressure control, volume control, check valves, actuators, hydraulic motors and flow control. Also includes trouble-shooting, system design, preventive maintenance practice and application. (Spring.)

DIHY 260 Pneumatic Systems (3)
Covers pneumatics as used in industry and includes the fundamentals of pneumatic systems, and the control valves, air cylinders, compressors, connectors, conductors and closures. The adjustment, inspection and trouble-shooting of pneumatics will also be covered. (Spring.)

DIHY 295 Independent Study (1, 2)
Students in Heavy Equipment/Diesel Mechanics to plan, carry out and complete studies in an advanced area of specialization related to his or her field of training, but which is beyond the scope of the required curriculum. Students must enter into an agreement for specialized training which includes specific objectives and learning activities with an appropriate instructor prior to registration for the course. (Fall/Spring.)

Military Science

(School of Social and Behavioral Sciences)

MIL 101 Personal Leadership (1)
An introduction to the fundamentals of effective leadership with an emphasis on the individual as leader. Includes: leadership traits, stress management, time management, and careers in leadership. Requires no obligation to the U.S. Army. (Fall.)

MIL 102 Organizational Leadership (1)
A survey of the fundamentals of effective leadership with an emphasis on a leader's interaction with his subordinates. Includes: principles of leadership, organizational structure, indicators of unit effectiveness, decision-making skills and examples of leadership. Requires no obligation to the U.S. Army. (Spring.)

MIL 110 Leadership Lab (2)
Practical application of techniques learned in the classroom with emphasis on physical conditioning, small unit movement and development of leadership presence. Prerequisite: Must be a contracted ROTC student. (Fall/Spring.)

MIL 201 Leadership Development (2)
Leadership and management simulation exercises designed to strengthen a student's leadership abilities. Includes: problem analysis, decision making, delegation, control and interpersonal skills. Requires no obligation to the U.S. Army. (Fall.)

MIL 202 Leadership Assessment (2)
The student's leadership potential is evaluated through performance-based testing which measures leadership potential relative to military service as an officer or in an applicable position in business or the professions. Includes: leader behavior and style, communication skills, interpersonal skills, administrative skills, personal/motivational skills and decision-making skills. Requires no obligation to the U.S. Army. (Spring.)

MIL 203 Basic Camp (3)
A condensation of MIL 101, 102, 201, and 202 to qualify for enrollment in the ROTC Advanced Course. An off-campus practical exposure to leadership in a military environment. Consists of six paid weeks of basic leadership training at Fort Knox, Kentucky. Students are under no obligation to the U.S. Army and can compete for an Army ROTC scholarship upon completion of the course. (Summer, On Demand.)

MIL 301 Map Reading (3)
Designed to familiarize students with day and night map reading and the capabilities, characteristic functioning and maintenance of basic weapons and equipment. Prerequisite: Must be a contracted upper division ROTC student. (Fall.)

MIL 302 Applied Leadership (3)
Application of leadership and management principles to the conduct of small unit operations in the field. Weapons orientation and basic tactical training are included. (Spring.)

MIL 303 Advanced Camp (3)
An off-campus exposure to leadership in the military environment. Consists of six weeks of advanced leadership training at Fort Lewis, WA. Requirement for commissioning as a Second Lieutenant in the U.S. Army. (Summer/On Demand.)

MIL 401 Military Assumption of Command (3)
An introduction to the basic principles of leadership required to assume the position of a newly commissioned Second Lieutenant in the U.S. Army. Includes principles and concepts of the military justice system, war, morality, the military profession and an introduction to behavior and performance counseling. (Fall.)

MIL 402 Military Ethics (3)
An examination and inter-relating of the military justice system and personal and professional ethics as they apply to the army officer. Prerequisite: Completion of all basic course requirements. (Fall.)

Music

(School of Humanities and Fine Arts)

MUS 110 Standard Notation (2)
Provides the student with an in-depth, fundamental knowledge of all elements in standard vocal and instrumental musical notation. Note reading, key signatures, meter, rhythm and chord structure will be included. Open to all students, but required for Music Majors. (Fall.)

MUS 114 Theory I—Introduction (3)
Explanation of musical sound based on physical and mathematical relationships. Exploration of the properties of sound, sense perception and memory in relation to tension, quality and sonance. Designed to be taken concurrently with MUS 110. (Fall.)

MUS 115 Theory II—Diatonic Concepts (3)
Exploration of relationships of triads and seventh chords in all inversions within a key. Introduction to standard part writing of voices and formal construction in composition. Prerequisite: MUS 110 and MUS 114. (Spring.)

MUS 116 Basic Musicianship I (2)
Application of music literacy to sight reading produced by the voice and writing of performed music in proper manuscript. Emphasis on rhythmic literacy, development of referent for intervals and beginning melodic dictation. Designed to be taken concurrently with MUS 110 and MUS 114. (Fall.)

MUS 117 Basic Musicianship II (2)
Continuation and further development of skills from MUS 116. Development of literacy in melodic and harmonic intervals, chords, melodic dictation and dictation of two, three and four part chorales. Prerequisite: MUS 110 and MUS 116. (Spring.)

MUS 130 Class Piano I (2)
Multiple sections offered each term for Major and Non-Major students. Application of scales, chords and elements of music at the keyboard and development of repertoire. Recommended for all elementary, early childhood majors and music theatre majors. Prerequisite (Music Major Only): MUS 110. (Fall/Spring.)

MUS 137 Class Voice I (2)
Includes fundamentals of singing, interpretation and solo repertoire. For beginning voice students. (Fall.)

MUS 138 Class Voice II (2)
An extension of MUS 137 introducing concepts of phonetics, language (diction for singers) and solo repertoire. Prerequisite: MUS 137. (Spring.)

MUS 160 The Music Business (1)
Designed to facilitate entry into the professional music arena by providing a background in the business aspects of the profession. Topics include: contracts, marketing, recording, TV, radio, film, the Musician's Union, AFTRA, royalties, managers, agents, club owners, and alternate careers. (Fall.)

MUS 214 Theory III—Chromatic Concepts (3)
Exploration of the full use of chromaticism through secondary dominants, ninth chords, diminished seventh chords, neapolitan and augmented sixth chords and modulation. Continuation of the chromatic concept into the techniques of the 20th Century through the use of advanced chromaticism, serialism and atonality. Discussion of the techniques of 20th Century linear, harmonic, rhythmic and timbral practices. Prerequisite: MUS 115. (Fall.)

MUS 215 Theory IV— Counterpoint (3)
A study of 18th Century contrapuntal techniques with emphasis on two and three-part inventions, chorale prelude, canons and three and four-voice fugue. Prerequisite: MUS 214. (Spring.)

MUS 216 Keyboard Harmony (2)
Application of Keyboard and Theory skills to perform harmonization of a given line, transposition at sight, and open score realization at the keyboard. Prerequisite: MUS 230 and MUS 214. (Spring.)

MUS 220 Music Appreciation (3)
Masterpieces of music, composers and performers useful for the music student who has a weak background in the Masters, and also for any student to satisfy a Fine Arts elective requirement. (For music majors and non-majors.) (Fall.)

MUS 224 History of Contemporary Music—Jazz (2)
The study of jazz heritages, jazz styles of Blues, Dixieland, Ragtime, Boogie Woogie, Swing, Bop, Cool, Funky, Jazz-Rock and Electric; through use of films, recordings, demonstrations and lecture. (Alternate, Spring.)

MUS 230 Class Piano II (2)
Continuation of concepts and application of MUS 130. Provides the student with further expertise at the keyboard. An extended knowledge of musicology is presented. Prerequisite: MUS 130. (Fall/Spring.)

MUS 231 Guitar Techniques and Materials (2)
The study of methods and materials for teaching and performing on the guitar. Student must provide own instrument. Prerequisite: MUS 110. (Fall/Spring.)

MUS 233B Recorder (Woodwind) Techniques and Materials (2)
The study of methods and materials for teaching the recorder in the public schools. Provides practical instruction in the performance of the soprano, alto, tenor and bass recorder from all eras of the recorder literature. Student may be requested to provide own instrument. (Alternate, Spring.)

MUS 236 Electronic Instrument Techniques and Materials (2)
The study of methods and materials for the introduction to the use of electronic instruments, including the areas of sound reinforcement (microphones and amplification) and sound generation (synthesis) by electronic means. (Alternate, Spring.)

MUS 241 Music and Methods in Early Childhood Education (2)
Designed for students who will be working with preschoolers and kindergarten aged students. Through the creative process students develop simple tunes and gain knowledge and appreciation of music. (Spring.)

MUS 260 Songwriter I (1)
Basic skills for the songwriter including correct notation techniques, phrasing, line and climax, standard forms, harmonic and rhythmic idioms, lyrics and content, and preparation of lead sheets. Prerequisite: MUS 110. (Alternate, Fall.)

MUS 261 Songwriter II (1)
Emphasis on marketing techniques including lead sheets, demo recordings, sources and resources, magazines and technical publications, publishers, producers and artists. Discusses the problems and techniques of "writing to order" as in commercials or TV-film themes. Prerequisite: MUS 260. (Alternate, Spring.)

MUS 262 Commercial Arranging (1)
Study of elementary arranging skills including instrumentation, basic problems and principles of orchestration for various groups and functions, standard musical textures, standard voicing techniques, special harmonic practices and analysis of professional arrangements. Prerequisite: MUS 261. (Alternate, Fall.)

MUS 263 Recording Production Techniques (1)
An introduction to basic acoustic principles, studio design and construction, magnetic recording and multi-track recording techniques. Students will investigate microphone designs and placement techniques, speakers, recording console and outboard equipment including reverb systems, equalization units, limiters, expanders, compressors and noise reduction systems (Dolby and DBX). Students will visit professional studios (when practical) for demonstrations and observation. (Alternate, Spring)

MUS 264 History of Contemporary Music—Pop, Rock and Country (2)
Course focuses on differences in style, musical elements, lyrical content, and outstanding artists and writers in each idiom. Evolutionary aspects and social significance are introduced as background references. (Alternatae, Spring)

MUS 270, 271 Music Theatre (2,2)
An interdisciplinary course involving theatre, music and dance covering methods and experience in all phases of musical theatre including selection and song analysis, interpretation, staging and choreography. Prerequisites: One year of voice training, one year of dance training and THEA 251. (Fall/Spring.)

MUS 295 Independent Study (3)
Independent research or project in the student's primary area to be decided upon by instructor and student. (Fall/Spring.)

MUS 314 Theory V—Instrumentation (3)
Discussion of the characteristic sounds of instruments in terms of their harmonic spectra and formant regions (also includes the voice as an instrument). Exploration of cause and effect relationships of instruments in combination in ensembles of various sizes. Introduction to scoring techniques through the musical medium of the standard Symphony Orchestra. Prerequisite: MUS 215. (Fall.)

MUS 315 Theory VI—Arranging (3)
Further application of concepts of MUS 314 including both choral and instrumental arranging. Extension from scoring for orchestra into smaller ensembles of mixed musical media as well as other standard ensembles, such as concert bands. Introduction to scoring for performing ensembles in the public schools as well as professional ensembles. Prerequisite: MUS 314. (Spring.)

MUS 324 History and Literature I—Romantic (3)
Representative composers, musical styles and literature of the Romantic period of Music History (ca. 1800-1900). Emphasis will be placed on the development of large orchestral forms, the art song and romantic Opera. Prerequisite: MUS 220. (Alternate, Fall.)

MUS 325 History and Literature II—Baroque and Classical (3)
Representative composers, musical styles and literature of the Baroque period (ca. 1600-1750) and the Classical period (ca. 1750-1800) of music history. From Florentine beginnings through Venetian, Neapolitan and French Styles. Growth of chamber, orchestral and solo instrumental music, and sacred and secular vocal forms. Emphasis on the literature of Bach, Handel, Mozart, Haydn and early Beethoven. (Alternate, Spring.)

MUS 337 A,B,C Diction for Singers (1, 1, 1)
A guide for singers in the pronunciation of Italian (A), German (B), and French (C) as applied to the performance of vocal literature, (3 modules.) (Alternate, Fall/Spring.)

MUS 341 Music and Methods for the Elementary Classroom Teacher (2)
Designed for elementary classroom teachers, to develop musical concepts in singing, listening, note reading, rhythm and creative projects for use in their curriculum. (Spring.)

MUS 350 Conducting I (2)
Study of the techniques of instrumental conducting. Recommmended concurrent enrollment in MUS 314 and MUS 324. Prerequisite: MUS 215 and MUS 220. (Alternate, Fall.)

MUS 351 Conducting II (2)
Study of the techniques of vocal (choral) conducting. Recommended concurrent enrollment in MUS 315 and MUS 325. Prerequisite: MUS 215 and MUS 220. (Alternate, Spring.)

MUS 370, 371 Music Theatre (2, 2)
An extension of MUS 270, 271. Advanced scene study, ensemble work and choreography. Prerequisite: MUS 270, 271, and audition. (Fall/Spring.)

MUS 395 Independent Study (3)
Independent research or project in the student's primary area to be decided upon by instructor and student. (Fall/Spring.)

MUS 414 Theory VII—Form and Analysis (3)
Study of conventional and contemporary musical forms, including song forms, dance forms, contrapuntal forms (fugue, canon, invention), rondo, variations and sonata-allegro forms. Analytical skills are developed through formal analysis of works from a variety of composers. Prerequisite: MUS 315. (Fall.)

MUS 415 Theory VIII—Composition (3)
A study of compositional techniques from antiquity to the present. Students are required to compose original works. Prerequisite: MUS 414. (Spring.)

MUS 424 History and Literature III—Medieval and Renaissance (3)
The literature, musical styles and composers from the 10th to the 17th Centuries. Emphasis placed on the development of the Mass, Motet, Madrigal, Notre Dame and Burgundian Schools, and Flemish compositional style. Prerequisite: MUS 220. (Alternate, Fall.)

MUS 425 History and Literature IV— 20th Century (3)
The content and media of the music of the 20th Century. Literature, compositional techniques and musical styles will be studied in reference to the major developments from 1875 to the present day. Prerequisite: MUS 220. (Alternate, Spring.)

MUS 443 Choral Techniques and Materials (2)
Stylistic interpretation of choral ensemble music from the Renaissance to the present day. Analysis will be made of selections of literature from each historical period for the purpose of developing performance techniques correct to the various styles. Prerequisite: MUS 343 or MUS 344. (Alternate, Spring.)

MUS 470, 471 Music Theatre (2, 2)
Advanced level of scene study, auditioning, choreography, directing, writing, arranging and problems in production. Prerequisite: MUS 370, 371 and audition. (Fall/Spring.)

MUS 495 Independent Study **(3)**
Independent research or project in the student's strength area to be decided upon by instructor and student. (Fall/Spring.)

Music

(School of Humanities and Fine Arts)

Applied

Applied Music Lessons **(1)**
Lessons are offered in the following: (Fall/Spring.)

Keyboard	MUSA 130, 230, 330, 430
Guitar	MUSA 131, 231, 331, 431
Strings	MUSA 132, 232, 332, 432
Woodwind	MUSA 133, 233, 333, 433
Brass	MUSA 134, 234, 334, 434
Percussion	MUSA 135, 235, 335, 435
Electronic Instruments	MUSA 136, 236, 336, 436
Voice	MUSA 137, 237, 337, 437

Lessons are offered at two levels of study, designated by the letters A and B after the course number in the class schedule.

"A" level of Applied Music study is considered "major" instrument and requires performances and attendance at the performance class meetings throughout the term.

"B" level of Applied Music study is considered "minor" instrument and is designed for the non-major, or study of a "second" instrument. There is no performance or attendance at performance class meetings requirement for this level of study.
NOTE: Applied music lessons may be taken a total of two times for credit at the same class standing level.

Music

(School of Humanities and Fine Arts)

Performing

MUSP 160 Improvisation I—Beginning **(1)**
A study of the basic materials and techniques for improvisation, including chord and scale construction, correlation of chords and harmonic patterns with specific scale forms, phrasing and rhythmic concepts, elementary forms and standard terminology. Prerequisite: MUS 110. (Fall.)

MUSP 260 Improvisation II—Advanced **(1)**
Advanced harmonic and linear concepts, with an emphasis on technique, style, and idiomatic usage. Special concerns are increased chromaticism, modality, quartal harmonies and conventional patterns. Prerequisite: MUSP 160. (Spring.)

MUSP 261 Studio Singers **(1)**
Students will be required to analyze and perform jingles, commercials and a variety of vocal background styles expected of professionals. Performance under actual studio conditions will be provided when practical. Students will become familiar with relevant recording techniques and terminology. Prerequisite: MUS 160. (Spring.)

MUSP 420 Recital (1)
Preparation for senior level recital in student's performance medium. Recital must be given during term in which the student is registered in this course. (Fall/Spring.)

All of the following Performance Ensembles may be taken a total of two times for credit at the same class standing level. The maximum total of credit to be received for each Performing Ensemble at all class levels is eight hours.

MUSP 110, 210, 310, 410 Accompaniment (1)
Designed to develop proficiency in accompanying vocal solo and choral performance, solo instrumental performance and instrumental ensembles in the performance of chamber music. (Fall/Spring.)

MUSP 140, 240, 340, 440 Symphonic Wind Ensemble (1)
An ensemble made up of music students as well as students from other disciplines who perform a wide variety of literature selected from standard and current repertoire. The group presents formal concerts on and off campus and performs for the commencement ceremony. (Fall/Spring.)

MUSP 141, 241, 341, 441 Symphony Orchestra (1)
Students demonstrating proficiency on orchestra instruments, through audition with the conductor, can become members of the Grand Junction Symphony and receive credit. (Fall/Spring.)

MUSP 142, 242, 342, 442 Stadium Band (1)
Open to all students who demonstrate sufficient skills to perform contemporary band literature at home football games. The group promotes team and audience spirit by accompaniment for the Pom Pon and Cheerleader squads in special musical cheers. Attendance at all home games is mandatory. (Fall.)

MUSP 143, 243, 343, 443 Pep Band (1)
A small group of instrumentalists who perform current pep band literature at home basketball games. Open to any wind or percussion player who demonstrates sufficient skills to perform the literature. (Spring.)

MUSP 144, 244, 344, 444 Jazz Ensemble (1)
Membership by audition. This group utilizes stage band instrumentation and performs many local and national concert engagements. Audition preference given to members of Stadium and Pep Bands and/or Symphonic Wind Ensembles. (Spring.)

MUSP 145, 245, 345, 445 Instrumental Ensemble (1)
Groups are organized upon the talents and interests of the members. Specified ensembles may be offered from time to time in the format of String Quartets, Woodwind and Brass Choirs, etc. A minimum of one public performance per each term of enrollment is required. (Fall/Spring.)

MUSP 150, 250, 350, 450 College Chorus (1)
Open to all men and women who wish to sing the best in all styles of choral literature. The group presents concerts on and off campus and performs for the Commencement ceremony. (Fall/Spring.)

MUSP 151, 251, 351, 451 Symphony Chorus (1)
Mesa College students who wish to perform masterworks with the Grand Junction Symphony can become members of this Chorus and receive credit. Offered in accordance with the Symphony Season as planned by the director of the Grand Junction Symphony Orchestra and Chorus. (Fall/Spring.)

MUSP 152, 252, 352, 452 Schola Cantorum (1)
Membership by audition. The group presents concerts of unaccompanied choral literature, or choral literature with small instrumental ensembles, from the Renaissance through the present day. (Fall/Spring.)

MUSP 153, 253, 353, 453 Vocal Jazz Show Choir (1)
Membership by audition. A highly select group of vocalists, dancers and instrumentalists who perform specialized arrangements for pure entertainment. Skills are developed in movement, jazz and rock vocal style and stage presence. Performances are frequent. Audition preference given to members of College Chorus. (Fall/Spring.)

MUSP 155, 255, 355, 455 Vocal Ensemble (1)
Groups are organized upon the talents and interests of the members. Specified ensembles may be offered from time to time in the format of Music Theatre Ensemble, Madrigal Singers, Barbershop Quartets, etc. A minimum of one public performance per each term of enrollment is required. (Fall/Spring.)

MUSP 162, 262, 362, 462 Combo (1)
Interested students 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 skills and making practical application of improvisation. (Fall/Spring.)

MUSP 164, 264, 364, 464 Commercial Big Band (1)
Membership by audition. A laboratory band which focuses on the swing styles of jazz, jazz rock and fusion. The student receives instruction in phrasing, interpretation, improvisation, tone production and reading. (Fall.)

Nursing

(School of Nursing and Allied Health)

NURS 113 Nursing Concepts I (7)
NURS 113L Nursing Concepts I Lab (2)
A foundation course which introduces the concept of man as a system and focuses on the holistic approach to nursing. A blend of theory and practice with the theory portion including the scientific principles for basic nursing procedures and skills. The organization of health care facilities, their composition and ethical aspects of the health care delivery system are considered. The nursing process provides the method for practice of basic skills to individuals undergoing medical and surgical interventions to correct dysfunctions. With a conceptual framework the necessary nursing skills are provided to perform nursing activities within the format of the nursing process.

NURS 123 Nursing Concepts II (5)
NURS 123L Nursing Concepts II Lab (4)
Designed to build on the concepts provided in Nursing 113. Course content includes evaluating the structure, function, and process of common mental and physical dysfunctions experienced by patients of all ages, including those experiencing childbirth. Content is focused on identifying the input, output and throughput when using the nursing process in providing care to patients.

NURS 210 Nursing Concepts III (5)
NURS 210L Nursing Concepts III Lab (5)
General Systems is utilized in the evaluation of dysfunctions of all ages. This course provides increased depth of knowledge of the human adaptive capabilities throughout the life span. Additional emphasis is placed on the psychological components of man and utilization of the nursing process.

NURS 230 Nursing Concepts IV (5)
NURS 230L Nursing Concepts IV Lab (5)
Designed to increase the student's depth of knowledge of general systems approaches to patients throughout the life span. The student will study the dysfunction of various sub-systems with emphasis on the use of the nursing process. A preceptorship experience is provided at the end of the semester.

NURS 273 Issues in Nursing (2)
An exit course designed to explore the effect of recent trends and issues in nursing while examining historical components of nursing. Students are encouraged to become aware of potential problems experienced during the transition from student to practicing nurse. Alternative course NURS 320 for BSN students only.

NURS 310 Introduction to Critical Care Nursing (2)
The pathological alterations in the physiology of selected conditions are analyzed in relation to the symptoms manifested.

NURS 320 Matrix (3)
An entrance level course with in-depth discussion of transition, change and other topics related to current and future trends in professional nursing. Alternative course NURS 273.

NURS 330 Research Techniques (3)
Introduction to research and its relevance to the development of nursing theory and improvement of patient care. Incorporates selected methods of research appropriate to nursing practice and studies. Prerequisite: a course in statistics or concurrent enrollment in CSCI 101.

NURS 340 Health Assessment—Physical (3)
NURS 340L Health Assessment—Physical Lab (1)
Provides instruction and guided experience in obtaining a health history and in performing a physical examination. Prerequisite: BIOL 241 Pathological Physiology or permission of the instructor.

NURS 350 Community Health Nursing I Concepts (2)
Provides an orientation to the field of community public health, including a study of background, development and trends with emphasis on nursing in community health settings. Prerequisite: NURS 320 Matrix or concurrent enrollment.

NURS 420 Community Health Nursing II Concepts (2)
NURS 420L Community Health Nursing II Concepts Lab (5)
Opportunities provided for the observation and application of concepts learned in NURS 350. Work in a community health setting is an integral part of the course. Prerequisites: NURS 340-340L, NURS 350.

NURS 423 Gerontological Nursing (1)
NURS 423L Gerontological Nursing Lab (2)
Designed to augment the skills of the nurse working with aged clients and their families. Emphasis is placed on the utilization of the nursing process to promote, maintain and restore health in the elderly. The relationship between the observed behavior of clients and the theoretical and hypothetical contructs of gerontology is explored. Clinical experience in a variety of health care and community settings provides opportunities for application of theoretical knowledge.

NURS 430 Health Assessment—Psychosocial (3)
NURS 430L Health Assessment—Psychosocial Lab (1)
Focus is on current psychosocial issues which effect individual, family, and community systems. Behavior is viewed within the context in which it occurs, with emphasis on interactions between man and his/her environment. Nursing process, leadership and current research are utilized in assessing dysfunction and in facilitating health promoting or restorative behaviors in client systems. Prerequisites: NURS 340, 340L or instructor permission.

NURS 441 Nursing Management I (2)
NURS 441L Nursing Management I Lab (1)
Provides a practical guide to the understanding and implementation of management concepts, functions, techniques and skills as they apply in health care agencies, utilizing a humanistic management process. Prerequisite: NURS 320 Matrix or instructor permission.

NURS 442 Nursing Management II (2)
NURS 442L Nursing Management II Lab (1)
Continuation of NURS 441. Prerequisite: NURS 441-441L.

NURS 443 Power and Political Dynamics in Nursing (2)
Designed to explore the political influences and social forces in history which impact nurses and nursing. The evolving role of nursing is examined in relation to impacting decisions and policies that affect health care in the U.S. Content is focused on organizational realities and approaches to overcome barriers to job mobility. The utilization of power and politics are analysed as methods to further the potential of nursing. Topics include the present condition of womens' relationship to health system, attitudes toward masculinity and femininty, role conflict of the working woman, finances and economy, networking and keys of career success.

NURS 450 Advanced Nursing in Episodic Settings (2)
NURS 450L Advanced Nursing in Episodic Settings Lab (2)
Focus is on the curative and restorative aspects of nursing care of clients of all ages in severe psychophysiological stress. The nursing process is operationalized in the presentation of, and intervention in life threatening situations and complex regimes of care. Clinical nursing competencies are developed through the provision of direct care for clients in the acute care setting.

NURS 460 Health Delivery System (2)
An exit level course providing an overview of the multiple roles of health care delivery systems, including both traditional and alternative methods, with emphasis on the rural setting. Includes discussion of the impact of the federal government, insurance programs and consumerism on health care delivery. Prerequisite: All 300 level nursing courses.

NURS 494 Seminar (1, 2)
Discussion of current topics, issues and problems in nursing and health care. Topics of the seminar announced each semester. Prerequisites: senior classification, 2.75 grade point ave. and consent of instructor.

NURS 495 Independent Study (1, 2)
Designed to allow the student to pursue an area of interest in nursing. Must have completed a minimum of 8 semester hours in upper division nursing courses and have a cumulative grade point average 2.75 or higher before enrolling.

Office Administration

(School of Business)

BUOA 101 Bookkeeping for Small Business (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 course is not advised for four-year accounting majors. No credit allowed if credit already established in BUAC 201. (Fall/Spring.)

BUOA 111 Beginning Shorthand (3)
A presentation of the theory of Gregg shorthand with a limited amount of dictation given at rates of 40 to 60 words per minute. (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 and BUOA 152 or concurrent enrollment in BUOA 152, or permission of the instructor. (Fall/Spring.)

BUOA 150 Keyboarding (1)
Designed for students with no prior typing experience. It is structured for those interested in positions as data entry clerks, computer operators, managers with work stations, or all occupational areas now requiring basic touch keyboarding skills. Includes alpha, 10-key and computer function key instruction. Introductory lecture. Programmed materials. Time is arranged. Students who have received credit in BUOA 151 may not take this course for credit. (Fall/Spring.)

BUOA 151 Beginning Typing (3)
Introduction to the keyboard, parts of the machine and development of minimum skill. Instruction and practice on simple business letters, tabulation and manuscripts. Consent of instructor required. Priority given to students in office occupations. Others may register on a space-available basis. Placement dependent on ability. (Fall/Spring.)

BUOA 152 Intermediate Typing (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, and technical terminology used in business. (Spring.)

BUOA 202 Records Management (3)
Study of institutional and legal requirements for developing, storing and maintaining business and personnel information systems. Management of computerized and non-computerized systems is emphasized. Storage and retrieval using alphabetic, geographic, numeric and subject methods for manual, micro-records and computerized systems and control of records management programs. (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.)

BUOA 231 Medical Transcription (3)
Helps develop competency with transcribing machines through use of medical correspondence and professional records. Prerequisites: BUOA 152, or concurrent enrollment in BUOA 152 or permission of instructor, and BUHL 147 (Medical Terminology) or equivalent. (Spring.)

BUOA 244 Legal Procedures I (3)
Preparation for secretarial work 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. Prerequisite: Typing proficiency. (Fall.)

BUOA 251 Advanced Typing (3)
Skill development for rapid, mailable production of all typing jobs encountered in the business office. Prerequisite: BUOA 152. (Spring.)

BUOA 263 Beginning Word Processing (3)
An introduction to word processing concepts and functions. Training in the basic functions of word processing on equipment such as the IBM Memory Typewriter, the Lanier No-Problem and the CPT system will be provided. Training includes

constructing, formatting, editing, storing and printing of documents. Provides an understanding of the utilization of word processing equipment in business and stresses the terminology unique to word processing. Consists of both lecture and lab instruction. Prerequisite: BUOA 152 or consent of instructor. (Fall/Spring.)

BUOA 264 Advanced Word Processing (3)
A continuation of BUOA 263. Training in the advanced functions of word processing on equipment such as the IBM Memory Typewriter, the Lanier No-Problem, and the CPT system will be provided. Training will include such functions as list/merge, repagination and select/sort among others. Provides an understanding of the more advanced concepts of word processing in relation to the electronic office and information processing. Also, provides an understanding of the factors to consider when implementing a word processing system. Consists of both lecture and lab instruction. Prerequisite: BUOA 263 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 152. (Spring.)

BUOA 295 Independent Study (1, 2)
Students must apply through their adviser 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 nine credit hours of work in the field chosen for the independent study and who have a cumulative gradepoint average of 2.5 or higher will be allowed to enroll for credit in this course. Consent of instructor required in all cases. (On Demand.)

BUOA 298 Related Work Experience (1, 2)
See BUAC 298 course description. (Fall/Spring.)

BUOA 299 Internship (8, 15)
On-the-job secretarial training for a minimum of 20 hours per week for 8 credits and 40 hours per week for 15 credits 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 instructor. (Fall/Spring.)

Office Assisting, Medical

(School of Business)

BUHL 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. (Fall.)

BUHL 154 Laboratory Techniques (2)
The student becomes acquainted with basic lab procedures such as blood counts, urinalysis, EKG, etc. Actual lab experiences are provided. Prerequisite: BIOL 141 or consent of instructor. (Spring.)

BUHL 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. Prerequisite: BUHL 147 or consent of instructor. (Spring.)

Philosophy

PHIL 251 History of Philosophy I (3)
Philosophical problems, including relation of the individual to the state, death and the after life, the physical universe, and existence of God, as seen through Greek and Medieval thinkers such as Socrates, Plato, Aristotle and St. Thomas Aquinas. (Fall.)

PHIL 252 History of Philosophy II (3)
Continuation of topics raised in PHIL 251, as seen through thinkers of the modern period, such as Machiavelli, Luther, Galileo, Descartes, Nietzsche and the existentialists. (Spring.)

PHIL 275 Introduction to Logic (3)
The study of different forms of reasoning, valid vs. fallacious inferences, strong vs. weak arguments, various techniques for deciding when the conclusions met in any area of life and study are supported by logical reasoning and the proper sorts of evidence. Designed to increase the ability to reason clearly and correctly as well as follow and critically evaluate the reasoning of others. (Fall.)

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. (On Demand.)

PHIL 352 Ethics (3)
Designed to help the student achieve a personal, ethical viewpoint through study of such problems as war and violence, right to dissent, abortion, capital punishment, treatment of minorities, famine relief, genetic engineering and the environmental crisis. Survey of major ethical philosophers such as Plato, Aristotle, Locke, Kant, Spinoza, Thoreau, Jefferson, Nietzsche, Mill and Fletcher, with emphasis on application of their concepts to current issues. (Spring.)

Physical Education and Recreation

(School of Social and Behavioral Sciences)

Physical Education Activity Courses (1 ea.)

PER 101 Beginning Swimming
PER 102 Intermediate Swimming
PER 103 Diving
PER 104 Water Polo
PER 108 Canoeing
PER 110 River Rafting
PER 112 Backpacking
PER 113 Beginning Bowling
PER 114 Intermediate Bowling
PER 115 Beginning Golf
PER 116 Intermediate Golf
PER 117 Badminton
PER 119 Archery
PER 121 Beginning Tennis
PER 122 Intermediate Tennis
PER 123 Racquetball
PER 125 Handball
PER 127 Physical Conditioning
PER 129 Weight Training
PER 130 Fitness and Figure Control
PER 132 Aerobics
PER 133 Skiing
PER 135 Cross-Country Skiing
PER 154 Beginning Baseball
PER 155 Intermediate Baseball
PER 156 Soccer
PER 158 Speedball
PER 160 Field Hockey
PER 162 Volleyball
PER 164 Beginning Basketball
PER 165 Intermediate Basketball
PER 166 Flag Football
PER 168 Beginning Hatha Yoga
PER 169 Intermediate Hatha Yoga
PER 170 Beginning Modern Dance
PER 171 Intermediate Modern Dance
PER 172 Square Dance
PER 173 Folk Dance
PER 174 Social Dance
PER 175 Modern Jazz Dance
PER 176 Beginning Ballet
PER 177 Intermediate Ballet
PER 178 Tap Dance
PER 179 Dance Performance Group
PER 180 Varsity Football
PER 181 Varsity Basketball

PER 137 Horseback Riding
PER 139 Roller Skating
PER 141 Bicycling
PER 143 Orienteering
PER 145 Wrestling
PER 147 Track and Field
PER 149 Gymnastics
PER 152 Softball
PER 182 Varsity Baseball
PER 183 Varsity Wrestling
PER 184 Varsity Tennis
PER 185 Varsity Volleyball
PER 186 Varsity Softball
PER 187 Varsity Track and Field
PER 188 Varsity Golf

Physical education courses numbered above 199 do *not count as activity* courses.

PER 200 Introduction to Physical Education (1)
Orientation to the breadth, scope and nature of the professional program in physical education. Required of all physical education majors. (Fall.)

PER 210 Introduction to Recreation and Leisure Services (3)
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. Required of all recreation majors. (Fall.)

PER 211 Fundamentals of Swimming (On Demand.) (1)
PER 212 Methods of Movement (Fall.) (1)
PER 213 Methods of Physical Fitness (Spring.) (2)
PER 214 Methods of Tumbling (Fall.) (1)
PER 215 Methods of Softball (Spring, 1987.) (2)
PER 216 Methods of Flag Football (Fall, 1985.) (2)
PER 217 Methods of Handball and Racquetball (Spring, 1987.) (2)
PER 218 Methods of Personal Defense (Spring, 1986.) (2)
PER 219 Methods of Ballroom Dancing (Fall, 1986.) (2)
PER 220 Methods of Folk and Square Dance (Spring, 1986.) (2)
PER 221 Methods of Apparatus Gymnastics (Fall, 1985.) (2)
PER 222 Methods of Basketball (Fall, 1985.) (2)
PER 223 Methods of Volleyball (Fall, 1986.) (2)
PER 224 Methods of Golf (Spring, 1986.) (2)
PER 225 Methods of Tennis (Fall, 1986.) (2)
PER 226 Methods of Badminton and Archery (Spring, 1986.) (2)
PER 227 Methods of Track and Field (Spring, 1987.) (2)
PER 228 Methods of Soccer (Fall, 1986.) (2)
PER 231 Methods of Bowling (Fall, 1985.) (2)
PER 232 Methods of Wrestling (Spring, 1986.) (2)
PER 233 Methods of Weight Training (Spring, 1987.) (2)

A series of courses designed to acquaint prospective physical educators and recreators with the skills, instructional procedures, techniques and progressions of selected sports normally taught in the public schools and in recreational facilities. Field experiences are required.

PER 234 Care and Prevention of Athletic Injuries (2)
Designed to acquaint the student with the procedures and techniques involved in preventing and treating common injuries associated with competitive athletics. (Fall.)

PER 240 Sports Officiating—Football (Fall, 1985.) (1)
PER 241 Sports Officiating—Basketball (Fall, 1985.) (1)
PER 242 Sports Officiating—Volleyball (Fall, 1986.) (1)
PER 243 Sports Officiating—Wrestling (Fall, 1986.) (1)
PER 244 Sports Officiating—Gymnastics (On Demand.) (1)
PER 245 Sports Officiating—Baseball and Softball (Spring, 1987.) (1)
PER 246 Sports Officiating—Track and Field Events (Spring, 1986.) (1)

A series of courses designed to acquaint students with the rules and procedures of officiating selected competitive sports.

PER 250 Advanced Lifesaving (2)
American Red Cross course, leading to certification of qualified students. (Fall.)

PER 251 Water Safety Instructors Course (2)
American Red Cross course, leading to certification of qualified students. Prerequisite: ARC Advanced Life Saving Certificate. (Spring.)

PER 253 Beginning Improvisation and Composition in Dance (3)
Theory and practice in basic principles of dance composition. (Fall, 1986.)

PER 256 Creative Play Activities in Movement (3)
Designed for students who will be working with young people. Emphasis is placed on creative movement exploration through the Laban series of body, effort, space and relationship. (Spring, 1986.)

PER 257 Repertory Dance (1)
Student participates directly in the production of a dance choreographed by faculty or guest artist. Prerequisite: permission of the instructor. (Spring.)

PER 260 School and Personal Health (3)
Discussion and evaluation of school and personal health problems with emphasis on the development of proper health attitudes and practices, and application of health knowledge and practice in school situations. (Spring, 1987.)

PER 265 Standard First Aid and Cardio-Pulmonary Resuscitation (2)
Designed to provide students with the knowledge and skills required to meet the needs of most emergency first aid and CPR situations. (Fall/Spring.)

PER 270 Recreation and Special Populations (3)
The study of recreation as a resource and tool for recreational personnel working with specific populations. Special populations discussed are: the mentally retarded, youth and adult offenders, mentally ill, alcoholics and drug addicts, the physically disabled, visually impaired, economically deprived, racial minorities and the aged. Prerequisite: PER 210. (Spring.)

PER 276, 277 Theory and Practice in Ballet (1, 1)
Intermediate to advanced work in theory and practice of Ballet for dance emphasis students. Prerequisites: PER 176, 177 or THEA 121, 122. (Fall/Spring.)

PER 280, 281 Theory and Practice of Modern Dance (1, 1)
Intermediate to advanced work in theory and practice of modern dance for dance emphasis students. Prerequisites: PER 180, 181 or THEA 123, 124. (Fall/Spring.)

PER 295 Independent Study (1)
Available in numerous disciplines. Consent of instructor required. (Fall/Spring.)

PER 297 Practicum (1)
Involves students as assistants to teachers of physical education activities or to public recreation practitioners in the recreation setting. (Fall/Spring.)

PER 301 Tests and Measurements in Physical Education (2)
A study of modern testing and evaluation programs applied to physical education including biological, neuromuscular, personal, social and interpretive development. Prerequisite: PER 200. (Spring.)

PER 307 Philosophy and Psychology of Coaching (2)
The fundamental philosophic and psychological principles related to coaching competitive athletic teams. Prerequisite: PER 200. (Spring.)

PER 309 Anatomical Kinesiology (2)
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, PER 200. (Fall.)

PER 310 Sports Theory—Football (Spring, 1987.) (2)
PER 311 Sports Theory—Basketball (Fall, 1986.) (2)
PER 312 Sports Theory—Wrestling (Spring, 1987.) (2)
PER 313 Sports Theory—Baseball and Softball (Spring, 1986.) (2)

PER 314 Sports Theory—Track and Field Events (Spring, 1986.) (2)
PER 315 Sports Theory—Volleyball (Fall, 1985.) (2)
A series of courses designed to acquaint students with fundamental principles, techniques, movements, strategies, patterns and ethics of selected competitive athletics.

PER 320 Elementary School Physical Education (3)
For the prospective elementary school teacher designed to help with the selection and instruction of physical activities for children including movement exploration and fundamentals, rhythms, stunts and tumbling, creative dance, low key and classroom games, and physical fitness. (Fall.)

PER 321 Repertory Dance (1)
Student participates directly in the production of a dance choregraphed by faculty or guest artist. Prerequisite: permission of the instructor. (Spring.)

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. (Fall, 1986.)

PER 326 Methods of Teaching Ballet and Modern Dance (3)
The theory and application of methods of teaching Ballet and Modern Dance. Prerequisites: PER 276 or 277 and PER 280 or 281. (Spring, 1986.)

PER 370 Biomechanics (2)
PER 370L Biomechanics Lab (1)
For physical educators, recreation therapists and athletic coaches involving the application of the principles of mechanics, physics and mathematics to the analysis of sport activities, and the selection and teaching of motor skills through the application of methods and concepts of motion analysis. Prerequisites: BIOL 141 and 141L, PER 212, PER 309. (Spring.)

PER 371 Advanced First Aid (3)
Provides the training, skills, and knowledge needed in sickness and injury emergencies. (Spring, 1986.)

PER 375 Organization and Administration of Intramurals (2)
Acquaints prospective physical educators and recreators with sports, tournaments, units of competition, scoring systems and coordination of intramural sports with physical education and athletic programs. Prerequisite: PER 200. (Fall, 1985.)

PER 380 Planning and Design of Park and Recreation Facilities (3)
A survey of park, recreation areas and facilities (indoor and outdoor) with emphasis on planning, design, park land acquisition and development programs. Prerequisite: PER 210. (Fall.)

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. Prerequisite: PER 210. (Fall, 1985.)

PER 384 Leisure in Contemporary Society (3)
Involves 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. Prerequisite: PER 210. (Spring.)

PER 390 Therapeutic Recreation (3)
A presentation of therapeutic recreation in the United States today. Considers 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. Prerequisites: PER 210, PER 270. (Fall.)

PER 395 Independent Study (1)
See PER 295 course description. Consent of instructor required. (Fall/Spring.)

PER 403 Physiology of Exercise (2)
PER 403L Physiology of Exercise Lab (1)
Deals with the effects of various types of exercise upon human body structure and function. Prerequisite: PER 213 and BIOL 141, 141L. (Fall.)

PER 407 Organization, Administration and Curriculum Development in Physical Education (3)
Designed to acquaint students with organizational structures and administrative techniques in physical education, athletic and intramural sports programs. Prerequisite: PER 200. (Fall.)

PER 408 Methods of Teaching Physical Education in Secondary Schools (3)
Designed to present alternative instructional strategies on a practical application level to prospective secondary physical education teachers preparatory to entry into the student teaching experience. Field experiences are required to supplement lectures and discussions. Prerequisites: upper division standing and completion of at least half of all physical education coursework required for certification. (Fall.)

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 physical and motor fitness, perceptual motor development, movement experience, psychological and social behavior, and lab experience. Prerequisites: PER 210, PER 270, PER 290. (Fall, 1986.)

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. Prerequisite: PER 210. (On Demand.)

PER 421 Repertory Dance (1)
Direct student participation in the production of a dance choreographed by faculty or guest artist. Prerequisite: permission of the instructor. (Spring.)

PER 450 Recreation for the Aged (3)
Prepares 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 210, PER 270, PER 390. (Fall, 1985.)

PER 470 Management and Operation of Golf Facilities (3)
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. Prerequisite: PER 210. (Fall.)

PER 472 Adaptive Physical Education and Recreation For The Physically Disabled (3)
Physical educators and recreators will study physical activity and its modification and adaptation for the physically and mentally disabled participant. Prerequisites: PER 200, 210, or permission of the instructor. (Spring.)

PER 480 Organization and Administration of Recreation and Leisure Services (3)
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. Prerequisite: PER 210. (Spring.)

PER 482 Management and Operation of Aquatic Facilities (3)
Procedures for effective management of swimming pools, wading pools, water front, 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. Prerequisite: PER 210. (Spring.)

PER 484 Programs in Recreation and Leisure Services (3)
Methods of planning a balanced community recreation program. The primary emphases are on leisure counseling, survey and interest finding instruments, brochure construction, activity structures, advertising and program promotion. Prerequisite: PER 210. (Fall.)

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 program are considered. The student is expected to complete an on the job leadership or supervision project. Prerequisite: PER 210. (Spring.)

PER 495 Independent Study (1, 2)
See PER 295 course description. Consent of instructor required. (Fall/Spring.)

PER 499 Internship (12)
Full time placement in a recreation and/or park agency. 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 hundered 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 210, PER 480, PER 482, PER 486. (Fall/Spring/Summer.)

Physics

(School of Natural Sciences and Mathematics)

PHYS 100 Concepts of Physics (3)
A non-mathematical survey of fundamental concepts in physics. Particular attention is given to the cultural development of these ideas from early Greek thought, through the medieval and Renaissance periods, and into the seventeenth and eighteenth centuries. The study of classical mechanics and electromagnetism is followed by a discussion of the simple ideas underlying relativity and modern quantum theory. Three lectures per week. (Fall.)

PHYS 101 Elementary Astronomy (3)
An introduction to modern stellar and extra-galactic astronomy. Topics in planetary exploration, stellar evolution and cosmology will be discussed. Evening observing will be scheduled when possible. Three lectures per week. (Spring.)

PHYS 111, 112 General Physics (4, 4)
A lecture course in mechanics, electricity, magnetism, thermodynamics, sound, optics, and modern physics. Problem solving is emphasized. Prerequisite: A mastery of algebra and trigonometry. Four lectures per week. (Fall/Spring.)

PHYS 111L, 112L General Physics Lab (1, 1)
Laboratory work confirming general principles by observation and evaluation of quantitative data. Detailed lab reports are required. One three-hour session per week. (Fall/Spring.)

PHYS 221 Classical Physics I (4)
The first of the series of foundation courses in physics for scientists and engineers. Newtonian mechanics is used to model the behavior of matter, and the principles of particle motion are discussed in the context of momentum and energy conservation laws. Specific force laws are used to analyze problems drawn

from engineering, biology, geology, astronomy and atomic physics. Galilean relativity is discussed and special relativity is introduced. Cultural as well as philosophical and practical aspects of physics are examined. The language of calculus and vector spaces is used throughout. Corequisite: MATH 151. Four lectures per week. (Fall/Spring.)

PHYS 222 Classical Physics II (4)
A continuation of PHYS 221 primarily concentrating on many-particle systems and matter in bulk. General conservation laws are developed and used to analyze collisions. Further applications are made to rigid body dynamics, oscillations, and wave motion. Elastic solids and fluids are studied. Special relativity is discussed further. Concludes with an introduction to thermodynamics and statistical mechanics. Corequisite: MATH 152. Prerequisite: PHYS 221. Four lectures per week. (Fall/Spring.)

PHYS 222L Experimental Mechanics Lab (1)
Lab work in the classical branches of physics. Formal lab reports are required. One three-hour session per week. (Fall/Spring.)

PHYS 223 Classical Physics III (3)
A foundation course in electromagnetic theory. The field concept is introduced by examining static electric and magnetic fields, both in free space and in matter. Electrodynamics is then developed, culminating in Maxwell's equations, and the entire subject is recast in the language of special relativity. The radiation field is the major application of the completed theory. Corequisite: MATH 253. Prerequisite: PHYS 222. Three lectures per week. (Fall.)

PHYS 223L Experimental Electromagnetism Lab (1)
Lab work in classical branches of physics. Formal lab reports are required. One three-hour session per week. (Fall.)

PHYS 224 Modern Physics (3)
A lecture course introduces special relativity, quantum physics, nuclear physics, and solid state physics. Prerequisite: PHYS 222. Three lectures per week. (Alternate, Spring/On Demand.)

PHYS 262 Methods of Theoretical Physics (3)
Develops mathematical tools which are particularly useful for physics problems. The material incorporates applications of the theory of linear spaces and differential equations, including an introduction to tensor analysis. Prerequisite: one year of physics. Corequisite: MATH 260. Three lectures per week. (Spring.)

PHYS 295 Independent Study (1, 2)
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. (Fall/Spring.)

PHYS 321 Introduction to Quantum Theory I (3)
A foundation course in quantum physics. The failure of classicial physics is first discussed. Thermal radiation, photons, the Rutherford-Bohr atom and the de Broglie wave hypothesis are surveyed. The Schroedinger wave theory for single particles is then used to introduce modern concepts. Measurement theory, wave packets, square-well potentials and harmonic oscillators are examined in a one-dimensional context. The time-dependent and stationary stateformalisms are both developed. The entire subject is set in the framework of Hilbert space. Prerequisites: PHYS 223 and MATH 260. Three lectures per week. (Fall.)

PHYS 322 Introduction to Quantum Theory II (3)
A continuation of PHYS 321. Quantum theory is extended to three dimensions. Angular momentum conservation is discussed and particle spin introduced. The course concludes with the quantum theory of many-particle systems and a dis-

cussion of Fermi-Dirac and Bose-Einstein statistics. Perturbation theory is developed and applied to the study of atoms and their interaction with radiation. Prerequisite: PHYS 321. Three lectures per week. (Spring.)

PHYS 331, 332 Junior Laboratory I, II (2, 2)
Instruction in experimental methods, performance of laboratory experiments, preparation of lab reports according to professional standards, and training in the use of microprocessors in data acquisition and processing. The experiments to be performed are selected from electromagnetism, atomic, nuclear, solid-state, and high-energy physics. Prerequisites: PHYS 223 and 223L. Corequisite: CSCI 341. Two two-hour lab sessions per week. (Fall/Spring.)

PHYS 352 History and Philosophy of Physics (3)
Content will vary from year-to-year, addressing various problems in the interpretation and development of physics concepts. Emphasizes key ideas in the history of physics, using case studies of crucial experiments. Prerequisite: one year of physics or consent of instructor. Three lectures per week. (Spring.)

PHYS 362 Statistical and Thermal Physics (3)
A survey of the physics of bulk matter. Beginning with fundamental physical laws, statistical methods are employed to predict the large-scale behavior of solids, liquids and gases. This approach is based upon the microscopic laws of quantum mechanics. The resulting principles of macroscopic thermodynamics are exhibited in a variety of applications, including the specific heat of solids, black-body radiation and chemical reactions. Corequisite: MATH 260. Prerequisite: PHYS 222. Three lectures per week. (Spring.)

PHYS 395 Independent Study (1, 2)
Allows a student to pursue interests in specialized physics topics. Non-orginal subjects not found in the established curriculum are also appropriate. Prerequisite: consent of the instructor. (Fall/Spring.)

PHYS 396 Topics (3)
Course material varies from year-to-year, with topics selected from such areas as plasma physics, general relativity, astrophysics, symmetry groups and differentiable manifolds in physics. Prerequisite: PHYS 223. Three lectures per week. (Spring, On Demand.)

PHYS 421 Advanced Dynamics (3)
A survey of analytical methods in classical physics. The Lagrangian formulation of mechanics is used to examine various applications of rigid body motion, celestial mechanics, and collision theory. Symmetry principles and accompanying conservation laws are introduced. Concludes with an introduction to Hamilton's equations and field theory. Prerequisites: PHYS 223 and MATH 260. Three lectures per week. (Fall.)

PHYS 431 Atomic Physics (3)
An introduction to the quantum theory of atomic structure, radiations and processes. Prerequisite: PHYS 322. Three lectures per week. (Fall, On Demand.)

PHYS 432 Nuclear and High-Energy Physics (3)
An introduction to the structure and interactions of nuclear and sub-nuclear particles, including a survey of the intrinsic properties of nuclei, descriptions of various models for nuclei, studies of radioactivity and nuclear reaction processes, an introduction to the technologies of high-energy accelerators and detectors, a survey of the properties and structures of elementary particles and their interactions, and an examination of current developments in fundamental interactions. Prerequisite: PHYS 431. Three lectures per week. (Spring, On Demand.)

PHYS 441 Solid State Physics (3)
An introductory study of the properties of the crystalline state of matter, including crystal classifications, vibrational specific heats, electronic structures and conductivities, cohesive energies, magnetic susceptibility and optical properties. Prerequisite: PHYS 322. Three lectures per week. (Fall, On Demand.)

PHYS 482 Senior Research (1)
An individual research project chosen, conducted, and reported under supervision of a faculty adviser. The project may be selected from experimental or theoretical physics. It must culminate in a formal report written in accordance with the American Institute of Physics Style Manual. Normally taken in the second semester of the senior year. Prerequisite: senior standing and permission of instructor. One one-hour consultation per week. (Fall/Spring, On Demand.)

PHYS 494 Seminar (1)
Faculty and students of physics will participate in both informal discussions and formal oral presentations of selected topics of scientific interest, including significant current advances and crucial historical developments. May be repeated for a maximum total credit of 4 credit hours. Prerequisite: upper division standing and permission of instructor. One one-hour session per week. (Fall/Spring.)

Political Science

(School of Social and Behavioral Sciences)

POLS 101, 102 American Government (3, 3)
Ephasizes the framework and functions of the national government with some attention to civil rights and foreign policy. (Fall/Spring.)

POLS 256 State and Local Government (3)
Development, organization and operation of state and local governments in the United States. Prerequisites: POLS 101, 102. (Fall.)

POLS 261, 262 Comparative Governments (3, 3)
An introduction to comparative politics emphasizing the political systems of Great Britain, France, Germany, Soviet Union, Chinese People's Republic and the developing nations. Prerequisites: POLS 101, 102 or permission of the instructor. (Fall, 1985/Spring, 1986.)

POLS 302 International Relations (3)
The methods and institutions of international relations with emphasis on their role in shaping the modern world community. Prerequisite: HIST 102 or permission of the instructor. (Fall, 1985.)

POLS 310 Constitutional Interpretations (3)
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. (Spring, 1985.)

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. (Spring, 1986.)

POLS 313 American Political Parties and Pressure Groups (3)
Traces the development of political parties and pressure groups in the United States and their contemporary impact. Prerequisites: POLS 101, 102 or permission of the instructor. (Spring, 1986.)

POLS 350 American Political Thought (3)
Political ideas, theories and concepts that have shaped American political institutions. Prerequisites: POLS 101, 102 or equivalents or permission of the instructor. (Spring, 1986.)

POLS 395 Independent Study (1, 2)
Prerequisites: six hours of political science, a grade point average of 2.75 or higher and permission of the instructor. (Fall/Spring.)

POLS 399A Internship: Washington D.C. (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 in congressional offices, executive agencies and the Justice Department. Prerequisites: 6 hours of political science and consent of the program coordinator. (Fall/Spring.)

POLS 399B Internship: State Legislature (9)
An internship conducted in Denver in cooperation with Metropolitan State College. Students are assigned as interns with State Legislators and will work on the floor of the State House of Representatives and the State Senate. Students are encouraged to enroll in one or two courses at Metropolitan State College concurrent with the internship. Prerequisites: upper division standing, 6 hours of political science and permission of the instructor. (Spring.)

Psychology

(School of Social and Behavioral Sciences)

PSY 121, 122 General Psychology (3, 3)
A survey of the fundamental principles of psychology. (Fall/Spring.)

PSY 200 Psychology of Human Adjustment (3)
A study of the problems of mental health and of the strategies useful in the pursuit of effective living in today's society. An introduction to abnormal psychology emphasizing prevention of serious problems through understanding change and growth in the modern world. (Spring.)

PSY 210 Environmental Psychology (3)
An application of the principles and findings of general psychology to the challenge of mankind's living in the environment. Prerequisites: PSY 121, 122 or permission of instructor. (Fall.)

PSY 220 Psychology of Women (3)
Historical and theoretical considerations toward the understanding of women's psychology in areas of physiology, love, work, friendship, marriage and psychological relationships. (Fall.)

PSY 233 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. (Fall/Spring.)

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. (Fall, 1985.)

PSY 310 Child Psychology (3)
Principles of human development and psychology from conception to puberty. Prerequisites: PSY 121, 122. (Spring.)

PSY 312 Experimental Psychology (3)
Application of experimental techniques to various areas of psychology. Includes experimentation in psychophysics, perception, learning and motivation. Prerequisites: PSY 121, 122. (Spring.)

PSY 314 Psychology of Learning (3)
Classic and modern psychological explanations of the phenomenon of learning at both the human and lower animal levels. Prerequisites: PSY 121, 122; STAT 200. (Fall.)

PSY 320 Social Psychology (3)
A study of social influences upon behavior. Consideration is given to topics such as: social perception, attitude formation and change, communication and leadership. (Fall.)

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. (Fall.)

PSY 330 Adolescent Psychology (3)
Principles of human physiological and psychological development from puberty through young adulthood. Prerequisites: PSY 121, 122. (Fall.)

PSY 332 Individual and Group Differences (3)
A study of the ways and extent to which individuals and groups differ from one another, and of the factors responsible for those differences. (On Demand.)

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. (Spring.)

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. (Fall.)

PSY 395 Independent Study (1, 2)
Prerequisites: nine hours of psychology, a cumulative grade point average of at least 2.75 and permission of the instructor. (Fall/Spring.)

PSY 400 Psychological Testing (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 test evaluation, and a survey of the major tests used in educational and psychological testing. Prerequisites: PSY 121, 122; STAT 200. (Fall.)

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 BBA candidates. (Spring.)

PSY 414 Systems and Theories of Psychology (3)
Systems and theories of modern psychology: the development of scientific psychology since 1879. Prerequisites: PSY 121, 122 and 12 or more hours of upper division psychology course work or permission of the instructor. (Spring.)

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. (Spring.)

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. (On Demand.)

Radiologic Technology

(School of Nursing and Allied Health)

RADT 110 Radiologic Introduction (3)
Provides a complete overview of radiologic technology with emphasis on guidelines of the program, history, the medical team, health-care delivery, medical ethics, professional conduct, organization and development. Introduces the student to medical terminology, communications, body mechanics and moving patients, medical asepsis, vital signs, medical emergencies and care of the critically ill and special patient.

RADT 121 Radiologic Technology I (2)
RADT 121L Radiologic Technology I Lab (1)
Radiography of appendicular skeletal system, abdomen and thoracic viscera. 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 and 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)
Emphasis on areas covered in RADT 121. Includes one hour of film critique provided by the clinical instructor.

RADT 125 Radiologic Science I (2)
Provides the student with a knowledge of basic physics, fundamentals of x-ray generating equipment, x-ray production and interaction, beam characteristics and units of measurement.

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, digestive system, urinary system, and dental radiography.

RADT 132 Radiologic Principles II (2)
RADT 132L Radiologic Principles II Lab (1)
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. Quality assurance factors are discussed and applied in the energized lab.

RADT 133 Clinical Experience II (4)
Continuation of RADT 123 in all phases of radiology, especially the areas covered in RADT 122. Includes one hour a week of film critique provided by the clinical instructor or radiologist.

RADT 135 Radiologic Science II (2)
Provides the student with the principles of radiation interaction in cells. The effect and factors affecting cell response to radiation. Acute and chronic effects of radiation are discussed. Radiation protection responsibilities by the radiographer to patients, personnel and the public is presented. Maximum permissible dose and regulatory involvement is discussed.

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 one hour 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. A detailed study of pediatric radiography in regards to patient care as well as procedures is discussed.

RADT 253 Clinical Experience IV (10)
Continuation of RADT 243 in all phases of radiology. Includes one hour 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 one hour per week of film critique provided by the clinical instructor or radiologist.

Safety, Industrial

(School of Industry and Technology)

IND 220 Industrial Safety Practices (3)
An overview of industrial safety regulations and practice including fire, electrical, mechanical, dust and vapor hazards and appropriate accepted safety practice related to each. Includes a segment on life support and trauma management relating to emergency care. Occupational and Mine Safety and Health, as well as other regulations will be discussed. (Spring.)

Social Science

(School of Social and Behavioral Sciences)

SOCS 199 Internship (1, 2)
Designed to allow social science students to explore areas of interest through work experience in schools, public offices, human services agencies, etc. (Fall/Spring.)

SOCS 210 Religion in the American Experience (3)
An interdisciplinary course emphasizing the role of religion and religious movements in the historical development of American civilization and culture. (Spring, 1987.)

SOCS 310 Methods of Social Research (3)
Research methods and their application to the social sciences. Prerequisites: PSY 121, 122 or SOC 260 and STAT 200. (Spring.)

SOCS 340 Methods of Teaching Social Studies: Secondary Schools (3)
Designed for potential teachers in secondary schools. Examines the social studies comparatively and explores both new and traditional social studies curricula, philosophies and teaching methods. Prerequisites: upper division status, EDU 321 (Metro) and 21 hours of social sciences. (On Demand.)

SOCS 351 History of Ideas: 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. (Fall.)

SOCS 352 History of Ideas: 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. (Spring.)

SOCS 396 Topics (1,2,3)
Allows flexible scheduling of topics not considered in other course offerings. Topics vary with instructors and disciplines considered. Prerequisite: upper division standing. (On Demand.)

Sociology

(School of Social and Behavioral Sciences)

SOC 144 Marriage and the Family (3)
An introductory course in the sociology of the marriage and family institutions in contemporary America. Includes an examination of important aspects of courtship and marriage; problems commonly experienced in contemporary man-woman relationships, parenting in modern America and alternatives to traditional marriage. (Fall/Spring.)

SOC 260 General Sociology (3)
A survey of sociological concepts designed to acquaint students with terminology, basic principles and important theories. Not open to freshmen. (Fall.)

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, or permission of instructor. (Spring.)

SOC 300 Political Sociology (3)
An interdisciplinary study of the interactions and interrelationships between social and political forces. Prerequisite: SOC 260 or POLS 101, 102, or permission of instructor. (Fall, 1985.)

SOC 310 Sociology of Religion (3)
A study of the social and cultural manifestations of religion. Attention is given to the insights of sociologists, recent studies and contemporary social movements. Prerequisite: SOC 260 or permission of instructor. (Fall, 1986.)

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 areas. (Fall, 1986.)

SOC 314 Population Impact Problems and Urbanization (3)
A survey of population problems and theories of population growth, industrialization and urbanization. (Fall, 1985.)

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. Prerequisites: SOC 260 or permission of instructor. (Spring, 1986.)

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, or permission of instructor. (Spring, 1987.)

SOC 350 Sociology of Death and Dying (3)
A critical review of concepts and findings of social scientists and a semi-scientific review of literature dealing with death. (Fall, 1985.)

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 and the dynamics of social interaction. (Spring, 1986.)

SOC 395 Independent Study (1, 2)
Prerequisites: 6 hours of sociology, a cumulative grade point average of not under 2.75, and permission of instructor. (Fall/Spring.)

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 or permission of instructor. (Fall, 1986.)

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, or permission of instructor. (Spring, 1987.)

Speech

(School of Humanities and Fine Arts)

SPCH 101 Interpersonal Communications (3)
Concerned with language, listening, response, defense of statement and/or nonverbal communication between two or more people. (Fall/Spring.)

SPCH 102 Speechmaking (3)
Designed to help the student in the preparation, organization and delivery of a speech. (Fall/Spring.)

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. (Spring.)

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. (Fall.)

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. (On Demand.)

SPCH 231, 232 Debate (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. (On Demand.)

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. (On Demand.)

SPCH 242 Readers' 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. (On Demand.)

SPCH 303 Nonverbal Communication (3)
Survey of research in the field of nonverbal communication. Includes the opportunity to observe, record and interpret the nonverbal dimensions of communication behavior and the opportunity to enhance awareness and skill in the nonverbal area of communication behavior in a variety of fields: mass media, law, theatre, group dynamics, etc. (Spring, 1985).

SPCH 403 Teaching of Speech & Drama (3)
The teaching of communication, speechmaking, debate and discussion; creative drama, oral interpretation; play selection and direction in the public schools. Prerequisite: Junior standing in English education or speech/theatre programs. (Summer.)

Statistics

(School of Natural Sciences and Mathematics)

STAT 200 Probability and Statistics (3)
An introduction to statistics and statistical methods. Included are: analysis of data, elementary probability, binomial distribution, random sampling, normal distribution, Student's t-distribution, regression and correlation, chi-square distribution, F-distribution, and nonparametric methods. Prerequisite: MATH 110 or two years of high school algebra. Three lectures per week. (Fall/Spring.)

STAT 214 Business Statistics (3)
An introduction to the methods employed for the collection, description, and analysis of data for business decision-making purposes. Measures of central tendency and dispersion, probability, the normal and t-distributions, estimation of parameters, and one-sample tests of hypothesis are included. Prerequisite: MATH 113 or two years of high school algebra. Three lectures per week. (Fall/Spring.)

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. (Fall/Spring.)

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 and least squares. Prerequisites: STAT 200 or STAT 214, or consent of instructor. Three lectures per week. (Fall/Spring.)

STAT 313 Sampling Techniques (3)
Survey designs, simple random, stratified and systematic samples; systems of sampling, methods of estimation and costs. Prerequisite: STAT 200 or STAT 214, or consent of instructor. Three lectures per week. (Fall/Spring.)

STAT 325 Statistical Application in Social Studies and Psychology (2)
Applied problems in social science, linear models, design of experiments and sampling. For natural or social science students. Prerequisite: STAT 200. Two lectures per week. (Fall/Spring.)

STAT 494 Seminar (1)
Seminars conducted by faculty, students and visiting professors. A total of fifteen hours needed for one seminar credit. One lecture per week. (Fall/Spring.)

Theatre and Dance

(School of Humanities and Fine Arts)

THEA 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.

THEA 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. (On Demand.)

THEA 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 lab sessions. (Fall/Spring.)

THEA 119, 120 Technical Performance (1, 1)
Direct student participation in the technical aspects of various productions. Grade will be dependent upon the preparatory work involved and upon the final technical production. Students must work a minimum of two productions in order to receive credit. (Fall/Spring.)

THEA 121, 122 Beginning and Intermediate Ballet (1, 1)
Basic elements concerned with body control and technique. (Fall/Spring.)

THEA 123, 124 Beginning and Intermediate Modern Dance (1, 1)
Practical experience with movement techniques. Problem solving in shape, force, space, time and relationship. (Fall/Spring.)

THEA 125 Beginning Tap Dance (1)
Basic course in a popular rhythmic American dance form that combines movement and sound. (Spring.)

THEA 127 Beginning Modern Jazz (1)
The concept of jazz as a dance form. (Spring.)

THEA 128, 129 Workshop in Theatre (1, 1)
Specialized workshops in various aspects of theatre made possible by visiting artists and/or lecturers. (On Demand.)

THEA 141 Theatre Appreciation (3)
Designed to help the student appreciate all phases of theatre art by examining basic presentation techniques of theatre, motion picture, television and radio. (Spring.)

THEA 142 Make-Up (2)
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. (Fall/Spring.)

THEA 143 Costuming (2)
The basic outline of costume design, construction and history of costume. (Fall/Spring.)

THEA 147, 148 Drama Performance (1, 1)
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. (Fall/Spring.)

THEA 211 Creative Play Activities—Dance (3)
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. (Fall.)

THEA 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. (Fall/Spring.)

THEA 214 Summer Theatre (3)
See THEA 114.

THEA 217, 218 Play Production (1, 1)
See THEA 117, 118. (Fall/Spring.)

THEA 219, 220 Technical Performance **(1, 1)**
See THEA 119, 120. (Fall/Spring.)

THEA 221 Repertory Dance **(1)**
Provides opportunity for student to participate in dance productions. Prerequisite: demonstration of movement proficiency, with permission of instructor. (Fall/Spring.)

THEA 222 Improvisation and Composition Dance **(1)**
Theory and practice in the basic principles of dance composition. (Spring.)

THEA 228, 229 Workshop in Theatre **(1, 1)**
See THEA 128, 129. (On Demand.)

THEA 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 medium. (Fall, 1985.)

THEA 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 medium. (Spring, 1986.)

THEA 242 Properties **(3)**
Develops skills in property research, acquisition, construction and application. (Fall, 1986.)

THEA 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. (Fall.)

THEA 244 Theatre Practice: Beginning Lighting **(3)**
A basic course in the use of light and instrumentation in various stage productions, including plays, dance concerts, and music programs. (Spring.)

THEA 247, 248 Drama Performance **(1, 1)**
See THEA 147, 148. (Fall/Spring.)

THEA 251 Acting I: Beginning Acting **(3)**
The basic fundamentals of acting through the use of improvisation and study of scenes. Students perform in solo, duo and/or group scenes. Lab work includes participation in student-directed plays. Prerequisite: SPCH 112 or permission of instructor. (Fall.)

THEA 252 Acting II: Stage Movement **(3)**
The basic techniques of gesture, mime and pantomime. An emphasis is placed upon developing an awareness of the use of the body as a means of expression. (Spring.)

THEA 314 Summer Theatre **(3)**
See THEA 114.

THEA 315 Problems in Modern Theatre **(2)**
See THEA 115. (On Demand.)

THEA 317, 318 Play Production **(1, 1)**
See THEA 117, 118. (Fall/Spring.)

THEA 319, 320 Technical Performance **(1, 1)**
See THEA 119, 120. (Fall/Spring.)

THEA 321 Repertory Dance **(1)**
See THEA 221. (Fall/Spring.)

THEA 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. (Fall/Spring.)

THEA 328, 329 Workshop in Theatre (1, 1)
See THEA 128, 129. (On Demand.)

THEA 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. (Spring, 1986.)

THEA 343 Scene Design (3)
The student experiences designing scenery for various types of productions. Emphasis is placed on drafting, perspective and rendering techniques. Prerequisite: THEA 243 or permission of instructor. (Spring, 1985.)

THEA 344 Advanced Stage Lighting (3)
Advanced training in the design and execution of lighting for the stage. (Fall, 1986.)

THEA 347, 348 Drama Performance (1, 1)
See THEA 147, 148. (Fall/Spring.)

THEA 351 Acting III: Stage Dialects (3)
Designed to help the actor in the use of dialects in performances. Prerequisite: SPCH 112 or knowledge of the International Phonetic Alphabet and permission of the instructor. (Spring, 1986.)

THEA 352 Acting IV: Styles in Acting (3)
Introduces the actor to the various styles of acting used for the Classical, Elizabethan, Romantic, 19th century Melodrama and realistic periods. (Fall, 1986.)

THEA 401 Theatre Management (3)
The business aspects of producing plays: publicity, dealing with agents, artists, union representatives, tickets, accounting procedures and scheduling. Practical experience gained from working with college theatre. (Spring.)

THEA 413 Creative Play Activities—Drama (3)
An in-depth study of creative dramatics, including advanced work in improvisation and the use of drama as a teaching tool, for those concerned with drama as an art in children's basic education, including recreation directors, elementary teachers and those seeking recertification. Prerequisite: THEA 213 or consent of instructor. (Fall/Spring.)

THEA 414 Summer Theatre (3)
See THEA 114.

THEA 417, 418 Play Production (1, 1)
See THEA 117, 118. (Fall/Spring.)

THEA 419, 420 Technical Performance (1,1)
See THEA 119, 120. (Fall/Spring.)

THEA 428, 429 Workshop in Theatre (1, 1)
See THEA 128, 129. (On Demand.)

THEA 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. (On Demand.)

THEA 447, 448 Drama Performance (1, 1)
See THEA 147, 148. (Fall/Spring.)

THEA 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 THEA 452. (Fall, 1986.)

THEA 452 Advanced Directing (3)
The student directs and produces a one-act play for public viewing. Prerequisite: THEA 451 or permission of instructor. (Spring.)

THEA 455 Acting V: Advanced Acting (3)
Designed for the serious acting student who is interested in polishing and refining the acting art through various techniques in the approach to a role. Prerequisite: THEA 251 or permission of instructor. (Spring, 1986.)

THEA 456 Acting VI: Acting for the Camera (3)
Aids the actor in making the transition from stage acting techniques to camera acting techniques. Student will have the opportunity to work on camera with simplified sets and properties. Prerequisite: THEA 251 or permission of instructor. (Fall.)

THEA 457 Acting VII: Auditions (3)
Covers the writing of a resume, how to look for an acting job and the preparation of materials to be used in auditions. Students will be required to be prepared for auditioning on a regional level. Prerequisite: Acting I and V and/or permission of instructor. (On Demand.)

THEA 461 Experimental Directing (3)
The student produces and directs a play using experimental methods of staging. Prerequisite: THEA 451, 452 or permission of instructor. (On Demand.)

THEA 495 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 theatre department. (Fall/Spring.)

Travel, Recreation, and Hospitality Management

(School of Business)

BUTR 101 Travel Industry I (3)
An introduction to 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 (3)
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 or permission of instructor. (Spring.)

BUTR 103 Travel and Tourism Marketing Techniques (3)
An interpretation of the marketing problems, strategies and techniques of industries engaged in serving the traveler. Evaluates methods of identifying the potential markets and preferences and likely responses to promotional programs of both private and governmental travel entities. Required of all Travel, Recreation and Hospitality Management majors. Prerequisite: BUTR 101 or permission of instructor. (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 or permission of instructor. (Fall.)

BUTR 202 Management in the Travel Industry II (3)
Prerequisite: BUTR 201, or permission of instructor. (Spring.)

BUTR 295 Independent Study (1,2)
An opportunity for a student with a previously developed interest in and knowledge of a specialized subject to conduct a comprehensive research program. Requires the use of in-depth academic research and reporting methodology. Student must prepare a comprehensive proposal outlining the study and its justification and complete an application 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 9 credit hours of work in the field chosen for the study and who have a cumulative grade-point average of 2.50 or higher will be allowed to enroll for credit in this course. Consent of instructor required. (Fall/Spring/Summer.)

BUTR 298 Related Work Experience (1, 2)
See BUAC 298 course description. (Fall/Spring.)

BUTR 299 Internship (15)
Combines classroom studies with salaried work in an experience which relates to the student's career goal. Only for, and required of, Travel, Recreation, and Hospitality majors. Credit not available through competency or challenge. Required of Travel, Recreation and Hospitality Management majors. Prerequisite: BUTR 102 of permission of instructor and a minimum 2.0 GPA. (On Demand.)

Welding

(School of Industry and Technology)

WELD 110 Welding Laboratory I (8)
Shop practice in safe use of equipment. Shielded metal arc welding on mild steel in all positions. (Fall/Spring/Summer.)

WELD 112 Welding Theory (4)
Classroom 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. (Fall.)

WELD 115 Applied Mathematics (2)
Basic mathematics, fractions, decimals, percentages and basic algebra, all as applied in industry. Prerequisite: MATH 015 or equivalency. (Fall.)

WELD 120 Welding Laboratory II (8)
A continuation of WELD 110 in refining the welding of mild steel in all positions. Prerequisite: WELD 110 or consent of instructor. (Fall/Spring/Summer.)

WELD 121 Blueprint Reading I (2)
Basic principles of blueprint interpretation and visualization of objects as applied to industry. Also the use and interpretation of welding symbols. (Spring.)

WELD 122 Blueprint Reading II (2)
A continuation of blueprint reading with emphasis on working with shop drawings. Prerequisites: WELD 121, WELD 131, or consent of instructor. (Fall.)

WELD 131 Fabrication Layout I (2)
Basic layout techniques used from shop drawings to fabrication of sheet metal, plate, structural shapes and pipe. (Spring.)

WELD 132 Fabrication Layout II (2)
A continuation of fabrication layout, WELD 131. Prerequisite: WELD 121, ENGR 105 or consent of instructor. (Spring.)

WELD 141 Shop Management and Structural Theory (4)
A study of shop operations, expenditures, floor-plan design and equipment of the modern-day shop and various codes as applied to industry. (Fall.)

WELD 145 Metallurgy (3)
A general study of smelting, refining, and alloying. Discussion of heat-treating methods and the effects of welding on metals. (Spring.)

WELD 230 Welding Laboratory III (8)
A continuation of WELD 120 with emphasis on low-hydrogen electrode welding techniques. Prerequisite: WELD 120 or consent of instructor. (Fall/Spring/Summer.)

WELD 240 Welding Laboratory IV (8)
A continuation of WELD 230 with emphasis on Mig, Tig, and pipe welding. Prerequisite: WELD 230 or consent of instructor. (Fall/Spring/Summer.)

WELD 261 Testing & Inspection (3)
An advanced course designed to cover testing and inspection of welds to determine their soundness. The study will broadly cover visual, destructive and non destructive testing of welds as well as a study of codes and welder certification. (Spring.)

WELD 295 Independent Study (1, 2)
Specialized studies related to student's field of training beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration. Prerequisite: Sophomore standing or equivalent. (Fall/Spring/Summer.)

WELD 299 Internship (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. Work experience is scheduled each semester and may be taken as an elective after completion of the second semester of welding lab. 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. (Fall/Spring/Summer.)

INSW 111 Oxy-fuel Welding I (2)
Shop practice and skill development in the safe use of Oxy-fuel cutting/welding equipment. Basic Oxy-fuel welding on mild steel in flat and vertical positions and some emphasis on Oxy-fuel cutting on various thicknesses of mild steel plate. (Fall.)

INSW 112 Oxy-fuel Welding II (2)
A continuation of Oxy-fuel Welding I with increased emphasis on shop practice in safe use of Oxy-fuel cutting welding equipment. Oxy-fuel welding and brazing, both ferrous and non-ferrous, on both pipe and plate in all practical thicknesses. Prerequisites: Completion of INSW 111 or equivalent and consent of instructors. (Fall.)

Mesa College reserves the right to withdraw from its offerings any program or 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.

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MESA COLLEGE STAFF

General Services

JOHN U. TOMLINSON (1975), President; B.A., M.S., Fort Hays Kansas State University; Ph.D., University of Kansas.

CHRISTIAN J. BUYS (1983), Vice-President for Academic Affairs; B.A., Hope College; Ph.D., University of Colorado.

JO F. DORRIS (1977), Vice President for Administrative and Student Affairs; B.A., Oklahoma College for Women; M.S., Oklahoma State University, Ed.D., Arizona State University.

JOHN A. RICCILLO, C.P.A. (1978), Vice-President for Business and Finance; B.S., Fordham University.

CARL R. WAHLBERG, JR. (1972), Executive Assistant to the President; B.A., M.A., Ed.D., University of Denver.

ROBERT L. BECKER (1980), Director of Western Colorado Rural Communities Program; M.A., Northern Michigan University.

CONNIE J. BRAMER (1982), Adult Vocational Coordinator; B.A., M.A., Western State College.

WILLIAM C. CONKLIN (1972), Director of Physical Plant.

CHARLES E. GREEN (1980), Director of Budgeting and College Services; B.S., University of Missouri; M.A., University of Northern Colorado.

CHARLES R. HENDRICKSON (1967), Director of Learning Resource Center; B.A., M.A., Ed.D., University of Northern Colorado.

DALE E. JARRELL (1978), Director of Data Processing; B.S., Colorado State University.

JOHN C. (JACK) KESTER (1966), Director of Purchasing; A.S., Mesa College.

R. PAUL MAFFEY (1980), Director of Publicity and Publications; B.A., Colorado State University.

ALLAN C. ORR (1984), Assistant Controller; B.M.E., General Motors Institute; M.B.A., University of Michigan.

BETSY A. SNEED (1968), Assistant Vice President for Academic Affairs; B.S., East Texas State University; M.A., Adams State College.

JESS C. ROSE (1982), Director of Continuing Education; Ed.D., University of Northern Colorado.

PAUL SWEARENGIN (1984), Assistant Controller; B.S., University of Northern Colorado.
DOUGLAS G. TUCKER (1975), Director of Personnel and Payroll; B.A., Western State College.
PAUL G. WELLS (1978), Area Vocational School/Program Director, Assistant Professor of Applied Technology; A.S., Mt. San Jacinto Community College; B.A., University of Redlands, California.
GAIL L. YOUNGQUIST (1967), Coordinator Supplemental Services; M.A., Colorado State University; B.A., University of Northern Colorado.

Student Services

NANCY ADAMS (1984), Registrar; B.A., Eastern Oregon State College; M.Ed., Oregon State University.
DEAN R. ALTES (1984), Assistant Director of Housing and Residence Life; B.S., Mesa College; M.A., Adams State College.
ROBERT E. ANTHONY (1984), Coordinator of Intramural Sports and Recreational Services; B.S., M.S., Southern Illinois University.
RICHARD E. BACA (1972), Director/Student Life Center; B.S., University of Colorado; M.A., University of Northern Colorado.
TILMAN M. BISHOP (1962), Director of Student Services; B.A., M.A., University of Northern Colorado.
KATHY BOESCHENSTEIN (1983), Counselor; M.A., Hunter College.
SHERRI L. HASTINGS (1983), Assistant Director of Admissions; B.A., University of Hawaii.
JOHN W. (JAY) JEFFERSON (1967), Director of College Center; Director of Athletics; B.A., M.A., Adams State College.
FRANK KELLER (1973) Associate Director of College Center; B.A., Adams State College; M.A., University of Northern Colorado.
SUSAN M. MOORE (1982), Bookstore Manager; B.A., Chestnut Hill College.
C. A. (JACK) SCOTT (1963), Director of Admissions/Womens Basketball Coach; B.A., University of Northern Colorado; M.A., University of Denver.
LEE F. SEEBO (1979), Director of Housing; B.A., Averett College; M.S., Radford College.
LIONEL W. (BUD) SMOCK (1967), Director of Financial Aid 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.
SANDRA S. STELLAVATO (1984), Financial Aid Counselor/Student Employment Coordinator; B.B.A., Mesa College.
ROBERT P. STOKES (1970), Coordinator Career/Placement Services; B.A., Western State College; M.A., Colorado State University.
CATHERINE M. WARING (1981), Coordinator of Student Activities; M.S., Counseling, Central Conn. State College.

Library Staff

BARBARA A. BORST (1981), Circulation Librarian; M.L.S. Library Science, Indiana University; B.A., Sterling College.
M. ELIZABETH (BETTY) GOFF (1965), Assistant Professor of Library Science, Reference Librarian; B.A., University of Colorado; M.A., University of Denver.
KENTON W. MAIN (1981), Media Librarian; B.S., Ball State University; M.S., Indiana University.
KATHLEEN R. TOWER (1972), Assistant Professor of Library Science, Catalog Librarian; B.M.E., M.A., University of Denver.
MARTIN A. WENGER (1968), Periodical Librarian; 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, R. Bruce Crowell (1979)
School of Industry and Technology, Arlynn D. Anderson (1979)
School of Natural Sciences and Mathematics, William E. Putnam (1961)
School of Nursing and Allied Health, Theresa Neofotist (1981)
School of Social and Behavioral Sciences, Donald A. MacKendrick (1956)

+ Department Chairs

Accounting and Computer Information Systems, Business, James C. Buckley (1972)
Agriculture, Maylon D. Peters (1977)
Art, Donald E. Meyers (1962)
Behavioral Science, Harry A. Tiemann (1962)
Biological Sciences, Edward C. Hurlbut (1976)
Business Administration, Dale L. Dickson (1969)
Chemistry and Physics, Gordon Gilbert (1980)
Computer Science, Mathematics, and Engineering, Edwin C. Hawkins (1963)
Geology, Jack E. Roadifer (1966)
Languages and Literature, Robert L. Johnson (1962)
Music, Maebeth Guyton (1971)
Office Administration, Muriel L. Myers (1970)
Physical Education and Recreation, Wayne W. Nelson (1955)
Social Science, Dan Arosteguy (1976)
Speech and Theatre, William S. Robinson (1960)

(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.)

+ See individual listings under Instructional Personnel.

INSTRUCTIONAL PERSONNEL

LEE AHRENS (1984), Assistant Professor of Business Administration; B.S., University of Nebraska; M.S., University of North Dakota; M.B.A., University of Nebraska.

JOANNA S. ALLMAN (1984), Assistant Professor of Psychology; B.A., Furman; M.S., Ed.D., University of Tennessee.

ARLYNN D. ANDERSON (1979), Professor of Applied Technology; Dean, School of Industry and Technology; B.S., M.Ed., Colorado State University; Ed.S., Michigan State University.

NICHOLAS J. ANDERSON (1976), Assistant Professor of Business Management; B.B.A., Eastern New Mexico University; M.B.A., University of Denver.

L. WILLIAM ANTOINE (1983), Professor of Reading Mesa/Metro Consortium; B.S., Southeast Missouri State College; M.S., University of Kansas, Ed.Sp., University of Florida; Ed.D., Northern Illinois University.

DANIEL J. AROSTEGUY (1976), Professor of Economics; Director of Selected Studies; Chair, Department of Social Studies; B.S., M.S., University of Nevada-Reno; Ph.D., Colorado State University.

CHARLES W. BAILEY (1965), Professor of Mathematics; B.A., M.A., University of Northern Colorado.

JENNIE BALL (1984), Instructor in Mass Communications; B.J., M.A., University of Texas-Austin.

RICHARD BALLARD (1984), Assistant Professor of Biology; B.A., M.S., California State University; Ph.D., Utah State University.

CATHY BARKLEY (1984), Instructor of Mathematics; B.S., Bethany Nazarene College; M.S., Purdue University.

BRUCE A. BAUERLE (1972), Professor of Biology; B.A., University of Kansas; M.S., University of Missouri-Kansas City; D.A., University of Northern Colorado.

BRENDA K. BEDEN (1984), Instructor of Graphic Arts; A.A.S., Mesa College.

VIRGINIA L. BEEMER (1968), Associate Professor of Education; Director of Early Childhood Education Program; B.S., M.A., Northern Arizona University.

RICHARD L. BERKEY (1967), Associate Professor of English; B.A., Fort Lewis College; M.A., Eastern New Mexico University.

EDWARD A. BOEHLER, C.P.A. (1981), Associate Professor of Accounting; B.S., University of California-Berkeley; M.B.A., Golden Gate University.

ORVILLE L. BOGE (1956), Professor of Chemistry; B.A., M.A., University of Northern Colorado.

HAROLD R. BOLLAN (1970), 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.

A. JEFF BRIGHAM (1984), Professor of Teacher Education at Mesa/Metro Consortium; B.A., M.A., University of Wisconsin; Ed.D., University of Wyoming.

CLIFFORD C. BRITTON (1964), 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), Associate Professor of Office Administration; B.S., M.Bus.Ed., University of Oklahoma.

PERRY H. CARMICHAEL (1969), Associate Professor of Speech; B.A., M.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.

LEWIS M. CHERE (1980), Assistant Professor of History; B.A., Wilkes College; M.A., University of North Carolina; Ph.D., History, Washington State University.

PHYLLIS L. CHOWDRY (1976), Associate Professor of Biology; B.S., University of Denver; M.N.S., Arizona State University; D.A., University of Northern Colorado.

ROBERT M. CORTESE (1980), Instructor of Physical Education/Head Football Coach; B.A., University of Colorado; M.A., University of Northern Colorado.

DAVID M. COX (1981), Assistant Professor of Theatre; M.F.A., University of Utah.

R. BRUCE CROWELL (1979), Professor of English; Dean, School of Humanities and Fine Arts; B.A., College of William and Mary; M.A., University of Arizona; B.D., San Francisco Theological Seminary; Ph.D., University of Arizona.

JAMES C. DAVIS (1957), Professor of Mathematics; B.A., M.A., University of Northern Colorado.

DIANE DEA, R.N. (1977), Assistant Professor of Nursing; B.S.N., University of Maryland; M.S.N., University of Colorado.

DALE L. DICKSON (1969), Associate Professor of Business Management; B.S.B.A., University of Denver; M.Ed., Colorado State University; Ed.D., Univ. of Northern Colo.

MATTS G. DJOS (1976), Associate Professor of English; B.A., University of Washington; M.A., University of Idaho; Ph.D., Texas A&M University.

DAVID R. DUFF (1973), Associate Professor of Applied Technology (Graphic Communications); B.A., M.Ed., Colorado State University.

MARIE JOYCE EICHER, R.N. (1973), Professor of Nursing; B.S., Union College; M.S., University of Colorado.

CHARLES R. FETTERS (1976), Assistant Professor of Applied Technology (Electronics); B.S., New Mexico State University.

PATRICIA A. FINK (1966), Emeritus Professor of Psychology; B.A., M.A., University of Northern Colorado.

KAREN E. FORD (1984), Assistant Professor of Psychology; B.A., Mississippi College; M.A., Northeast Louisiana; Ph.D., University of Mississippi.

MARCIA FORREST (1980), Assistant Professor of Nursing; M.S.N., University of Miami.

DELL R. FOUTZ (1972), Professor of Geology; B.S., M.S., Brigham Young University; Ph.D., Washington State University.

JOSE ELI FRESQUEZ (1971), Associate Professor of Applied Technology (Auto Mechanics); B.A., M.Ed., Colorado State University.

RICHARD R. FROHOCK (1963), Associate Professor of English; B.A., William Jewell College; M.A., University of Oregon.

HELEN GABRIEL (1977), Assistant Professor of Applied Technology (Dental Assisting); Director of Dental Assisting and Expanded Functions Program; B.V.E., California State University-Sacramento.

JOSE L. GALLEGOS (1976), Associate Professor of English; B.A., Western State College; M.A., Ph.D., University of Colorado.

GORDON GILBERT (1980), Associate Professor of Physics; Chair, Department of Chemistry and Physics; B.S., M.S., Ph.D., Massachusetts Institute of Technology.

EDWARD GOODWIN (1984), Associate Professor of Electronics Technology; B.Ed., M.Ed., Colorado State University.

THOMAS D. GRAVES (1966), Professor of Education; Director of Career Counseling and Guidance Program; B.A., M.A., Adams State College; Ed.D., University of Northern Colorado.

RAYMOND GREB (1983), Assistant Professor Applied Technology (Heavy Equipment/Diesel) B.A., M.A., University of Northern Colorado.

MAEBETH GUYTON (1971), Assistant Professor of Music; Chair, Department of Music; B.F.A., University of New Mexico.

DONNA K. HAFNER (1967), Associate Professor of Mathematics; B.A., University of Northern Colorado; M.A.T., Colorado State University.

CHARLES HARDY (1979), Instructor of Art; B.A., Colorado State University; M.F.A., University of Arizona.

ANDREA C. HARVEY, R.T. (1978), Assistant Professor/Director Radiologic Technology Program; B.A., St. Joseph's College.

EDWIN C. HAWKINS (1963), Professor of Mathematics; Chair, Department of Computer Science, Mathematics, and Engineering; B.A., M.A., University of Northern Colorado.

MYRA D. HEINRICH (1982), Assistant Professor of Psychology; B.S., M.A., Ph.D., University of North Dakota-Grand Forks.

JOHN G. HENSON (1963), Professor of Mathematics; B.S., Texas Tech University; M.A.T., Colorado State University.

FORREST S. HOLGATE (1979), Assistant Professor Applied Technology (Electric Lineman); B.A., Texas Tech University.

CHEO HUMPHRIES (1962), Assistant Professor of Physical Education; B.S., Indiana University.

C. BARRINGTON HUNT (1982), Fine Arts Programming Coordinator; B.A., M.A., San Francisco State University.

EDWARD C. HURLBUT (1976), Associate Professor of Biology; Chair, Department of Biological Sciences; B.A., Western State College; M.S., Purdue University; Ph.D., University of Missouri - Columbia.

E. BRUCE ISAACSON (1975), Assistant Professor of Business; Certified Instructor, State Board of Community Colleges and Occupational Education.

ELDON C. JOHNSON (1976), Associate Professor of Office Administration; B.A., M.A., University of Northern Colorado; Ed.D., New Mexico State University.

JAMES B. JOHNSON (1967), Professor of Geology; B.A., University of Colorado; M.S., University of Utah; Ph.D., University of Colorado.

ROBERT L. JOHNSON (1962), Professor of English; Chair, Department of Languages and Literature; B.A., M.A., Western State College; Ph.D., University of Northern Colorado.

JAMES O.B. KEENER (1981), Assistant Professor of Mass Communications; M.A., Bowling Green State University; B.S., University of Southern Colorado.

WALTER A. KELLEY (1977), Associate Professor of Biology; B.A., M.S., California State University-Northridge; Ph.D., Colorado State University.

CARL M. KERNS (1969), Professor of Mathematics; B.A., Western State College; M.S., University of Oregon; Ed.D., University of Northern Colorado.

WILLIAM KRALICHEK (1984), Lecturer in Physical Education/Head, Wrestling Coach; B.A., University of Colorado; M.A., Western State College.

JAMES L. KRAMER, P.E. (1976), Assistant Professor of Engineering Technology; B.S., University of Colorado.
JANET K. KRUSE (1981), Assistant Professor of Nursing; B.S.N., Indiana State University; M.S.N., Indiana University-Purdue University, Indianapolis.
PAUL LACHANCE (1978), Assistant Professor/Director of Law Enforcement Program; B.A.A., M.P.A., Florida Atlantic University.
MILTON F. LENC (1960), Professor of Chemistry; B.A., Ohio Wesleyan University; M.S., Clarkson College of Technology; Ed.D., University of Northern Colorado.
RONA LERMAN (1983), Assistant Professor of Accounting; A.B., Boston University; M.S., University of Colorado.
JERRY LIVINGSTON (1980), Assistant Professor of Applied Technology, (Welding); B.Ed., Colorado State University.
CALVIN J. LUKE (1966), Associate Professor of Mathematics; B.S., Brigham Young University; M.A.T., Colorado State University.
DANIEL MacKENDRICK (1964), Professor of English/Assistant Director of Athletics; B.A., M.A., Western State College.
DONALD MacKENDRICK (1956), Professor of History; Dean, School of Social and Behavioral Sciences; B.S., Colorado State University; M.A., University of Colorado.
CAPT. THOMAS MADIGAN (1983), Assistant Professor Military Science, B.A., University of South Dakota.
BARBARA WOLFE MAGENHEIM (1980), Assistant Professor of Nursing; M.S., Nursing, University of Colorado.
JOHN T. MARSHALL (1982), Associate Professor Physics; B.S., University of New Mexico; A.M., Ph.D., Washington University.
JEANNIE M. MARTINEZ (1982), Instructor Dental Assisting; B.S., University of North Carolina.
GARY L. McCALLISTER (1973), Associate Professor of Biology; B.S., M.S., Brigham Young University; D.A., University of Northern Colorado.
WAYNE MEEKER (1966), Professor of Sociology; B.A., M.A., Western State College; Ph.D., University of Colorado.
DONALD E. MEYERS (1962), Associate Professor of Art; Chair, Department of Art; B.F.A., University of Denver; M.A., University of Northern Colorado.
RICHARD MORAN (1984), Instructor of Agriculture; B.S., M.S., Southern Illinois University.
LOUIS G. MORTON (1966), Professor of Political Science; B.S., University of Missouri-Columbia; M.A., Ed.S., Western State College.
ELIZABETH MUSTEE, R.N. (1975), Associate Professor of Nursing; B.S., St. Mary's College; M.S., Boston University.
MURIEL L. MYERS (1970), Associate Professor of Office Administration; Chair, Department of Office Administration; B.A., Western State College; M.Ed., Colorado State University; Ph.D., University of Colorado.
WAYNE W. NELSON (1955), Professor of Physical Education/Men's Tennis Coach; Chair, Department of Physical Education and Recreation; B.S., M.S., Utah State University.
THERESA NEOFOTIST (1981), Professor of Nursing; Dean, School of Nursing and Allied Health; B.S.N., Marycrest College; M.A., University of Iowa; Ed.D., Drake University.
ISAAC J. NICHOLSON (1960), Professor of Sociology; B.A., University of Colorado; M.A., Western State College.
STEWART OAKLEY (1984), Assistant Professor of Engineering; B.S.E., M.S.E., Ph.D., Oregon State University.
MAJOR JOSEPH E. O'CONNOR (1982), Associate Professor Military Science; B.S., University of Nebraska-Omaha.

JACK M. PERRIN (1966), Assistant Professor of Physical Education; B.A., M.A., Northeast Missouri State University.

KAREN M. PERRIN (1977), Instructor of Physical Education; Coordinator, Women's Athletics; B.S., Eastern New Mexico University; M.S., Kansas State University.

MORTON PERRY (1961), Emeritus Professor of Political Science; B.S., Rutgers University; M.A., University of Wyoming; M.Phil., Syracuse University.

MAYLON D. PETERS (1977), Assistant Professor of Agriculture; Chair, Department of Agriculture; B.S., University of Nebraska; M.S., Iowa State University.

W. DAVID PILKENTON (1963), Associate Professor of Foreign Languages; B.A., Marshall University; M.A., University of Michigan.

WILLIAM E. PUTNAM (1961), Professor of Chemistry; Dean, School of Natural Sciences and Mathematics; B.S., Birmingham Southern College; M.S., Emory University; Ph.D., Rice University.

PAUL L. REDDIN (1970), Professor of History; B.A., Adams State College; M.A., Ph.D., University of Missouri-Columbia.

DAVID M. REES (1983), Associate Professor of Economics; B.S., Utah State University; M.S., Ph.D., University of Oregon.

ROBERT R. RICE (1966), Professor of Agriculture and Biology; B.S., Colorado State University; M.S., University of Illinois; Ph.D., Colorado State University.

JACK E. ROADIFER (1966), Professor of Geology; Chair, Department of Geology; B.S., M.S., South Dakota School of Mines and Technology; Ph.D., University of Arizona.

MARGARET S. ROBB (1976), Assistant Professor of Speech and Drama; B.A., M.A., University of Michigan.

MAI N. ROBINSON (1961), Assistant Professor of English; B.S., Minot State College.

WILLIAM S. ROBINSON (1960), Professor of Drama; Chair, Department of Speech and Theatre; B.A., Morris Harvey College; M.A., New York University.

DAVID E. ROGERS, C.P.A. (1975) , Professor of Accounting; B.A., University of New Mexico; M.B.A., Golden Gate University.

JAMES P. RYBAK, P.E. (1972), Professor of Engineering; B.S.E.E., Case Western Reserve University; M.S., University of New Mexico; Ph.D., Colorado State University.

MARY S. RYDER (1981), Assistant Professor of Education; Coordinator for Mesa/Metro Teacher Education Consortium; B.A., Mills College; M.A., Ed.D., University of Denver.

ANN J. SANDERS (1971), Assistant Professor of Physical Education; B.A., Eastern Washington State College; M.A., University of Colorado.

P. DOUGLAS SCHAKEL (1978), Instructor,Physical Education/Head Basketball Coach; B.A., Central College; M.A., Adams State College.

PAUL G. SCHNEIDER (1969), Associate Professor of Music; Director of Bands; B.A., M.A., University of Northern Colorado.

M. LEE SEARCY (1983), Instructor, Applied Technology (Heavy Equipment/Diesel), Certified Instructor, State Board for Community Colleges and Occupational Education.

CONNER W. SHEPHERD (1978), Assistant Professor of Recreation; B.A., Eastern Washington State University; M.A., Washington State University.

ROBERT P. SOWADA (1966), Assistant Professor of Foreign Languages; B.A., M.A., University of Wyoming.

MARLYN K. SPELMAN (1976), Associate Professor of English; B.A., Ph.D., University of Colorado.

GENE H. STARBUCK (1974), Assistant Professor of Sociology; B.A., M.A., University of Colorado.
THEODORE E. SWANSON (1974), Assistant Professor of Recreation; B.S., M.A., University of Northern Colorado.
CLARICE S. TAYLOR (1977), Assistant Professor of Home Economics; B.S., Iowa State University; M.S., Colorado State University.
BARRY C. THARAUD (1976), Associate Professor of English; B.A., M.A., Ph.D., University of California-Santa Barbara.
HARRY A. TIEMANN, JR. (1962), Professor of Psychology; Chair, Department of Human Services; B.A., M.A., University of Colorado; Ph.D., Colorado State University.
C. E. (ED) TOOKER (1966), Associate Professor of Physical Education; B.A., University of Northern Colorado; M.A., Adams State College.
PAUL G. WELLS (1978), Assistant Professor of Applied Technology (Auto Body and Fender); B.A., University of Redlands.
JERRY D. WETHINGTON (1979), Associate Professor of Computer Science; B.S., University of New Mexico; M.S., Stanford University.
KENNETH L. WHITE (1967), Assistant Professor of Chemistry; B.A., M.A., Western State College.
BYRON E. WIEHE (1974), Assistant Professor of Physical Education/ Head/ Baseball Coach; B.A., M.A., Adams State College.
CLIFTON M. WIGNALL (1976), Associate Professor of Anthropology; B.A., M.A., University of California-Berkeley; Diploma in Anthropology, Oxford University, England; Ph.D., Albert Schweitzer College, Switzerland.
EILEEN M. WILLIAMS, R.N. (1968), Professor of Nursing; B.S., University of Denver; M.S., University of Colorado.
DENNIS L. WOODRICH (1980), Assistant Professor of Music; M.A., Music, University of California-San Diego.
KERRY L. YOUNGBLOOD (1978), Assistant Professor of Applied Technology (Welding); B.S., Oklahoma State University.
ROBERT D. YOUNGQUIST (1966), Associate Professor of Business Management; B.S.B.A., University of Denver; M.Ed., Colorado State University.
JOHN S. ZEIGEL (1975), Professor of English; B.A., Pomona College; M.A., Ph.D., Claremont Graduate School.

VISITING PROFESSORS

CARL ABBOTT (1984), Wayne N. Aspinall Professor of History; B.A., Swathmore College; M.A., Ph.D., University of Chicago.
KENNETH E. BOULDING (1983), Wayne N. Aspinall Professor of Economics; B.A., M.A., Oxford (England).
VIVIAN BROWN (1982), Walter Walker Professor in Theatre.
RICHARD BULL (1983), Walter Walker Professor in Theatre.
JIM (BLOSZIES) HARDIE (1984), Walter Walker Professor in Theatre.
FRANK LOVERDE (1982), Walter Walker Professor in Theatre.
HARVEY POTTHOFF (1984), Cosmicos Professor of Religious Studies; Th.M., Th.D., Iliff School of Theology.
TEE SCATUORCHIO (1982), Walter Walker Professor in Theatre.
LILIA SKALA (1981), Walter Walker Professor in Theatre; Academy Award nominee, Golden Globe nominee, Emmy Award nominee and Wrangler Award winner.
ROBERT W. VENABLES (1983), Wayne N. Aspinall Professor of History; B.A., Northwestern University; M.A., Ph.D., Vanderbilt University.
RICHARD A. WATSON (1982), Wayne N. Aspinall Professor in Political Science; A.B., Bucknell; L.L.B. and Ph.D., University of Michigan.

EMERITI

1955
Mattie F. Dorsey, B.A., M.A., Ph.D., Registrar
1960
Mary Rait, B.A., M.A., Vice-President
1963
Laura Smith, B.A., M.A., Foreign Language
1968
Mary M. Coleman, B.S., M.P.S., Mathematics
1970
William A. Medesy, B.S., M.F., M.A., Ed.D., President
1971
Virginia Fulghum, B.A., M.A., English
1972
Kenneth E. LeMoine, B.A., M.Ed., Dean of Special Services
Melvin A. McNew, B.A., M.A., Chairman, Division of Physical Sciences
Louise G. Moser (R.N.), B.A., M.N., Chairman, Division of Health Programs
1973
Maxine Gabelman, B.A., M.A., English
Eugene L. Hansen, B.A., M.A., Director of College Center
Ethel Mae Moor, B.A., M.A., Head, Department of English
George Murray, B.S., M.A., Mathematics, Engineering
Alvie Redden, B.S., M.F.A., Chairman, Division of Fine Arts
1974
Theodore E. Albers, B.A., M.A., Ed.D., President
J. Leon Dailey, B.A., M.A., Social Science
Pearl M. (Bee) Randolph (R.N.), Director of Student Health Services
Elaine E. Ripley, B.A., M.A., Biology
Bertha L. Shaw, B.A., M.A., Humanities
1975
Edward O. Strnad, B.A., Purchasing Officer
1976
Helen M. Hansen, B.A., M.A., Professor of Office Administration
1977
Maurine M. Leighton, B.S., M.H.E., Professor of Home Economics
Jay W. Tolman, B.S., M.S., Professor of Geology, Vice President for Student Affairs
1978
Carl R. Cook, Director of Data Processing Services
Donald H. Yonker, B.S., M.A., D.D.S., Professor of Biology
Joan W. Young, B.A., M.A., Associate Professor of Biology

1979

Alfred J. Goffredi, B.A., M.A., Professor of Business; Dean, School of Industry and Technology

Madge E. Huffer, B.A., M.A., Associate Professor of Speech

Lloyd B. Jones, B.A., M.A., Professor of Psychology

Pauline O. Messenger, B.A., M.S., Professor of Library Science; Reference Librarian

Dan M. Showalter, B.A., M.A., Professor of English; Dean, School of Humanities and Fine Arts

1980

Walter F. Bergman, B.S., M.Ed., Associate Professor of Physical Education

Walter J. Birkedahl, B.Mus.Ed., M.Mus.Ed., Associate Professor of Music

Wallace Dobbins, B.Ed., M.A., Director of Information Services

Woodrow W. Ramsey, B.S.C.E., P.E., L.A., R.L.S., Associate Professor of Engineering

1981

Darrell C. Blackburn, B.Mus.Ed., M.Mus.Ed., Professor of Music; Head, Department of Music

Richard A. Dimpfl, B.A., M.B.A., Assistant Professor of Business Management

Doris R. Lay, B.A., M.A., Associate Professor of English

Keith W. Miller, B.A., M.A., Director of Continuing Education

Marcelia M. Sullivan, B.S., M.Ed., Associate Professor of Home Economics

Carroll C. Timpte, A.S., Instructor in Applied Technology (Electronics)

H. Herbert Weldon, B.A., M.A., Professor of Mathematics, Vice President for Academic Affairs

1982

Patricia A. Fink, B.A., M.A., Professor of Psychology

James T. Harper, B.A., M.A.J.D., Professor of Economics.

Christopher M. Holloway, B.A., M.A., Associate Professor of History

Morton Perry, B.S., M.A., M.Phil., Associate Professor of Political Science.

1983

John D. Charlesworth, B.Ed., M.Ed., Associate Professor of Applied Technology (Auto Mechanics)

Thomas L. Mourey, B.A., Assistant Professor of Computer Science

I. J. Nicholson, B.A., M.A., Professor of Sociology

Wilma E. Schumann, RN, B.Ed., Assistant Professor of Nursing

ALPHABETICAL COURSE PROFILES INDEX

Subjects offered by Mesa College are indexed below alphabetically, followed by the identifying prefix, followed by the page number having the detailed course description appropriate to the subject, followed by the school holding academic responsibility.

Office Assisting, Medical	BUHL	174	B
Philosophy	PHIL	175	H&FA
Physical Education and Recreation	PER	175	S&BS
Physics	PHYS	180	NS&M
Political Science	POLS	183	S&BS
Psychology	PSY	184	S&BS
Radiologic Technology	RADT	186	N
Safety, Industrial	IND	187	I&T
Social Science	SOCS	187	S&BS
Sociology	SOC	188	S&BS
Speech	SPCH	189	H&FA
Statistics	STAT	190	NS&M
Theatre and Dance	THEA	190	H&FA
Travel, Recreation and Hospitality Management	BUTR	194	B
Welding	WELD	195	I&T

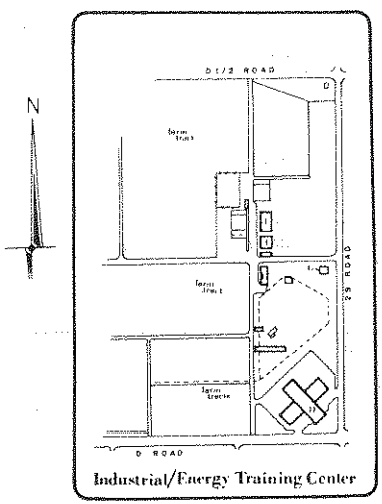
*School

B - Business
H&FA - Humanities and Fine Arts
I&T - Industry and Technology
NS&M - Natural Sciences and Mathematics
N - Nursing
S&BS - Social and Behavioral Sciences

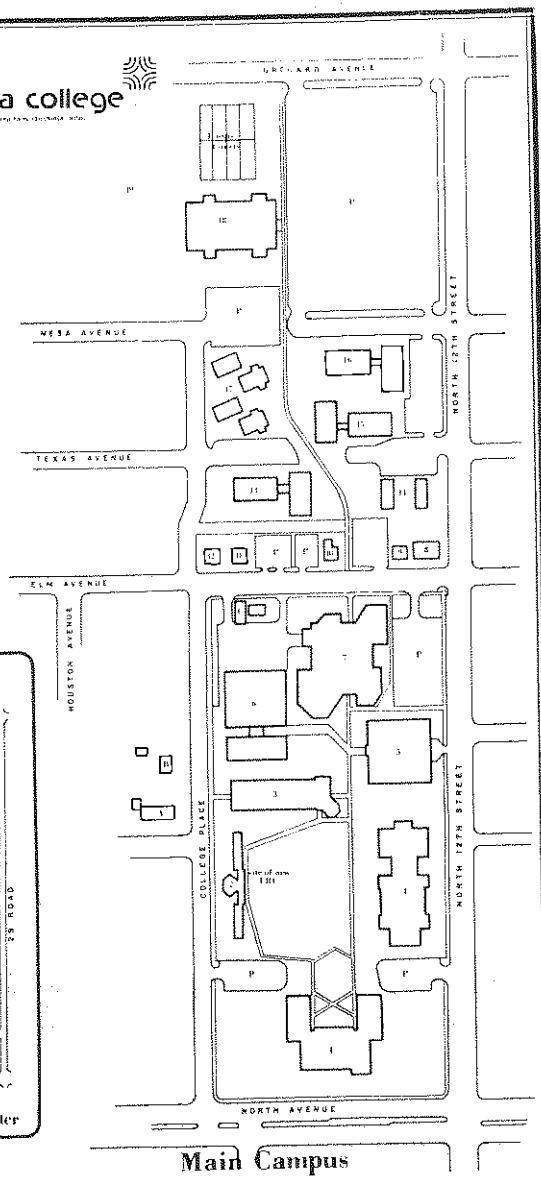
ALPHABETICAL SUBJECT INDEX

Also see Schools and Departments.

1. Houston Hall
   Social Sciences, Business
2. Mary Rait Hall
   Faculty Offices
3. Wubben Hall
   Sciences
4. Walter Walker Fine Arts
   Art, Speech and Theatre
5. Heiny Library
   Administrative Offices
6. Medesy Vocational-Technical Center
7. W.W. Campbell College Center
8. Elm Hall
   Residence Hall
9. Student Health Center
10. Counseling and Career Center
11. Audio-tutorial Lab
    Health Programs
12. Early Childhood Education Center
13. Juniper Hall
    Residence Hall
14. Purchasing and Service Center
15. Aspen Hall
    Residence Hall
16. Pinon Hall
    Residence Hall
17. Walnut Ridge Apts.
18. Saunders Field House
    Physical Education
19. Athletic Practice Fields
20. Tennis Courts



Industrial/Energy Training Center



Main Campus

1985-86 ACADEMIC CALENDAR

SUMMER SESSION 1985

May 20	Registration for 12-week and 1st 6-week session
May 21	Classes begin
May 27	Memorial Day holiday
June 27-28	Midterm exams for 12-week session; Final exams for 6-week session
July 1	Registration for last 6-week session; Classes begin
July 4	Independence Day holiday
Aug. 5	Colorado Day holiday
Aug. 8-9	Final exams for 12-week session and 2nd 6-week session
Aug. 9	Summer session ends

FALL SEMESTER 1985

Aug. 16	New Faculty Workshop
Aug. 17	Residual ACT Testing
Aug. 19	All Faculty Workshop and Student Orientation
Aug. 20	Advising and registration
Aug. 21	Classes begin
Sept. 2	Labor Day holiday
Sept. 6	Last day to change schedule
Oct. 14-16	Mid-semester exams
Oct. 17-18	Fall vacation
Oct. 28	Last day to drop classes
Nov. 27-29	Thanksgiving vacation
Dec. 13	Last day of classes
Dec. 16-19	Final examinations
Dec. 19	Fall Semester ends

SPRING SEMESTER 1986

Jan. 11	Residual ACT Testing
Jan. 13	Registration
Jan. 14	Classes begin
Jan. 22	Last day to change schedule
Mar. 3-5	Mid-semester exams
Mar. 8-16	Spring vacation
Mar. 24	Last day to drop classes
May 5	Last day of classes
May 6-9	Final examinations
May 9	Spring Semester ends
May 10	Commencement

CALENDAR 1985

JANUARY

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

FEBRUARY

S	M	T	W	T	F	S
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17	18	19	20	21	22	23
24	25	26	27	28		

MARCH

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24	25	26	27	28	29	30
31						

APRIL

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MAY

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JUNE

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JULY

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AUGUST

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SEPTEMBER

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OCTOBER

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NOVEMBER

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DECEMBER

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CALENDAR 1986

JANUARY

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FEBRUARY

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MARCH

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APRIL

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MAY

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JUNE

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JULY

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AUGUST

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SEPTEMBER

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OCTOBER

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NOVEMBER

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DECEMBER

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