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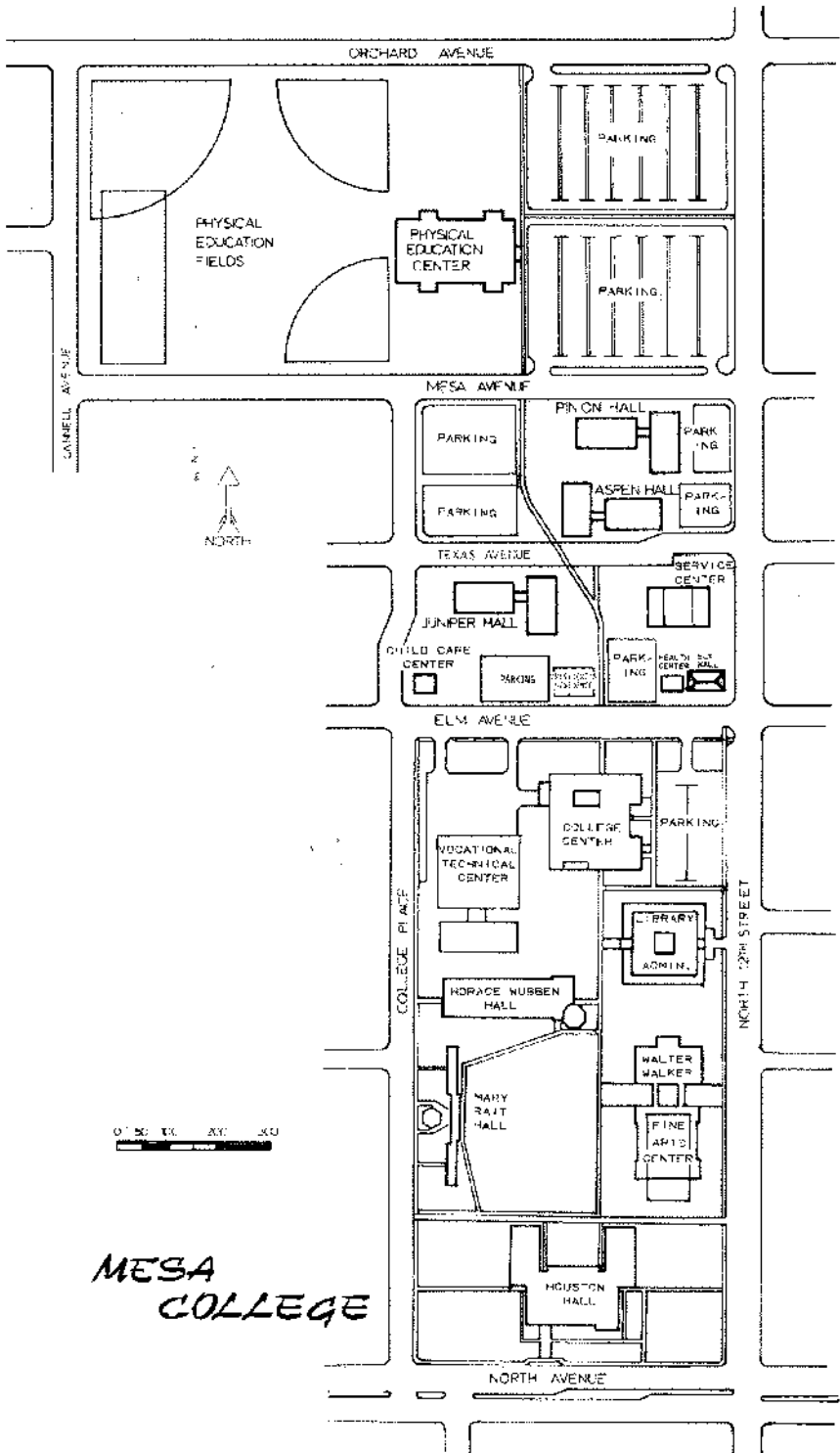
MESA COLLEGE

GRAND JUNCTION, COLORADO

CATALOG



1973-1974



MESA
COLLEGE

Summer 1973

June 18 - July 13 th - 1st Session
July 16 - Aug 10 th - 2nd Session

MESA COLLEGE

GRAND JUNCTION, COLORADO

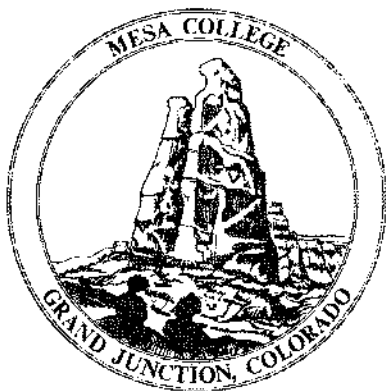
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Fall 1973

CATALOG

1973-74



STATEMENT ON EQUAL OPPORTUNITY

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

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 our hands by August 15 for Fall Quarter and two weeks in advance of registration for Winter and Spring Quarters. (See bottom of page 20.)
3. Upon receipt of your application and the \$10 application fee (see page 20) 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. Physical Examination and Residence Affidavit must be on file in the Records Office before final acceptance is granted. These forms are sent to the student from the college after the application has been received.
5. A.C.T. scores must be in the Admissions and Records Office before final acceptance is granted. See your high school counselor for dates.
6. Students who must live away from home must make arrangements for and secure approval of their housing from the office of the Dean of Students.
7. 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. See page 17.)
 - 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. Test scores. (Transfer students 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.
 - e. Physical examination and residence affidavit.

REGISTRATION AND COUNSELING 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. The tests are available at designated centers throughout the state and region on five different dates.

A \$6.00 fee must be submitted with a registration form to the Registration Department, American College Testing Program, P. O. Box 414, Iowa City, Iowa 52240, 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 Fall and Winter Quarter registration periods for those who, for good reason, have not been able to take the test during one of the regularly scheduled national test dates. (A \$10 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. (See pages 22, 23 for further information.)

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College Calendar

1973-74

SUMMER SESSION, 1973

June 18	Registration for first Four-Week and Eight-Week Term
June 19	Classes Begin
July 4	Independence Day (Holiday)
July 13	First Four-Week Term Ends
July 16	Registration for Second Four-Week Term
August 10	Summer Session Ends

FALL QUARTER, 1973

August 15	New-Student Credentials Due
September 13, 14	Faculty Workshop
September 15, 8:00 a.m.	Residual ACT Testing
September 16	Orientation and Group Meetings for new and transfer students
September 17	Pre-Registration Counseling
September 18, 8:00 a.m. to 5:00 p.m.	Registration
September 19	Classes Begin
September 26	Last Day to Change Schedule
October 22, 23, 24	Midterm Examinations
November 21, 12:00 noon	Thanksgiving Vacation Begins
November 26	Classes Resume
December 3	Final Examinations Begin
December 7	Fall Quarter Ends

WINTER QUARTER, 1974

January 2, 8:00 a.m.	Residual ACT Testing
January 2, 8:00 a.m. to 5:00 p.m.	Registration
January 3	Classes Begin
January 10	Last Day to Change Schedule
February 4, 5, 6	Midterm Examinations
March 11	Final Examinations Begin
March 15	Winter Quarter Ends

SPRING QUARTER, 1974

March 23, 8:00 a.m.	Residual ACT Testing
March 25, 8:00 a.m. to 5:00 p.m.	Registration
March 26	Classes Begin
April 3	Last Day to Change Schedule
April 22, 23, 24	Midterm Examinations
May 27	Memorial Day
June 3	Final Examinations Begin
June 6	Commencement

Foreword . . .

Mesa College began providing educational services in 1925 and has offered a comprehensive community junior college program for people of all ages for a number of years. The program includes a wide variety of majors in liberal arts, pre-professional and vocational-technical areas, as well as numerous other cultural, recreational and community-services opportunities.

Legislation was passed by the 1972 regular session of the Colorado General Assembly and approved by the Governor which authorized the enlargement and improvement of Mesa College services including the beginning of baccalaureate degree programs in the fall of 1974. The Trustees of the State Colleges in Colorado, working in cooperation with Mesa College, are now conducting the planning activities necessary for the additional and improved services.

The planning includes (1) recommendations for baccalaureate programs that are most needed; (2) suggestions for the improvement and expansion of two-year and shorter-term occupational programs; (3) recommendations for improving the flexibility with which the College can meet the needs of individuals and communities through new procedures and alternatives; (4) ideas on expanding the utilization of off-campus resources through closer and more extensive cooperation with business, industry, the professions, labor and the various government agencies; (5) suggestions for realizing closer coordination with and utilization of services provided by other colleges and universities; and (6) recommendations for greater utilization of educational telecommunications possibilities and other technological resources.

The improvements are expected to provide a broader range of offerings and permit Mesa College to continue and strengthen its highly student-centered and community-oriented efforts.

GENERAL INFORMATION

HISTORY OF THE COLLEGE

From a modest beginning in 1925 in a renovated former elementary school building, Mesa College's physical facilities have been developed steadily to accommodate a rapidly increasing enrollment. The growth in both enrollment and physical plant has been especially pronounced during the past ten years. The first permanent structure on the present campus, a large classroom building occupied in 1940, continues to serve an important function as an education facility. Through the years, many other buildings have been added to the campus. The most recent additions are the Walter Walker Fine Arts Center and the Mesa College Area Vocational School. Other campus structures include Mary Rait Hall, Horace Wubben Hall, the College Center, four Residence Halls, the Child Care Center, the Library Building, the College Services Building, and Physical Education Center.

OBJECTIVES OF THE COLLEGE

- 1. FOR ALL STUDENTS.** To supply education for citizenship and enriched personal living for all students regardless of classification, by providing:

 - General courses and group activities through which they are enabled to gain for themselves personal, social, civic and vocational competencies;
 - A well-rounded education that develops within them a sound emotional and social balance and personal resources for continued intellectual growth;
 - Assistance toward better understanding and appreciation of the values of art, music, literature and other cultural activities;
 - Help in increasing their knowledge of economic principles, political institutions and historical trends and developments.
- 2. FOR OCCUPATIONAL EDUCATION FOR EMPLOYMENT.** To provide an appropriate variety of vocational and technical training for specific occupations and to offer opportunity to students desiring basic or extension training in a number of skilled trades.
- 3. FOR THOSE WHO PLAN BACCALAUREATE DEGREES.** To provide two-year courses of study leading to entrance into the third-year class for those who are to continue their formal education in a senior college or university, in liberal arts or the professions.
- 4. FOR ADULTS.** To provide opportunities for adults to participate in academic, cultural, recreational and vocational activities according to their needs, interests or desire to learn.
- 5. FOR THE COMMUNITY.** To stimulate and lead the intellectual and cultural life of the community; to furnish programs for information and entertainment; to provide a center for participation in health and recreational activities; and to foster activities leading to civic, social, health, moral and educational improvement of the community.

CURRICULUM

The curriculum of Mesa College is designed to meet the needs of the students of the area which the college serves. It contains courses in arts and sciences that are the same as those offered during the first two years at the senior colleges and universities of the state, and also offers many specialized courses to meet local needs and demands. It is flexible so that continuous revision is possible. A curriculum committee of the faculty

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reviews suggestions for revision and makes recommendations for changes that it considers desirable. Courses are added or dropped according to the changing needs of the clientele of the college and to the social and industrial development of the community.

ACCREDITATION

Mesa College is fully accredited by the North Central Association of Colleges and Secondary Schools and the State of Colorado. Such accreditation places academic credits earned at Mesa College on a par with those earned at other accredited colleges and universities throughout the United States and assures their acceptance by these institutions. Students are reminded, however, that acceptance of transfer credits by any accredited college depends upon the individual student's presentation of a satisfactory academic grade average and certification by the Director of Admissions and Records of the former college that the student is "in good standing."

BUILDINGS AND EQUIPMENT

Mesa College is developing its campus according to a master plan designed in 1960, revised in 1966, and currently being updated to provide for the College's needs through the 1970's. Facilities include Houston Hall, Horace Wubben Science Hall, Library-Administration Building, Mary Rait Hall, College Center, Child Development Center, Physical Education Center, College Service Center, Walter Walker Fine Arts Center, Area Vocational School, and Aspen, Elm, Juniper, and Pinon Residence Halls.

Houston Hall, the first permanent building on the present campus, provides classrooms for Business, Data Processing, Home Economics, Humanities, and Social Science.

The Library Building, completed in Fall 1967, is a three-level Building incorporating the latest concepts in library design, with a wide variety of study facilities and open stacks available for up to 80,000 volumes. The collection includes more than 45,000 volumes plus 407 periodicals. The library has facilities for a variety of learning experiences, including reading, viewing, listening, research, and group discussions. The first level of the building provides office space for administrative and student services staffs.

Mary Rait Hall, extensively remodeled during Summer 1967, includes classrooms, Audio-Visual and Duplicating departments, and other facilities on the first floor. The upper two floors provide office space for sixty faculty members.

The College Center Building, occupied in January 1962, contains cafeteria, bookstore, study and recreational lounges for students and faculty, office and conference facilities for student leaders, a snack bar, game rooms, and listening rooms for recorded music.

The Child Development Center, located at Elm Avenue and College Place, provides facilities for Mesa College's training program for directors and personnel of child-care centers and also for the office of Continuing Education's Parent Education and Preschool program.

Three 200-student residence halls, occupied in 1966 and 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.

The Physical Education Center, completed in Fall 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 Division of Physical Education.

The College Service Center 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.

The Walter Walker Fine Arts Center, occupied in September 1969, includes classroom and studio facilities for art, music, and drama and a multi-purpose Little Theatre.

The first phases of the Mesa College Area Vocational School were completed in 1969. The two-section building houses shops and classrooms for auto mechanics, auto body and fender, welding, electronics, and audio-visual and graphic-communications departments. The school serves both youth and adults of the region as a training center for various occupations.

Shop laboratories for various Continuing Education courses are available in the Mesa College Area Vocational School facilities and on a rental basis, as needed, from the local school district and from private owners.

LOCATION

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

Grand Junction's location in a scenic part of the Rocky Mountain West provides unlimited opportunity for the outdoorsman. Many Mesa College activities involve the physical advantages of the region. Among these activities is the College's physical education program in skiing, which is conducted at the new Powderhorn-on-Grand Mesa Ski Area. Qualified instructors, a variety of lifts, and miles of excellent trails combine to make the ski area a valuable adjunct to the College's Winter Quarter 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.

LINCOLN PARK

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

ENROLLMENT

Mesa College's regular day-school enrollment for Fall Quarter 1972 was 2,041, including 1,303 freshmen, 714 sophomores, and 24 unclassified students. The Freshman Class consisted of 740 men and 563 women; the Sophomore Class included 410 men and 304 women. Legal residences of students were listed as follows: Mesa Junior College District, 962; elsewhere in Colorado, 963; out of state, 116 (includes 14 from foreign countries).

In addition, 1,297 students enrolled in one or more classes in the Continuing Education Program (night school) during Fall Quarter 1972. The courses offered in this program include degree-credit courses as well as non-credit courses designed primarily for adults.

In its role as a community college, Mesa College served a total of 3,338 persons in organized classwork during Fall Quarter 1972.

CAMPUS PARKING

All students and members of the College staff wishing to park on campus must register motor vehicles with the College Business Office.

Parking permit stickers—restricting the parking of motor vehicles to specified areas on campus will be issued at the time of registration or at the time a student acquires an automobile or changes automobiles.

College-Community Relations

Through mutual cooperation with the community, Mesa College has become a real cultural center, an integral factor in the educational and social development of Western Colorado. Faculty members are available for lectures and discussions on a wide range of subjects related to education, agriculture, homemaking and current social problems. Student groups appear often before public or private audiences for information or entertainment. The public is invited to attend many types of programs at the College—musical, dramatic, forensic, religious, and those devoted to public affairs and international relations—presented by faculty, students, community members, and out-of-town speakers.

At various times throughout the year, students and faculty members participate in radio and television panels and other types of programs to keep the community informed of activities at Mesa College.

Book reviews, play readings, lectures, conferences, demonstrations and musical programs are presented at the College from time to time by members of the community, for the students and the public. The churches of Grand Junction all cooperate with the College in meeting the needs for religious education among the students. Opportunities include participation in student classes in Sunday Schools, young people's organizations, and in choirs.

Student Personnel Services

COUNSELING AND GUIDANCE

At Mesa College, each student is provided with opportunities for continuous guidance and counseling. This service includes academic, social, vocational and personal counseling.

The guidance program begins when freshmen and transfer students first arrive on the campus. Each student is assigned to a faculty advisor on the basis of his vocational and major subject interest. This person continues as the student's advisor as long as he is in college unless he asks to be transferred to another advisor. During the school year, the advisor helps the student register, basing his assistance on the student's preferences, previous records and standardized test scores. He also discusses with the student the college or vocational choice to be selected when ready to leave Mesa, and will help plan transfer of credits or entrance into a vocation.

Counseling services are available for all students of the College. These services provide an opportunity for students to receive help in determining their abilities, aptitudes and interests. A full-time counseling service is available for students who are having difficulty in making satisfactory adjustment to college life either personally or socially. Regardless of the counseling situation, the student is assured of friendly, confidential aid.

Any student needing personal, educational, or vocational counsel is encouraged to see, at any time during regular office hours, the Dean of Students, the Associate Deans of Students, or any other member of the professional counseling staff. All counselors' offices are in the Student Personnel Services Center located on the terrace level of the Library Building. In addition, the College also provides the services of a Chaplain for those students seeking guidance on religious and spiritual matters. The office of the College Chaplain is located in the Student Health Services Building.

Representatives from the different branches of the military service frequently visit the campus to offer their counseling service. Qualified junior college graduates are given the opportunity to participate in one of the R.O.T.C. Programs offered at the four-year institutions. Students who are selected must attend a summer training program between their sophomore and junior years. This is an opportunity leading to a commission in the military service.

Mesa College is small enough to offer students the opportunity to know instructors personally. Instructors are interested in and willing to help other students as well as their own advisees.

Parents and students are invited to come to the office at Mesa College during the summer. At any time during office hours they will find some person competent to answer their questions.

VOCATIONAL JOB PLACEMENT AND GUIDANCE

The Job Placement Office is located in the north section of the Area Vocational School Building. Each year a large number of students qualify for employment upon graduating or upon completion of a specific course of study in one of the many vocational-technical programs. The instructors, division directors, and counselors in occupational education maintain close contact with business and industry concerning job opportunities and training needs, and a record of available positions, both full and part-time, is kept in the Job Placement Office. This office coordinates all of Mesa College's efforts, along with the cooperation of the Office of Financial Aids, in assisting students in obtaining full-time employment in occupations for which they have been prepared at the College. Students interested in full and part-time jobs should contact the Placement Office and complete an application for employment.

Vocational guidance and counseling services are available through the professional personnel of the Area Vocational School. These services, which assist students in formulating and completing occupational career plans, are located in the Area Vocational School Building.

STUDENT LOANS

Several kinds of loan funds are provided by Mesa College to assist students with their college expenses. Generally, eligibility for a student loan is based on financial need.

Mesa College participates in the National Defense Student Loan, the Federal Nursing Student Loan, and the Federally Insured Loan programs. These loan programs provide important long-term loan funds from which qualified students can borrow sizeable amounts of money at low interest, repayable after the student completes his college education.

In addition, the College provides short-term and intermediate-term loan funds from which students may borrow to help meet financial obligations more 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 quarter, whichever comes first. Intermediate-term loans are repayable within six months or, in any event, not later than September 1 following the date of the loan. Loans in this category are normally limited to \$300. There is a \$1 service charge per hundred dollars if the amount borrowed is repaid by the end of quarter in which the loan is made. If the amount borrowed is needed beyond the quarter, or for more than three months, an additional charge of \$1.00 is added per month regardless of the amount of the unpaid balance.

The MESA COLLEGE SCHOLARSHIP DEVELOPMENT FUND, INC. conducts a drive annually to raise funds for scholarships and student loans. The scholarships provided by this group amount to \$50 per quarter and are awarded periodically during the academic year. This organization also serves as a receiving and clearing agency for many of the College's established scholarships and student loan funds as well as for scholarships received from organizations and clubs from other communities.

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For the most part, funds available for the short-term and intermediate term loans have been made available as a result of the efforts of this group and the generous contributions of individuals and organizations of the Grand Junction area.

SCHOLARSHIPS

Mesa College annually awards a large number of scholarships. These scholarships are awarded primarily on the basis of scholastic achievement, but include the recommendation of the high school counselor or principal, and give some consideration to the financial resources of the student's family.

Normally, scholarships cover the cost of tuition or some fees. Application deadline is March 15. No scholarship application will be considered complete and processed unless the applicant has been accepted for admission, and has American College Test (ACT) scores on file with the Admissions Office. The American College Test must be taken no later than the February testing date if test scores are to be received by the College prior to the March 15 deadline.

The principal types of scholarships offered by the College are the following:

(1) **THE MESA COLLEGE SCHOLARSHIP.** This is a two-year scholarship. Approximately twenty-five of these scholarships are awarded to graduates of Colorado high schools each year. They are awarded to those students with the highest scholastic records among the scholarship applicants to Mesa College.

(2) **THE MESA COLLEGE ACHIEVEMENT AWARD.** This is a one-year (freshman) scholarship. It is the policy of the College to make at least one of these scholarships available to the graduates of each high school in Western Colorado, provided the graduate has earned a cumulative B average or higher.

(3) **ACADEMIC DIVISION SCHOLARSHIPS.** Each academic division of the College awards one or more scholarships. These are awarded to the outstanding scholars in each division at the end of their freshman year for use as tuition waivers during the sophomore year.

(4) **SUPPLEMENTAL SCHOLARSHIPS.** Each quarter a number of scholarships amounting to \$60 per quarter are awarded to students who have achieved the minimum 3.0 grade point average and who have not previously received a scholarship. Applications are submitted immediately following mid-term examinations, and scholarships are tentatively awarded prior to the completion of the quarter pending maintenance of the 3.0 average through final examinations. The scholarship then becomes effective for the subsequent quarter.

In addition to the institutional scholarships described above, many scholarships and awards have been established for students of the College by private individuals and organizations of the Grand Junction area. The amounts of these awards vary but all are designed to apply toward tuition and fees.

GRANTS-IN-AID

GRANTS-IN-AID are awarded to students who have special talents in athletics, music, or art, and to scholastically capable students who have exceptional financial need. In addition, a number of grants-in-aid are made available for disadvantaged students and students entering vocational-technical curriculums.

ATHLETIC GRANTS-IN-AID equivalent to tuition and some fees are awarded each year to approximately 80 freshmen and sophomores who have excelled in various sports, either as high school seniors or freshmen at Mesa College. These awards are made by the Department of Intercollegiate Athletics of the College.

FEDERAL STUDENT AID PROGRAMS

Mesa College participates in many of the Federal Student Aid Programs. These include: (1) the National Defense Student Loan Program, (2) the Nursing Student Loan Program, (3) the Educational Opportunity Grants Program, (4) the Nursing Educational Opportunity Grants Program, (5) the College Work-Study Program, and (6) the Law Enforcement Education Program (LEEP).

Educational Opportunity Grants (EOG) are available to exceptionally needy students who wish to attend Mesa College. These grants were made available under the Title IV of the Higher Education Act of 1965. Under this program, students from low-income families who have exceptional financial need may receive an outright grant of from \$200 to \$1,000. The amount of grant is geared to the parental contribution but may not exceed one-half of the student's total financial need.

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

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

There is no deadline for submitting applications for any of the Federal Student Aid Programs; however, those students who have all application requirements complete and on file with the Admissions Office and Financial Aids Office by March 15 and have demonstrated financial need will receive priority. This includes, in addition to submitting either the PCS or FFS, as described above, a completed application for admission including American College Test (ACT) scores.

Federally Insured Student Loans may be obtained up to a maximum of \$2,500, but not to exceed the student need for an academic year, from participating banks, savings and loans, and credit unions. These loans are available at seven per cent interest, repayable after the student completes his education. If the student submits a financial-needs analysis report and is eligible for the federal interest benefits, the accruing interest, while the student is in school, is paid by the federal government. If the student does not qualify for the interest cancellation benefit as determined by a financial needs analysis, he may secure the loan but the interest accrues and is payable by the student.

COLORADO STUDENT AID PROGRAMS

In recent years the State of Colorado has provided funds for students attending institutions of higher education in the state. These programs are the Colorado Grant Program and Colorado Work Study Program. Eligibility is based on the documented financial need of the student. In addition, for the first time during the 1973-74 academic year, a Colorado Scholars Program has been established to recognize outstanding achievement irrespective of any financial need.

PART-TIME EMPLOYMENT

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

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Part-time employment, while attending college, is also available in each of the academic divisions and special services or agencies of the college. Application for such employment is made directly to the heads of the academic divisions or to the directors of special services. Mesa College also participates in the Federal College Work-Study Program. Under this program, the college plans to employ approximately 100 students at an average part-time salary of about \$400 for the three quarters of the academic year. The purpose of the College Work-Study Program is to provide financial assistance for academically qualified students who must have financial help toward meeting necessary college expenses.

To insure securing assistance under this program, prospective students should file applications with the Office of Financial Aids not later than June 15.

STUDENT HEALTH SERVICES

Mesa College provides health services for all students. These include the part-time services of a medical doctor and the full-time services of a registered nurse. The type of services provided include first aid, treatment and prescription of drugs for common illness, dispensing of simple medicines, recommending proprietary drugs, consultation concerning health problems including referrals to physicians and dentists, conducting health surveys, calling on students reported ill who reside in campus housing, and visiting students confined in local hospitals.

In addition, the college provides an excellent Blue Cross and Blue Shield student accident and sickness insurance plan. This plan is mandatory for all students, but carries a special waiver provision for those students who already are covered under family or other insurance plans. The plan protects the student twenty-four hours per day at school, at home, or while traveling during the school year, including interim vacation periods.

Students entering Mesa College for the first time are required to present a certificate of good health signed by a family physician or a physician approved by the College. Expense of this examination is borne by the student. Health examination blanks are available at the College Admissions Office.

HOUSING

General Policy. Mesa College believes that its students will have their best opportunity for a well-rounded educational experience while living in a supervised residence hall designed for student living. Mesa College also believes that if residence hall facilities are not available for all students, or in the instances where exceptions have been made (as explained below) off-campus housing facilities should be specifically approved and supervised by the College before students commence occupancy therein. Therefore, Mesa College has adopted the following rules with reference to housing of its students:

(1) To the extent that vacancies are available, all students shall live in college residence halls unless permission is granted by the Director of Housing for them to live off campus.

(2) Students who cannot be accommodated in the residence halls at the time of registration and who are not excepted by the Dean of Students on one of the bases given below, are required to move into a residence hall upon notification by the College that space therein is available.

(3) Students who live with their wives or husbands, or with their parents in Grand Junction or its vicinity, shall register their housing in the office of the Director of Housing prior to the commencement of each academic year and in the event of a change in address during the year.

(4) Students otherwise eligible to live on campus but whose health conditions demand special services and living conditions or whose part-time employment prohibits their securing meals regularly in a college food service facility, or whose relatives make available their homes at a considerable saving to the student on room and board must secure permission from the Director of Housing to live off campus.

(5) All students living off campus, except those specified in paragraphs (3) and (4) above, will be directed by the Director of Housing to, and shall live in, privately owned housing approved by the College.

General Requirement. A housing deposit of \$50 is required of both men and women who live in College residence halls. Room reservations in College residence halls will be assigned in the order in which signed contracts and room deposits are received. Upon occupancy of the room for the first quarter enrolled, \$25 of the \$50 room deposit will be credited toward payment of room rent for the quarter. The remaining \$25 will be held in escrow until such time as the student terminates his housing in the residence hall. If all provisions of the housing contract have been complied with, and no damage charges have been assessed, the \$25 deposit will be refunded to the student at the end of the college year, or at the end of the last quarter in attendance. The housing and boarding contract is a contract for the full academic year payable on a quarterly 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 enrollment at the College.

The College reserves the right to alter board and room charges upon thirty (30) days notice prior to the scheduled date of registration for any quarter.

Off-Campus Housing. Students who cannot be accommodated in college residence halls will be granted permission to live off campus provided their housing is approved by the Director of Housing. Normally, permission will be granted for a student to live with a relative or to work in a private home for his board and room.

Students of legal age (21 years) will be permitted to live in College-approved off-campus housing unless vacancies exist in the College's residence halls.

Any student planning to live off the campus must first receive permission to do so from the Director of Housing.

If the student is single and under 21 years of age, permission will not be granted except for reasons justifiable to College officials.

Any student who is discovered in violation of housing regulations by living off-campus without permission may be subject to suspension from the College.

Changes in the location (address) of a student's housing must be reported to, and approved by, the Director of Housing. Students requesting information about housing, either on or off the campus, should contact the Office of Student Personnel Services.

Refund on Housing and Boarding Contract. A room reservation in College housing will not be confirmed until the \$50 room deposit has been received. Once a contract is signed and the \$50 room deposit made, failure to notify the Housing Director of cancellation after August 15 will result in forfeiture of the entire \$50 deposit. If the reservation is cancelled prior to August 15, full refund of the \$50 deposit will be made.

No refund on the housing and boarding contract will be made to a student who voluntarily withdraws from the College during a quarter. In emergency cases, necessitating withdrawal from the College, refund of board will be made, prorated according to the number of weeks remaining in the quarter. No refund for room rent will be made in such cases, however. Refund of the \$25 deposit held in escrow will be made as described above.

Expenses at Mesa College

The College reserves the right to adjust any and all charges, including fees, tuition, room and board, etc., at any time deemed necessary by the Governing Board. In the event the actual costs vary significantly from the estimates shown in the following paragraphs, a separate fee card will be published.

BOARD AND ROOM

The cost of board and room for the 1973-74 academic year in College-owned and operated residence halls could not be determined exactly at the time this catalog was printed but was expected to be approximately \$1,000. Board and room in College residence halls is contracted on a yearly basis but is payable each quarter at the time of registration. The cost per quarter will closely approximate the following:

Fall Quarter \$350.00; Winter Quarter \$325.00;

Spring Quarter \$325.00. Total for the year—\$1,000.00.

The above estimated charges include three meals per day at the College Cafeteria with second helpings permitted at any meal, except that on Sundays the breakfast meal is not served.

For those students who are permitted to live off campus, the cost of rooms varies greatly, depending upon the type of accommodations provided, and may range from \$30 to \$75 per month. Since board (meals) in private homes, rooming houses, etc., is difficult to obtain, and the cost of meals is quite expensive at eating establishments off campus, the College Cafeteria offers a special quarterly meal plan which will cost the student approximately \$185 for the longer Fall Quarter, and about \$185 for each of the Winter and Spring Quarters. Total estimated cost of this plan for the year will be \$515. The plan is the same as for students who live in the College's residence halls, described above.

REFUNDS ON BOARD AT COLLEGE CAFETERIA

Students who live off campus and elect the special Cafeteria quarterly meal plan are subject to the same refund conditions as are described for students who live in College residence halls. Students who are requested to withdraw from the College by College officials, or who have to withdraw because of emergency conditions, normally will be given refunds for meals prorated on the number of weeks in the quarter.

BOOKS AND SUPPLIES

Textbooks, notebooks and school supplies are sold at the College Bookstore. Cost of needed books and supplies will vary according to the courses taken by the student but ought not to exceed \$150 for the year. Some saving may be realized by buying used books which may be available in limited quantities. Nursing students will have additional costs of uniforms and transportation to and from hospital training centers.

TUITION AND FEES

At the time of the printing of this catalog, tuition and fees remain the same. It is anticipated, however, that a slight increase in tuition may be necessary for 1973-74.

All full-time students at Mesa College pay Student Services fees of \$34 per quarter. In addition to the Student Services fees, students who are legal residents of the Mesa Junior College District are charged a tuition and College fee of \$71 per quarter and legal residents of Colorado who live outside the junior college district are charged tuition and College fee in the amount of \$121.

Students whose legal residence is out of the State of Colorado are charged tuition and College fee in the amount of \$366 per quarter.

All fees are payable at the time of registration.

1973-74 Tuition and Fee Schedule

REGULAR ACADEMIC YEAR (Fall, Winter, Spring Quarters)

COLORADO RESIDENTS: Mesa College District		Out of District
Tuition and College Fee.....	\$ 71.00 per quarter	\$121.00 per quarter
*Student Services Fees.....	34.00 per quarter	34.00 per quarter
TOTAL.....	\$105.00 per quarter	\$155.00 per quarter

OUT-OF-STATE RESIDENTS:

Tuition and College Fee	\$366.00 per quarter
*Student Services Fees	34.00 per quarter

TOTAL \$400.00 per quarter

*Student Services fees include student activity fees, student publications, College Center use fee, Physical Education Center use fees, and other student services.

SUMMER 1973

In-District	\$10.00 per hour (maximum \$105.00 per term)
Out-of-District	\$15.00 per hour (maximum \$155.00 per term)
Non-Residents	
(Out-of-State)	\$36.00 per hour (maximum \$400.00 per term)

REFUNDS OF TUITION AND FEES

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

APPLICATION AND EVALUATION FEE

Application and Evaluation Fee (Non-Refundable)	\$10
(Valid only for quarter for which student is first admitted)	

PRIVATE AND SPECIAL INSTRUCTIONAL FEES

Where private and special instructional services are required additional charges will be incurred by the student. These fees are payable in advance to the instructors and vary with the types of instruction, individual instructors, and other circumstances.

Private instruction in applied music is available through the College and from instructors approved by the College. Cost of this instruction is \$35 per quarter for one lesson per week. Other special instructional services available at extra cost include bowling, golf, skiing, etc.

EVENING SCHOOL FEES

Evening class fees vary as to subject, time, and materials required, usually in accordance with the rates listed below for part-time students. Day school students who pay full day school tuition and fees will not be charged extra for evening classes, except where a special material fee is required by the class.

MISCELLANEOUS FEES

Late registration, \$10 first day, \$5 each additional day, maximum.....	\$30.00
Graduation (cap, gown, diploma).....	7.50
Late petition for graduation.....	1.00
Late credential fee.....	3.00
Aquatics Fee (swimsuit and towel).....	2.00

PART-TIME STUDENT FEES

Students taking a part-time course (less than 12 quarter hours of credit) are charged fees as follows:

In-District Residents.....	\$10.00 per quarter hour credit
Out-of-District Colorado Residents.....	\$15.00 per quarter hour credit
Out-of-State Residents.....	\$36.00 per quarter hour credit

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PAYMENT OF FEES

All tuition and fees are due and payable at the time of registration—the first day of each quarter—and registration is not complete until the student's obligation is met in full. Any student who enrolls and attends classes is liable for payment of fees even though he may drop out of school. No student having unpaid financial obligations of any nature due the College shall be allowed to graduate or to receive any transcript of credits.

DETERMINATION OF RESIDENCE STATUS FOR TUITION PURPOSES

The classification of students as residents of Colorado for tuition purposes is determined under Colorado statute. Further classification of Colorado residents as In-District or Out-of-District residents for tuition purposes is determined by regulations of the Mesa Junior College District.

A notarized affidavit of residence signed by the parent or legal guardian of each student who is a minor, or by the student if 21 years of age, is required before final admission is granted.

Any student who has been classified as Out-of-State or Out-of-District who believes he can qualify as either a State-of-Colorado resident or an In-District resident should check with the Office of Admissions and Records for a determination of residence status. The final decision regarding tuition status rests with the institution. Questions regarding residence (tuition) status should be referred only to the Director of Admissions and Records. Opinions of other persons are not official or binding upon the institution.

Affidavit-of-Residence forms are provided by the Admissions and Records Office at the time the student makes application for admission.

STUDENT ACTIVITIES

Mesa College operates in the development of those student-initiated activities which supplement the more formal instructional program. An extensive and varied program of extra-class activities, in which all freshmen as well as sophomores are eligible and encouraged to participate, is expected to provide constructive experiences which will stimulate personal growth and social development and add to the student's enjoyment of life. All student activities are coordinated through the Office of Student Activities.

The Student Body Association is governed by elected representatives organized into a legislative body known as the Student Cabinet. The Student Cabinet, operating within the framework of a formal constitution, provides a broad program of social, educational, and cultural activities for all students of the College. Students at Mesa College will find an active and growing student government structure, operating under three basic philosophic premises:

- (1) There are many areas in the life of the community college where students may and should be actively involved, including those areas where decisions are made that directly affect them;
- (2) The College has the responsibility to provide the education and counseling necessary to assist students effective in these roles; and
- (3) Students participate as respected partners in the areas where their interests are of concern.

In addition, the College provides a comprehensive program of activities including intercollegiate athletics, intramurals, drama, forensics, and numerous art and music groups in which interested students are encouraged to participate.

The Lectures and Concerts Committee, supplemented by the Student Cabinet, bring several nationally-known artists and lecturers to the campus each year to provide entertainment and educational and cultural enrichment to the faculty and student body.

The College does not have a system of social fraternities and sororities, but provides a large number of service and special interest clubs and organizations which offer all students the opportunity to participate as an integral member of a special group in which they have common interests.

Three junior college honorary groups have chapters on the Mesa College campus. They include Phi Theta Kappa, the national junior college honor fraternity for students with high academic achievement; Phi Rho Pi, a non-social national honorary forensic society for students who participate in college-sponsored speech competition; and Delta Psi Omega, an honorary dramatic fraternity for students who have contributed to the production of college plays and musicals.

The College Center Building provides offices for student government and student publications, and serves as a cultural, recreational, and social activity center available to all students. In addition, the Center includes the College Cafeteria, Snack Bar, and Bookstore.

Organization for Instruction

Mesa College offers programs of three general types:

- 1) Those offered by the nine Academic Divisions,
- 2) Those of a Vocational or Technical nature, and
- 3) Those offered through the Office of Continuing Education to serve the adult needs of the community.

The nine academic divisions of the College and the subject areas included in each are indicated below:

The Division of Biological Sciences and Home Economics: agriculture, biology, botany, forestry, home economics, zoology.

The Division of Business: accounting, general business courses, secretarial sciences.

The Division of Fine Arts: art, drama, music.

The Division of Health Programs, Department of Nursing: courses for the associate degree program in nursing and a 12-month program for practical nursing.

The Division of Humanities: education, English, literature, philosophy, reading, speech, and foreign languages.

The Division of Mathematics and Engineering: mathematics and engineering.

The Physical Education Division: physical education theory and activity courses for both men and women.

The Division of Physical Sciences: chemistry, geology, astronomy, archaeology, and physics.

The Division of Social Sciences: anthropology, economics, geography, history, political science, psychology, and sociology.

Vocational-Technical programs of the College are found in a separate section of the catalog and include offerings in the following fields:

Associate Degree Professional Nursing; Audio-Visual and Graphic Communications Technician; Auto Body and Fender; Automotive Mechanics and Technology; Child Care Center Director; Data Processing; Electronics; Engineering Technician; Geologic Technician; Job Entry in Business; Library Technician; Medical Office Assistant; Police and Fire Service; Practical Nursing; Radiologic Technology; Secretary, Legal or Scientific; Travel and Recreation Management; Welding.

The program for the two years at Mesa College will depend upon what the student plans to do at the end of two years. For those who plan to continue college work in a four-year college or university the courses in liberal arts, which are equivalent to such first- and second-year courses at higher institutions of the state, are required. Certain definite lower-

division requirements are met by the courses leading to the Associate in Art or the Associate in Science degree. Other courses will depend upon the field in which the student's major interest lies, but will consist of such as fit into the student's planned program to be followed in the junior and senior years.

For those who do not plan to continue beyond the junior college, several non-specialized programs are offered. These provide for a broad training and liberal choice of electives. For those who desire to prepare for a specific vocation, guidance is given in selecting the appropriate course for such preparation.

In recent years Mesa College has given increased attention to providing programs of Vocational and Technical Education for students who do not plan, at least immediately, to complete a four-year 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 the various technical occupations for which the training is offered.

A program of Continuing Education is designed to provide opportunities for adults to receive both academic and vocational preparation in various fields. Related training in several apprentice trades is given through the program.

MESA COLLEGE RESERVES THE RIGHT TO WITHDRAW FROM ITS OFFERINGS ANY COURSE WHICH THE ENROLLMENT DOES NOT JUSTIFY GIVING, FOR ANY PARTICULAR QUARTER. ADDITIONAL COURSES WILL BE ADDED ANY QUARTER IF THERE IS SUFFICIENT DEMAND.

ADMISSIONS INFORMATION **and** **GRADUATION REQUIREMENTS**

ADMISSION TO MESA COLLEGE

Mesa College will admit high school graduates, non-graduates of high school who are 18 years of age or older (see **Admission of Special Students** page 21), and others who have sufficient experience and seriousness of purpose to enable them to benefit from Mesa College's offerings. Admission is granted without regard to race, color, creed or national origin.

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

Colorado high school graduates who have completed satisfactorily a minimum of fifteen acceptable units of high school work are eligible for admission to the freshman class. The application for admission, which includes a transcript of the high school record properly filled out and signed by the high school principal, should be on file in the Admissions Office not later than August 15 for the Fall Quarter. As the number of approved applicants approaches the planned capacity for the Fall Quarter this deadline may be advanced to on or near August 1. Applications for admission for the Winter and Spring Quarters should be on file in the Admissions Office not later than two weeks prior to the beginning of the quarter.

ADMISSION OF SPECIAL STUDENTS

Mature individuals who lack some of the requirements for admission as regular students may be admitted as special students on a full or part-time basis. Special students may become regular students upon fulfilling the requirements for entrance. This may be done by passing the high school level tests in General Educational Development or, in some cases, by substituting certain college courses for high school units.

TRANSFER APPLICANTS

An applicant for admission who has already attended another institution of college rank may not disregard his collegiate record and apply for admission as a first-time freshman.

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

ADVANCED PLACEMENT

The college will recognize unusual secondary school work by means of advanced placement for those who have taken especially enriched or accelerated courses before entering college. Applicants ordinarily qualify for such placement by satisfactory achievement on placement examinations prepared or approved by respective departmental staff members. Further information may be obtained by writing the Admissions and Records Office.

ADMISSION TO ADVANCED STANDING

Students honorably dismissed from other colleges or institutions may be admitted to advanced standing in Mesa College. Students applying for advanced standing will furnish to the Admissions Office a transcript of all college work sent from each institution attended. Transfer students will be required to take the ACT test prior to registration unless the test has been taken previously and an official record of the scores is on file with the Director of Admissions. Such test scores are not a regular part of the official transcript, and are released by the student's former school only at the student's specific request. A high school transcript is required of all transfer students.

HEALTH EXAMINATION AND RESIDENCE AFFIDAVIT

Students entering Mesa College for the first time are required to have a health (medical) examination and the record thereof must be signed by the family physician or a medical doctor approved by the College. The record of the health examination must be submitted on the College's form which is mailed the student at the time of application for admission.

Each student is required to file a notarized residence affidavit at the time he first registers at Mesa College for the academic year. This affidavit is to be signed by the parent or legal guardian of each minor student, or by the student if 21 years of age. These affidavit forms will be provided each student as a part of pre-registration information and material.

These two items are required before admission is granted.

ADMISSION OF VETERANS

Mesa College is open to any veteran who qualifies for college education and its Veteran Service program has been organized to give the most efficient assistance possible in planning his program of study.

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The College is approved by the Veterans Administration for the education and training of veterans under Public Law 894 and others.

A veteran who does not meet the normal entrance requirements for admission, but who proves, through tests, that he is ready to do college work will be admitted.

A veteran may take regular courses leading to an associate degree granted by Mesa College and preparing him for entrance to the higher division of four-year colleges and universities, or he may follow a terminal program designed to prepare for some specific occupation.

NOTE—Students who wish to qualify for Veterans Administration benefits should come prepared to finance their living expenses for a period of sixty days. This is the normal length of time required to set up a veteran's file in the regional office and for the issuance of monthly checks. All veterans must present a photostatic copy of their discharge in order to be excused from the Physical Education requirement.

ADMISSION OF SPECIAL STUDENTS

Mature individuals who lack some of the requirements for admission as regular students may be admitted as special students on a full or part-time basis. Special students may become regular students upon fulfilling the requirements for entrance. This may be done by passing the high school level tests in General Educational Development or, in some cases, by substituting certain college courses for high school units.

REGISTRATION AND COUNSELING TESTS

The college admission tests of the American College Testing (A.C.T.) Program are required of all new students prior to registration at Mesa College. It is recommended that prospective students take these tests during their senior year. Transfer students should contact the registrar sufficiently in advance of registration to make arrangements to take the tests, or to have an official report of the scores from a previous administration on file prior to registration. The tests are available at designated centers throughout the state and region on five different dates, in October, December, February, April, and August.

A \$6.00 fee must be submitted with registration form to the A.C.T. Regional Office four weeks prior to the date on which the student elects to take the test. Detailed information regarding testing centers, dates, and registration supplies will be available through high school principals or from the Director of Admissions at Mesa College.

A residual testing program will be available in connection with Fall and Winter Registration for those students who do not take the tests during their senior year. These students will be required to take the tests during the Fall Registration Orientation program or, for the Winter Quarter, one day prior to registration in order that results will be available to students and their advisors during registration. A special testing fee will be collected from these students at the time they report for testing.

Students do not "pass" or "fail" these tests. The results are available to the student and his counselor and form an excellent basis for counseling and planning a course of study to meet the particular needs of students, and assist in sectioning and placement of students in class sections in keeping with their abilities and interests. Extra classroom instruction is provided during the first quarter for those whose test scores indicate weaknesses or deficiencies in certain areas such as English and mathematics.

College Board Scholastic Aptitude Test scores (S.A.T.), when received, are filed in the student's permanent record and personnel folder where they are available for counseling purposes if desired. However, these S.A.T. scores are not required by Mesa College and will not excuse the student from the A.C.T. program.

PROFICIENCY EXAMINATIONS

Proficiency examinations may be taken by regularly enrolled students to determine whether credit may be allowed for courses taken in an unapproved institution of higher learning; to determine amount of credit to be given for work done outside of class; and to provide a basis for exemptions from certain courses.

DIVISIONS AND DEPARTMENTS OF INSTRUCTION

Mesa College offers courses under the following divisions and departments: Agriculture, Art, Biological Science, Business, Chemistry, English, Foreign Language, General Education, Geology, Health, Home Economics, Humanities, Mathematics and Engineering, Music, Nursing, Physics, Physical Education, Psychology and Education, Social Science, Speech and Drama, Technical and Vocational, Trades and Industry, Continuing Education.

COURSES OF STUDY REQUIREMENTS

The course of study which an individual student pursues depends upon his present interests and his future plans. Freshman requirements for the principal courses offered at Mesa College are similar to those at senior colleges. Students who plan to continue college work after leaving Mesa College should decide upon the college to which they will transfer and plan their course here so that freshman and sophomore requirements of the college of their choice will have been met. **This is a student responsibility** although counselors will be glad to help.

REGISTRATION

In order to become a student of Mesa College, whether regular or special, an applicant must register on official forms provided by the college and at the appointed time. Credit will be given only for courses in which the student is registered.

N.C.D. 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. A student may combine in his registration both credit and N.C.D. courses, but the total hours involved should not exceed a normal schedule.

Those whose major interest lies in the field of **Education, English, Foreign Language, History, Law, Music, Social Science, or Speech**, should register to meet the requirements of the Associate in Arts degree and, in addition, take the specific courses required in one of these fields, by the school to which they expect to transfer.

Those who are interested in **Agriculture, Dentistry, Engineering, Home Economics, Mathematics, Medicine, Pharmacy, Nursing** or related fields, should register in courses leading to the Associate in Science degree, and take the particular courses required by these departments in the universities and professional schools of their choice in the first two years.

CERTIFICATES, DIPLOMAS, DEGREES

Mesa College grants a certificate, diploma, or degree, according to the type of curriculum selected by the student and upon completion of the specific requirements of each. These include completion certificates, a Mesa College diploma, and the degrees, Associate in Arts, Associate in Science, Associate in Commerce, and Associate in Applied Science.

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A completion certificate may be awarded those who complete satisfactorily a terminal course of less than two years' duration.

No student will be awarded more than one degree.

GRADUATION (Minimum Requirements)

To graduate from Mesa College a student must:

1. Have been regularly enrolled at least three quarters, including the one next preceding the time of his graduation, and must have earned a minimum of 24 quarter hours at Mesa College.
2. Complete with an average of C (2.0 GPA) or better, 93 credit hours, including social science or literature, 9 hours; English 11 and 12, 6 hours, plus either English 13 or 3 hours of freshman literature; and physical education, 3 hours, to qualify for the MESA COLLEGE DIPLOMA.

Additional requirements for an ASSOCIATE DEGREE include the specific course requirements listed on this page and on page 40 and, in the event that credit hours exceed 93, an overall average of C or better is required on all credit hours attempted.

3. File with the Director of Admissions and Records a petition for graduation within 3 weeks after registering for the last quarter. Penalty for late filing shall be \$1.00.
4. Satisfy all general and specific requirements of Mesa College which pertain to him, including the fulfillment of all financial obligations.
5. Have removed from his record all marks of deficiency in those subjects for which he expects to receive credit toward graduation.
6. Be in attendance upon the Commencement exercises of his class unless a petition of absence, properly made by him to the committee on graduation, is approved by that committee.

DEGREES

The Associate in Arts and Associate in Science degrees are granted to students who qualify as regular students, meet the minimum requirements for graduation stated in the preceding paragraphs, and in addition complete the appropriate specific degree requirements as follows:*

General Requirements for all DEGREES and the MESA COLLEGE DIPLOMA

All Mesa College graduates must complete with an average of C, or better, 93 hours, including:

Freshman English	9 hours
Social Science or Literature	9 hours
Physical Education (3 quarters of activity courses)	3 hours

Specific Requirements for the ASSOCIATE IN ARTS DEGREE

Physical Science	9 hours
History or other Social Science	9 hours
Literature	9 hours
Biology or Psychology	9 hours
Approved electives	45 hours

*Specific requirements for the Associate in Commerce Degree may be found on page 40.

Specific Requirements for the ASSOCIATE IN SCIENCE DEGREE

Laboratory science and mathematics	39 hours
Approved electives	33 hours#

Specific Requirements for the ASSOCIATE IN APPLIED SCIENCE DEGREE

Students enrolled in one of the specially designed Occupational Education curricula may qualify for this degree upon completion of the general requirements listed above and the specific technical course requirements appropriate to the curriculum in question. The specific course requirements are listed in the Occupational Education section of this catalog. The general requirement of nine hours in Social Science or Literature is modified to include Psychology for this degree....

TEACHER PREPARATION

Mesa College recognizes the need for teachers, and encourages students of ability to prepare for teaching. A four-year program of training is needed for entry into the teaching profession, and students should plan their two years at Mesa in accordance with the requirements of the higher institution to which they expect to transfer. Since the first two years of teacher training is basically general education for improvement of background, students should follow the General Liberal Arts (transfer) program with suitable choice of electives. Mesa College has an active student education organization, M.E.S.A., which is affiliated with the Colorado Student Education Association. The Mesa College chapter is represented at most state education meetings and conventions.

TRANSFER OF CREDIT

Accreditation by the North Central Association of Colleges and Secondary Schools assures the acceptance of credits earned at Mesa College by other accredited colleges and universities throughout the United States. However, 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 the registrar of the former school that the student is in "good standing."

A student in good standing is entitled to a transcript of his record at any time. One transcript is furnished free of charge. A fee of \$1.00 is charged for each additional transcript.

Credits transferred from an accredited junior college are accepted in senior colleges and universities up to a maximum prescribed by the particular institution for the first two years of a curriculum similar to the one from which the student transfers.

Junior colleges in Colorado are authorized by State law to provide only the first two years of college instruction. This is the equivalent of 90 academic hours, plus three hours of physical education, for most higher institutions.

Students who earn more than 90 academic hours may not receive credit for the excess hours on transfer to a four-year state college in Colorado that requires only 90 hours for Junior standing.

A student expecting a transfer to a senior college is advised to examine carefully the current catalog of the particular college he expects to enter and to follow as closely as possible its particular recommendations for program of study.

#Students majoring in professional nursing or other technical-terminal programs must complete courses of study as prescribed for the respective programs in addition to the above general graduation requirements.

GENERAL REGULATIONS

LATE REGISTRATION

Students who register late are expected to make up the work missed. Ordinarily, students are not permitted to enroll for a full-time class schedule after the first week of classes in any quarter. Late registration must be completed within ten calendar days including the first day of registration of the quarter. See **Miscellaneous Fees** for information on late-registration fee.

ATTENDANCE

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

All instructors are required to keep a record of all absences. Whenever the instructor thinks that absences are seriously affecting a particular student's work, it shall be his duty to report this fact to the office of the Dean of Students.

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 Dean of Students. The coach or instructor or other official whose work requires absences from classes shall file in the Dean of Students' office 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 sixteen quarter hours (eighteen for engineering students) and the minimum load is twelve hours, except for a few special and part-time students. Eighteen hours is the maximum load until a student has shown his ability to take more, and then he may be permitted to carry more hours if his schedule is approved by the admissions committee.

COURSE CONTINUATION

Courses which continue for three quarters generally should be taken throughout the year by students planning to transfer credits to senior colleges or universities, and in the sequence indicated by the course numbers. Example: French 11, 12, 13, FWS (fall, winter, spring). To receive transfer credit for this course it is necessary to take all three quarters.

ACADEMIC STANDARDS

Standards of scholarship at Mesa College depend upon the objectives, nature and content of the courses. While individual progress is a basic consideration, and the development of each student in the light of his needs and aptitudes in the major concern of the College, it cannot be too strongly emphasized that if minimum standards are not maintained failure will result.

A student's achievement is considered satisfactory when he maintains a grade-point average of 2.0 (C) or higher.

ACADEMIC PROBATION AND SUSPENSION

Students who fail to make minimum acceptable grade-point averages for any given quarter will be placed on academic probation by the Admissions Committee for the succeeding quarter enrolled. Students failing to meet minimum prescribed academic standards for two consecutive quarters are subject to academic suspension for one or more terms. In case of extremely low grades students may be suspended at the end of the first quarter of attendance. Students who are on academic probation are usually not eligible to hold office in student organizations, nor to represent the College in any regularly sponsored group or activity.

EVALUATION

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

GRADE REPORTS

Individual grade reports are mailed to parents or legal guardians, or to individual students upon their request if they are 21 years of age, at the end of each quarter. Special reports may be obtained at any time upon application to the Office of Admissions and Records. An official grade report is withheld, however, until all fees owed the College are paid.

SYSTEM OF GRADES

Grades in Mesa College are indicated as follows: A, for superior work; B, good; C, fair; D, minimum passing; F, not passing; I, incomplete; S, satisfactory; U, unsatisfactory; W, withdrawn passing; and WN, withdrawn from non-credit course.

INCOMPLETES

A grade of I (incomplete) may be reported only on account of illness or severe emergency immediately prior to or during the time of final examinations for a particular quarter. This grade may be given only upon the recommendation of the instructor and the approval of the appropriate Division Chairman or Department Head.

WITHDRAWAL FROM COLLEGE

A student who desires to withdraw from the college should notify his faculty advisor and report to the Office of the Dean of Students, where the necessary withdrawal papers will be filled out and officially signed by the Dean of Students or one of the Associate Deans. The student will receive a grade of W, withdrawn passing, for each course in which he is passing at the time of withdrawal. Official withdrawal from the College will not be granted during the last three weeks of a quarter, except in documented cases of emergency.

HONORABLE DISMISSAL

A statement of "honorable dismissal" will be given a student if at the time of withdrawal his status as to conduct, character and scholarship is such as to entitle him to continue in the College.

SUMMER SESSION

Mesa College offers a summer program based primarily upon needs and wishes expressed by students and residents of the community.

Typical offerings in previous summers have included courses in the areas of Biology and Home Economics, Business, Data Processing, Fine Arts, Humanities, Mathematics and Engineering, Physical Education, Physical Science, Social Science, and Vocational Education.

A prescribed minimum of students is required to justify offering any particular course.

This program operates on an eight-week schedule divided into two four-week sessions, with classes being held in forenoons only. The 1973 Summer Session will begin Monday, June 18. (See calendar on page 5).

Tentative bulletins on Summer Session offerings are usually available from the Director of Summer Session or from the Director of Admissions during Spring Quarter.

The following courses were taught during the 1972 Summer Session and probably will be offered, along with others, during Summer 1973:

Course No.	Title	Course No.	Title
BIOL 11	Biology and Lab	ENGR 11	Engr. Graphics and Design
CEBI 19	Sewing for Teens	MATH 11	Basic Math
HEC 12	Nutrition	MATH 21	College Algebra
ACTG 31	Principles of Accounting	MATH 28	College Algebra and Trig.
ACTG 64	Cost Accounting	MATH 35	Statistics
BUS 12	Intro. to Business	MATH 50	Analytic Geometry
BUS 14	Human Relations	CEPE 45	Judo
BUS 21, 22, 23	Business Machines	PE 13	Bowling
BUS 27	Advertising	PE 14	Golf
BUS 36	Per. Finance and Money Mgmt.	PE 30	Tennis
BUS 39	Insurance	CHEM 21	General Chemistry
BUS 43	Business Math	CHEM 23	Intro. to Organic Chemistry
BUS 46	Intro. to Data Processing	CHEM 41	Intro. to Inorganic, org., and Physical Chemistry
SS 10, 11	Beg. and Int. Typewriting	GEOL 21	Geology
SS 21	Shorthand Theory	PSCI 11	Surv. of Physical Science
ART 65	Ceramics	ECON 51	Principles of Economics
EDUC 51	Intro. to Education	ECON 52	Principles of Economics
ENGL 4	Pre-Freshman English	HIST 11	World Civilizations
ENGL 11	English Composition	HIST 12	World Civilizations
ENGL 12	English Composition	HIST 20	History of Colorado
ENGL 13	English Composition	HIST 31	U.S. History
ENGL 21	Spelling	HIST 32	U.S. History
ENGL 22	Word Study	POLS 11	American Government
ENGL 51	Creative Writing	PSY 21	General Psychology
LET 21	Children's Literature	PSY 23	General Psychology
LET 31	World Literature	PSY 33	Human Growth and Develop.
LET 32	World Literature	PSY 74	Educ. Psychology
LET 33	World Literature	SOC 44	Marriage and Family
LET 46	Afro-American Literature	SOC 61	General Sociology
LET 53	English Literature	SOC 82	General Sociology
LET 54	Intro. to Shakespeare	SOC 83	Social Problems
LET 61	U.S. Literature	ADP 12	Keypunch
PHIL 51	Intro. to Philosophy	ADP 19	Production Keypunch
PHIL 52	Intro. to Philosophy	ABF	Auto Body and Fender
READ 6	Reading and Study Skills	AM 41	Small Engine Repair
RFAD 10	Reading and Study Skills	AVIS 51	Adv. Production
SPCH 11	Fundamentals of Speech		
SPCH 27	Debate		
THEA 55	Summer Theatre		

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COURSE DESCRIPTIONS AND SUGGESTED CURRICULUMS

The following pages provide suggested curriculums and descriptions of courses available in the various divisions and subject matter areas and departments to assist students in planning their courses. The curriculums include both general and special requirements for graduation with the appropriate degree or diploma as indicated. Faculty advisers will assist in selecting courses for other fields which may be desired by students and in accordance with requirements of specific institutions.

Arts and Science courses offered at Mesa College are grouped in thirty-seven departments or fields of study within nine major divisions. The descriptions which follow indicate the content of the course and list the prerequisites for those which are not beginning courses. Courses are numbered and given titles. For example, **History 32** is a course number and **United States History** is the corresponding course title.

Courses numbered from 1 through 9 are remedial in nature and not intended for transfer nor for Associate Degree requirements. Courses numbered from 10 to 50 are designed for freshmen and those numbered above 50 for sophomores. Numbers end in 1, 2, 3, according to the quarter in which they are regularly offered. Some courses, however, are offered two or three quarters during the year so that students may enter at the beginning of any quarter and be able to take a full schedule of work. FWS means fall, winter, spring.

Orientation

Each first-time student is required to participate in the Orientation program offered during Fall Quarter for transfer students and new freshmen. This program aids the student in his adjustment to college as it deals with planning a course of study, budget of time, study habits, extra-curricular activities, social and personal adjustment. Students meet in small groups with assigned faculty advisers. Assemblies covering many of the areas mentioned above will be conducted throughout the academic year.

Specific orientation or introduction courses are required of students majoring in such areas as Agriculture, Business, Engineering, Forestry, and Home Economics.

Curriculums

Two types of general curriculums are suggested on the following page. For students who have definite majors in mind, additional suggested curriculums will be found at the beginning of the catalog sections devoted to the respective academic divisions. The curriculums found within the respective divisions represent sample or type curriculums to assist students in planning programs related to a certain subject-matter area and are not all-inclusive. There are sufficient course offerings throughout the various divisions to provide many other subject matter and vocational areas in which students may secure one or two years of lower-division course work at Mesa College. Following are some suggested subject-matter areas for which specific sample curriculums will not be found but which can be provided for by substituting appropriate courses available within the division in some of the existing suggested curriculums:

Dramatics, Economics, English, Government, History, Journalism, Laboratory Technician, Language, Literature, Mathematics, Medical Technician, Philosophy, Physics, Physical Therapy, Psychology, Sociology, Speech.

GENERAL CURRICULUMS

(Broad programs available to students who have not selected a definite major in one of the specific divisions.)

GENERAL EDUCATION

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Electives	5	Electives	5	Electives	5
Music 24	2	Psychology 22	3	Music 26	2
Psychology 21	3	Music 25	2	Psychology 23	3
Physical Education	1	Art 44	2	Speech 11	3
	14	Physical Education	1	Physical Education	1
			18		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
History	3	History	3	History	3
Science	5	Science	5	Psychology 33	3
Elective	5	Elective	5	Science	5
Literature	3	Literature	3	Elective	2
	16		16	Literature	3
					16

GENERAL LIBERAL ARTS (Transfer)

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 11	3
Social Science or Lit.	3	Social Science or Lit.	3	Social Science or Lit.	3
Chemistry or Geology.	5	Chemistry or Geology.	5	Chemistry or Geology.	5
Mathematics 21 or 28 3-5		Mathematics 22 or 29 3-5		Mathematics 23 or 59 3-5	
Physical Education	1	Elective	1	Elective	1
	15-17	Physical Education	1	Physical Education	1
			16-18		16-18

NOTE: If a student plans two years of a foreign language, he may begin it during his first year by postponing another first-year subject until the second year. Foreign language is an elective, not a substitute for any courses required for a diploma or associate degree.

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Literature	3	Literature	3	Literature	3
Psychology 21	3	Psychology 23	1	Psychology 23	3
Foreign Language	5	Foreign Language	5	Foreign Language	5
Social Science	3	Social Science	3	Social Science	3
Elective	3	Elective	3	Elective	2
	17		17		16

DIVISION OF BIOLOGICAL SCIENCES AND HOME ECONOMICS

The Division includes the course offerings in the areas of Agriculture, the Biological Sciences, and Home Economics.

The aims of this division are to provide for our students:

1. The basic courses in a pre-professional curriculum.
2. Courses for non-science majors for general education.
3. Vocational training for those students who will terminate their education at the junior college level.

Instructional Staff: Mr. Rice, Chairman; Mr. Bauerle; Mr. Royal; Mrs. Leighton; Mrs. Ripley; Mrs. Sullivan; Mr. Yonker; Mrs. Young.

AGRICULTURE

AGRICULTURE SCIENCE*

Associate in Science

Those students entering into Agriculture Science should have a good mathematical and science background and have been an above average student in high school. The following freshman curriculum is recommended.

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Biology 21	5	Biology 22	5	Biology 23	5
English 11	3	English 12	3	English 13	3
Chemistry 21 or 31	5	Chemistry 22 or 32	5	Chemistry 23 or 33	5
Mathematics 21	5	Mathematics 22	5	Mathematics 26	5
Agriculture 1	1	Physical Education	1	Physical Education	1
	19		19		19

APPLIED AGRICULTURE*

Associate in Science or Diploma

The following curriculum is suggested for those students not electing to major in Agriculture Science but who are interested in a course suitable for transfer and leading to a Bachelor of Science degree.

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Agriculture 11	5	Agriculture 42	5	Agriculture 23	6
Biology 21 or 41	5	Agriculture 62	3	Agriculture 33	5
English 11	3	English 12	3	English 13	3
Agriculture 1	1	Biology 22 or 42	5	Speech 11	3
Physical Education	1	Physical Education	1	Physical Education	1
	15		17		18

*Consult with counselor to plan a program that will best meet individual transfer needs for second-year curriculum. Suggested electives for the Agriculture Science major: American Government, World Civilizations, Speech, Literature, Economics. Suggested electives for the Applied Agriculture major: Agriculture 12, Agriculture 56, Mathematics 21, 22, 23; American Government, World Civilizations, Literature, Chemistry 21, 23, 23.

TERMINAL AGRICULTURE

Students who plan to terminate their formal education with study at Mesa College may follow a course of study of their own choosing. Such a course may lead to a Mesa College Diploma or Associate Degree. (See pages 23, 24.)

BIOLOGICAL SCIENCES

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Chemistry 31	5	Chemistry 32	5	Chemistry 33	5
Biology 21 or 41	3-5	Biology 22, 31 or 42	3-5	Biology 23, 32 or 43	3-5
Mathematics 21 or 28	3-5	Mathematics 22 or 28	3-5	Mathematics 26	5
English 11	3	English 12	3	English 13	3
	16-18	Physical Education	1	Physical Education	1
			17-19		17-19

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Soc. Sci. or Literature	3	Soc. Sci. or Literature	3	Soc. Sci. or Literature	3
Biology 61	5	Biology 52 or 53	3	Biology 53 or 53	5
Elective or Chem. 31	5	Elective or Chem. 32	5	Elective or Chem. 33	5
Elective	2	Elective	5	Elective	2
Physical Education	1				
	16		16		15

PRE-FORESTRY

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Biology 21 or 41	5	Biology 22 or 43	5	Biology 23 or 42	5
Chemistry 21	5	Chemistry 22	5	Chemistry 23	5
English 11	3	English 12	3	English 13	3
*Mathematics 21	5	Mathematics 22	5	Mathematics 26	5
Forestry 1	1				
	18		18		18

*Substitute approved elective if student can begin with Math 26.

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Geology 21	5	Biology 31	5	Biology 32	5
Economics 51	3	Economics 52	3	Agriculture 56	5
Speech 11	3	Geology 22	5	Physics 10	5
Humanities or Social Science	3	Humanities or Social Science	3	Physical Education	1
Physical Education	1	Physical Education	1		16
	16		17		

HOMEMAKING (Terminal)

Mesa College Diploma

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Home Economics 15	5	Home Economics 12	3	Home Economics 36	3
Home Economics 32	3	Home Economics 17	3	Physical Education	1
Intro. to H. Econ.	1	Art 21	2	Electives	5
Electives	2	Physical Education	1	Art 22	2
Physical Education	1	Electives	3	Home Economics 41	3
Home Economics 10	3	Home Economics 11	2		
	18		17		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Home Economics 41	3	Home Economics 33	2	Home Economics 53	3
Elective	3	Home Economics 42	3	Soc. Sci. or Literature	3
Psychology 21	3	Soc. Sci. or Literature	3	Sociology 44	3
Soc. Sci. or Literature	3	Electives	6	Electives	6
Physical Education	1	Speech 11	3		
Home Economics 34	3				17
	18		17		

HOME ECONOMICS (Transfer)

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Home Economics 15	5	Home Economics 17	3	Home Economics 32	3
Chemistry 21	5	Art 21	2	Home Economics 36	1
Home Economics 1	1	Chemistry 22	5	Home Economics 33	2
Home Economics 10	3	Physical Education	1	Chemistry 23	5
Physical Education	1	Home Economics 11	2	Art 22	2
	18		16		18

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Home Economics 51	3	Home Economics 52	3	Home Economics 53	3
Psychology 21	3	Psychology 22	3	Biology 53	5
Biology 14	5	Soc. Sci. or Literature	3	Soc. Sci. or Literature	3
Soc. Sci. or Literature	3	Biology 15	4	Elective	3
Physical Education	1	Home Economics 12	3	Home Economics 61	3
Speech 11	3		16		17
	18				

Agriculture

Students enrolling for the study of agriculture at Mesa College should at the very outset decide whether they wish to take a course leading toward Agricultural Science, Applied Agriculture, or a terminal program.

AGE 1. AGRICULTURAL PROFESSION F. 1 hr.

Required of all freshmen who will major in agriculture. A survey of the various fields of study. Guidance in choosing major and minor fields of study. The opportunities as well as responsibilities associated with positions in agriculture when operating one's own business as well as when employed in one of the professions.

AGE 11. INTRODUCTORY ANIMAL SCIENCE F. 6 hrs.

A study designed to furnish a general knowledge of the important principles of the livestock industry as it pertains to agriculture. Selections and evaluation of beef cattle, dairy cattle, sheep, and swine on a purebred and market basis are carried out. Emphasis is placed on types, breeds, markets, and market classification. Three lectures and two laboratory periods per week.

AGE 12. FARM POWER FW. 3 hrs.

A theory and demonstration course on internal combustion engines, electrical systems, and power transfer. Special attention is given to proper operation, care, and adjustment of motors, engines, and transportation equipment of the farm. Two lecture periods and one two-hour laboratory per week.

AGE 13. BEGINNING RODEO S. 1 hr.

AGE 14. LIVESTOCK JUDGING AND SELECTION F. 2 hrs.

A study of animal form and its relation to the function of the individual. Emphasis is placed on the evaluation of live animals in terms of their probable value for producing the product for which they are intended. Market and breeding classes of livestock will be judged. Prerequisite: Agriculture 11. Two laboratory periods per week.

AGR 23. CROP PRODUCTION**S. 6 hrs.**

A study of the principles of field crop production with emphasis on cultural practices and botanical characteristics of crops grown in the inter-mountain region. Four hours lecture and two two-hour laboratories per week. Prerequisite: Five hours of plant science or consent of instructor.

AGR 32. FEED AND FEEDING**W. 5 hrs.**

The basic nutrients, their functions and quantitative requirements by livestock for specific purposes including breeding, growing and finishing of beef, swine and sheep; milk production and horse production. The common feeds and their place or limitations in livestock rations; ration formulation; factors such as feed additives, feed processing management, environment, etc., as they affect the total performance of animals or production of animal products.

AGR 33. ADVANCED RODEO**S. 1 hr.****AGR 41. INTRODUCTION TO RANGE SCIENCE****F. 3 hrs.**

A study of the production and preservation of hays or silage as the principle forage crops and cultivated grasses. Special attention is given to the production and maintenance of farm pastures, and management practices applied in utilizing, improving, and maintaining our range lands.

AGR 42. ECONOMIC ORGANIZATION OF AGRICULTURE **W. 3 hrs.**

Agriculture's role in our changing economy; modern technology and its implications for farm and non-farm people; structure of agricultural industry and farm business; government and agriculture; analysis of the operating farm economy.

AGR 51. ENVIRONMENTAL HORTICULTURE**F. 5 hrs.**

Principles of horticulture science as applied to the propagation and culture of horticulture crops, language design, and improvement of plants. Prerequisite: five hours of plant science or consent of instructor.

AGR 52. FRUIT PRODUCTION**S. 5 hrs.**

Principles and practices utilized in the production, harvesting and marketing of tree and small fruits. Site selection, harvesting methods, marketing procedures and the cultural practices of planting, pollination, pruning, thinning, soil management, fertilizing and irrigation. Prerequisite: 3 hours of plant science, Agriculture 51, or consent of instructor.

AGR 56. SOILS**S. 5 hrs.**

A study of the formation, properties, and management of soils. Special attention is given to soil conditions that affect crop yields. Four hours lecture and three hours laboratory per week. Prerequisite: Chemistry 31 or Chemistry 21 for Agriculture students; waived for Forestry.

AGR 62. GENERAL DAIRY HUSBANDRY**W. 3 hrs.**

A general course in dairying. History and present status of the dairy industry; starting dairy herds; breeds of dairy cattle; cow testing associations; club work; study of herd records; calf feeding; general principles of feeding, management and housing of dairy cattle. Prerequisite: Agriculture 11. Open to sophomore students. Two class periods and one laboratory period per week.

AGR 65. ENVIRONMENTAL INSECTS**S. 5 hrs.**

An introductory course in the elementary anatomy and physiology of insects. A study of the life histories and habits of the more important insect pests and recommendations for their control. Four lectures and one laboratory period per week.

Biology

BIOL 11, 12, 13. GENERAL BIOLOGY FWS. 3 hrs.

A study of the fundamental biological principles involving both plant and animal life; survey of all of the phyla of the animal kingdom and the divisions of the plant kingdom; the place of man in the world of living things; and the relationships of man to other organisms. Students who elect this course may not receive full credit for general college botany or zoology. Two lectures, one laboratory each week.

BIOL 14, 15. HUMAN ANATOMY AND PHYSIOLOGY F. 5 hrs., W. 4 hrs.

A study of the structure and function of the human body. The anatomy and physiology of the integument, skeletal, muscular, nervous, senses, circulatory, respiratory, excretory, digestive, endocrine, and reproductive systems are studied during the two quarters. Three lectures and two laboratories each week in the fall quarter, and three lectures and one laboratory per week in the winter quarter.

BIOL 21, 22. GENERAL BOTANY FW. 5 hrs.

The structure and functions of the higher plants, including a study of roots, stems, leaves, flowers, and seeds during fall quarter. Study of plant forms including a study of roots, stems, leaves, flowers and seeds during fall quarter. Study of plant forms including the algae, fungi, mosses, ferns, gymnosperms, and angiosperms during the winter quarter. Three lectures and two laboratories per week.

BIOL 23. PLANT TAXONOMY S. 5 hrs.

This is a study of the classification and identification of the flowering plants. Emphasis is placed on plant family characteristics and the use of keys for identification. Four laboratories and one lecture each week with the use of mounted specimens and many field trips. Prerequisite: Biology 22 or consent of the instructor.

BIOL 31, 32. GENERAL ZOOLOGY WS. 5 hrs.

A detailed study of the fundamental principles of the science of animal biology, and a survey of all of the animal phyla with attention given to both structure and function. Three lectures and two laboratory periods each week. Full credit will not be given to those who have general-biology credit. A course for agriculture, pre-medical, veterinary, pre-dental, home economics, biology, and zoology majors.

BIOL 41. ATTRIBUTES OF LIVING SYSTEMS F. 4 hrs.

An introductory course in biology which emphasizes the levels of organization, stability and change in living systems. Three lectures and one laboratory per week.

BIOL 42. PRINCIPLES OF ANIMAL BIOLOGY W or S. 5 hrs.

A course designed to give the student broad morphological, physiological, and ecological features and the relationships of the principal phyla of animals. Prerequisite: Biology 41 or consent of instructor. Three lectures and two laboratories per week.

BIOL 43. PRINCIPLES OF PLANT BIOLOGY W or S. 5 hrs.

The student is exposed to the diversity of relationships of plants and their structure and functional characteristics. Prerequisite: Biology 41 or consent of instructor. Three lectures and two laboratories per week.

BIOL 48. INDIVIDUAL PROBLEMS IN BIOLOGY FWS. 1 hr.

A course to allow a student to pursue individual study in some area of biology. Prerequisite: Approval by instructor and biology background in the area of study.

BIOL 49. INDIVIDUAL PROBLEMS IN BIOLOGY FWS. 2 hrs.

A course to allow a student to pursue individual study in some area of biology. Prerequisite: Approval by instructor and biology background in the area of study.

BIOL 52. PRINCIPLES OF GENETICS W. 5 hrs.

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. Four hours lecture, 1 hour laboratory.

BIOL 53. GENERAL MICROBIOLOGY S. 5 hrs.

An introductory course consisting of lectures and laboratory work in identification, cultivation, and isolation of molds, yeasts and bacteria. Emphasis upon non-pathogenic forms. Prerequisite: 9 hours of biological science.

BIOL 61. ECOLOGY--POPULATION AND COMMUNITY BIOLOGY F. 5 hrs.

An ecology course designed to provide an elementary understanding in heredity by utilizing the biology of populations of organisms, as shown by principles and essential facts of population genetics, energetics, dynamics distribution and sociology .

BIOL 62. CELLULAR BIOLOGY W or S. 5 hrs.

The cell, its components, and their functions; physiochemical properties of living systems, organelles, and their bioenergetics, macro-molecular synthesis and code transcription. Four hours lecture, one hour laboratory.

BIOL 63. CELLULAR AND DEVELOPMENTAL BIOLOGY W or S. 5 hrs.

Developmental aspects of growth and differentiation stressed in relation to gene action, biochemical regulation, and environment. Three hours lecture, two laboratory.

BIOL 65. ENVIRONMENTAL INSECTS S. 5 hrs.

An introductory course in the elementary anatomy and physiology of insects. A study of the life histories and habits of the more important insect pests and recommendations for their control. Four lectures and one laboratory period per week.

Forestry

FOR 1. FORESTRY OCCUPATIONS F. 1 hr.

An orientation program designed to acquaint the student with the varied forestry professions and job characteristics. Required of all pre-forestry students.

FOR 12. CONSERVATION OF THE ENVIRONMENT FW. 3 hrs.

A survey of natural resources including forests, range, minerals, water, and wildlife. National, state and local policies and programs for the use of such resources. This course is open to all students. Three lectures per week.

Home Economics

HEC 1. ORIENTATION (Introduction to Home Economics) F. 1 hr.

For Home Economics majors to explore opportunities in all fields of Home Economics. Some emphasis is placed on the use of time and study habits which will help the student to get the most from college.

HEC 10. BASIC CLOTHING CONSTRUCTION FW. 3 hrs.

Basic clothing construction processes applied to the individual. Two hours lecture, four hours laboratory.

HEC 11. COSTUME SELECTION W. 2 hrs.

The relationship of the principles of design to the planning and selection of clothing. Two hours lecture.

- HEC 12. NUTRITION** **FWS. 3 hrs.**
 The study of the functions of foods and their relation to health. Emphasis is placed on the application of nutrition knowledge to the selection of food.
- HEC 15. TEXTILES** **FS. 5 hrs.**
 Study of textile fabrics and fibers with emphasis on selection, care and wearing qualities of clothing. Three hours lecture, four hours laboratory.
- HEC 17. INTERMEDIATE CLOTHING CONSTRUCTION** **WS. 3 hrs.**
 Construction processes are studied and developed through the making of garments to meet individual needs.
- HEC 32. HOME MANAGEMENT** **FS. 3 hrs.**
 Study of family-living problems with emphasis on management of all resources. Three hours lecture.
- HEC 33. HOUSE PLANNING** **WS. 2 hrs.**
 A combination lecture and laboratory course which involves the analyzing and evaluating of house plans as well as developing plans which the student can use.
- HEC 34. INTRODUCTION TO CHILD CARE** **FW. 3 hrs.**
 A lecture course pertaining to pre-natal growth; care of mother and baby; behavior patterns of the pre-school-age child as shown in physical, emotional, and social growth.
- HEC 36. HOME FURNISHING** **S. 3 hrs.**
 A study of the decoration and furnishing of a home. Artistic appreciation and buying techniques for household furnishings are emphasized. Three hours lecture.
- HEC 38. CHILD DEVELOPMENT** **WS. 3 hrs.**
 Essentials of child psychology. Study of the growth and development of young children, with emphasis on understanding and guidance. Motor skills, intelligence, emotional patterns and social behavior examined and related to the child's place in our society.
- HEC 41. 42. INTRODUCTION TO FOODS** **FW. 3 hrs.**
 For those students who are not Home Economics majors. Emphasis placed on the principles of food preparation.
- HEC 43. INTRODUCTION TO MEAL MANAGEMENT** **S. 3 hrs.**
 A course designed to provide students in the Child Care program with the needed training in meal preparation.
- HEC 51. 52. FOOD SELECTION AND PREPARATION** **FW. 3 hrs.**
 For Home Economic majors. Principles and techniques of preparing all classes of foods. College chemistry is prerequisite to this course.
- HEC 53. PREPARATION AND SERVICE OF MEALS** **S. 3 hrs.**
 Planning, preparing and serving family meals.
- HEC 61. TAILORING** **FS. 3 hrs.**
 Planning and construction of a tailored garment such as a suit or coat. Prerequisite: Home Economics 10 and 17 or consent of instructor.

DIVISION OF BUSINESS

The basic purpose of the Mesa College Division of Business is to provide students with the necessary specialized training for a future of self-reliance and economic opportunity. Transfer and occupationally oriented programs are offered to those who desire to prepare for positions with business concerns, educational institutions, and governmental agencies.

Instructional Staff: Mr. Carstens, Chairman; Mr. Buckley; Miss Coops; Mr. Cassidy; Mr. Dickson; Mr. Graves; Mrs. Hansen; Mrs. Harper; Mr. Tipping; Mrs. Urhlaub; Mr. West; Mr. Youngquist; Mrs. Youngquist.

PROGRAMS

The Division of Business offers two basic types of programs. The program designed for students planning to transfer to a four-year institution enjoys a fine reputation among the colleges and universities of this area. The division also offers programs designed primarily for students desiring to obtain employment immediately after completion of a course of study at Mesa College. These programs provide the necessary preparation for beginning employment as data processing workers, bookkeepers, assistant accountants, stenographers, typists, filing clerks, business machine operators, and other types of business and office workers. A student is permitted to select from a variety of courses according to his own individual needs. Students may enroll for one or two years, depending upon the amount of preparation needed or desired.

Several programs under the direction of the Division of Business are listed in the Vocational-Technical section of this catalog. The following programs have been added to the curriculum to help meet the needs for better-trained manpower:

Job Entry Training in Business
Medical Office Assistant
Secretary—Legal, Medical, Scientific
Travel and Recreation Management

ASSOCIATE IN COMMERCE DEGREE

The Associate in Commerce degree is granted to two groups of graduating students: (1) those who follow the accounting option and (2) those whose interests are in the secretarial field. Each group must meet the general requirements for graduation as stated in the General Information section of this catalog and in addition complete the following special course requirements:

	Secretarial	Accounting
Literature or Social Science, including Psychology	18 hrs.	18 hrs.
Business Mathematics	4 hrs.	4 hrs.
Introduction to Business	3 hrs.	3 hrs.
Accounting	3 hrs.	9 hrs.
Business Data Processing	3 hrs.	3 hrs.
Business Electives	30 hrs.	24 hrs.
Other Electives	20 hrs.	20 hrs.

ASSOCIATE IN ARTS IN BUSINESS ADMINISTRATION

The Associate in Arts in Business Administration degree is offered by the Division of Business to provide the prospective transfer student with a broad liberal arts program while at the same time fulfilling basic business-degree requirements. See Associate in Arts degree requirements in General Information section. In addition to these specific requirements, the Division of Business recommends the following:

Business Data Processing (Introduction)	3 hrs.
Introduction to Business	3 hrs.
Business Communications	3 hrs.
Principles of Accounting	9 hrs.
Business Mathematics	4 hrs.
Electives	23 hrs.
Minimum Liberal Arts requirements	48 hrs.
TOTAL	93 hrs.

PROFESSIONAL PROGRAMS

ACCOUNTING

Associate in Commerce

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Accounting 31	3	Business 32	3	Accounting 33	3
English 11	3	Accounting 32	3	English 13	3
Business 43	4	English 12	3	Math. 35 or Science	3-5
Math. 21 or Science	3-5	Math. 21 or Science	3-5	Business 11	3
Elective	2	Bus. 12 (Intro. to Bus.)	3	Business 45	3
	15-17		15-17		15-17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Economics 51	3	Economics 52	3	Economics 53	3
Business 51	3	Business 52	3	Speech 11	3
Literature*	3	Literature*	3	Literature*	3
Psychology	3	Psychology	3	Psychology	3
Accounting 62	3	Accounting 63	3	Accounting 64	5
Physical Education	1	Physical Education	1	Physical Education	1
	16		16		18

SUGGESTED ELECTIVES: Insurance, Personal Finance and Money Management, General Sociology, Salesmanship, History, Business 53.

*Literature 61, 62, 63 is recommended for students planning to transfer to the University of Denver.

BUSINESS ADMINISTRATION

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 13	3	English 12	3	English 13, 15, or Lit. 3	3
Mathematics 21	5	Mathematics 22, 25, or 27	3-5	Mathematics 23 or 35	5
Science	3-5	Science	3-5	Science	3-5
Physical Education	1	Business Mathematics	4	Physical Education	1
Business 12	3		4	Speech 11	3
	15-17		15-17		15-17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Accounting 31	3	Accounting 32	3	Accounting 33	3
Biology or Psychology	3	Biology or Psychology	3	Biology or Psychology	3
Literature or Soc. Sci.	3	Literature or Soc. Sci.	3	Literature or Soc. Sci.	3
Economics 51	3	Economics 52	3	Economics 53	3
Physical Education	1	Business 45	3	Elective	3
Business Communication	3				
	18		15		15

SECRETARIAL**Associate in Commerce****FIRST YEAR**

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Secretarial Science 21	4	Secretarial Science 22	4	Secretarial Science 23	4
Soc. Sci. or Literature	3	Soc. Sci. or Literature	3	Soc. Sci. or Literature	3
Business 43	4	Physical Education	1	Physical Education	3
Physical Education	1	Bus. 12 (Intro. to Bus.)	3	Physical Education	3
	16	Accounting 13	3	Elective	2-3
			17		18-17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Science or Math.	3-5	Science or Math.	3-5	Science or Math.	3-5
Literature	3	Literature	3	Literature	3
Business 11	3	Secretarial Science 15	3	Secretarial Science 33	3
Business 51	3	Secretarial Science 31	4	Business 45	3
Elective	3	Elective	3	Speech 11	3
	15-17		16-18		15-17

SUGGESTED ELECTIVES: Accounting, Agriculture, Art, Home Economics, Income Tax, Insurance, Language, Music, Personal Finance, Psychology, and Salesmanship.

Accounting

ACTG 13. SECRETARIAL ACCOUNTING**FWS. 3 hrs.**

This course is designed for those students who may be required to keep the 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 the fundamental accounting principles from opening a set of books through the closing process. It is a one-quarter course and is not advised for those who plan to take Principles of Accounting. No credit allowed if credit already established in Accounting 31. Class meets daily.

ACTG 31, 32, 33. PRINCIPLES OF ACCOUNTING**FWS. 3 hrs.**

This course is suitable for all business and accounting majors. Includes the development of the fundamental principles of double-entry book-keeping, the balance sheet, profit and loss statements, controlling accounts, partnership accounting, opening corporation books, bonds, bond sinking funds, and introduction to management accounting. The final quarter is devoted largely to corporate accounting. Classes must be taken in sequence. Laboratory required.

**ACTG 31, 32, 33. PRINCIPLES OF ACCOUNTING
LABORATORY****FWS. No credit**

This laboratory is to be used by the student to complete accounting assignments and clarify problems or questions brought about during the regular accounting class.

ACTG 47. INDEPENDENT STUDY IN ACCOUNTING**FWS. 1 hr.**

Prerequisite: Introductory courses in the field and consent of instructor.

ACTG 48. INDEPENDENT STUDY IN ACCOUNTING FWS. 2 hrs.

Prerequisite: Introductory courses in the field and consent of instructor.

ACTG 49. INDEPENDENT STUDY IN ACCOUNTING FWS. 3 hrs.

Prerequisite: Introductory courses in the field and consent of instructor.

ACT 62, 63. INTERMEDIATE ACCOUNTING FW. 3 hrs.

A two quarter course developed to fit the needs of two groups of students; the terminal student who wishes to have a better understanding of accounting theory; and, the accounting and business administration majors for whom the intermediate study is the foundation for specialized courses. The course presents a continuation of corporate accounting with emphasis on financial statements and current items. Final quarter is devoted to a further study emphasizing noncurrent items and corporate capital. Prerequisite: Accounting 33.

ACTG 64. COST ACCOUNTING S. 5 hrs.

An introduction to the determination of the cost of manufacturing. Emphasis will involve the three elements of cost—material, labor and overhead. The job cost system, process cost system and standard cost system will be the major topics. Miscellaneous cost factors will be introduced at appropriate times. Prerequisite: Accounting 33.

General Business

BUS 10. WORD STUDY (Business) F. 2 hrs.

A study of words: their spelling, meaning, derivation, and pronunciation with emphasis on spelling. Emphasis will be placed on business terms. Open to all students.

BUS 11. BUSINESS COMMUNICATION FWS. 3 hrs.

This course involves written and oral communication in business. Emphasis is given to the writing of letters and various types of business correspondence. Creative thinking, semantics and listening are introduced. Prerequisites: English 11 and a knowledge of typing.

BUS 12. INTRODUCTION TO BUSINESS FWS. 3 hrs.

A general course designed to provide an understanding of how the American business system operates and its place and role in the economy. Surveys the American business system with emphasis on business functions and the interrelations between the businessman and his environment. Required of freshman business and accounting students.

BUS 14. HUMAN RELATIONS IN BUSINESS WS. 3 hrs.

This class deals with supervision of non-professional personnel, personnel relationships, faculty relationships, salesmanship, and general working relationships with others and the problems inherent to individual and group relations.

BUS 15. EMPLOYER-EMPLOYEE RELATIONS WS. 3 hrs.

Getting and keeping a job is stressed from the standpoint of the individual in employer-employee relations. Emphasis is on developing a better understanding of self and others. The course examines proper appearance, courtesy, conduct, and human relationships in business with the objective of providing a foundation for a working philosophy of life in keeping with Mesa College's goal, the development of the individual as well as particular skills. This course is designed primarily for vocational-technical students having no previous courses in business.

44 MESA COLLEGE

BUS 21, 22, 23. BUSINESS MACHINES **FWS. 2 hrs.**

Fundamental skills are developed on the ten-key adding machine, printing calculator, and electronic calculator. Other machines may be included as interest indicates. A student earns two hours of credit for each quarter of machines, with a maximum of four hours, provided he does not repeat the machine taken in a prior quarter. Business 21, 22, 23 indicates Fall, Winter, and Spring quarters rather than a sequence course. Usually offered through Continuing Education division and available in night school only.

BUS 26. SALESMANSHIP **FW. 3 hrs.**

Selling techniques are developed, along with a study of the importance of psychological factors, initiative, and personality involved in influencing others in business transactions.

BUS 27. ADVERTISING **W. 3 hrs.**

A study involving the student in the dynamics of modern advertising, its practices, principles, media, and methods. It emphasizes the role and responsibilities of advertising in a changing business world.

BUS 32. INCOME TAX **WS. 3 hrs.**

This course covers the following areas of personal income tax: filling out the personal income tax return; selecting the proper tax rates; personal exemptions and dependents; determining what income is taxable to the individual; sick pay; deductions; rentals; depreciation; pensions and annuities; retirement income; sales and exchanges of real and personal property; and capital gains and losses.

BUS 36. PERSONAL FINANCE **S. 3 hrs.**

A course designed to help those who want to do a better job of managing personal finances. The course will deal with the everyday financial problems that beset consumers, such as credit, saving, investing, and buying wisely.

BUS 39. INSURANCE **S. 3 hrs.**

A basic study of the common types of protection afforded by insurance including fire, life, automobile, accident, and health.

BUS 42. FILING **F. 2 hrs.**

Alphabetic, numeric, geographic, subject, and soundex systems of filing are studied. Practice is given in the filing of material and the locating of filed correspondence.

BUS 43. BUSINESS MATHEMATICS **FWS. 4 hrs.**

Review of the fundamental skills of whole numbers, decimals, fractions, interest, and percentages as they apply to business and consumer problems. The student will use office machines as well as pencil and paper in solving the problems required in this course. This course is required of those majoring in business. Class meets daily.

BUS 45. BUSINESS DATA PROCESSING **FWS. 3 hrs.**

An introduction to the fundamentals of business data processing systems. This course is designed to introduce the student to automated data processing systems including unit record and computer equipment, their use and potential as viewed from the employee and management level. For the person who is contemplating going into the data processing field this is an excellent opportunity to investigate this rapidly growing area.

BUS 47. INDEPENDENT STUDY IN BUSINESS **FWS. 1 hr.**

Prerequisite: Introductory courses in the field and consent of instructor.

BUS 48. INDEPENDENT STUDY IN BUSINESS **FWS. 2 hrs.**

Prerequisite: Introductory courses in the field and consent of instructor.

BUS 49. INDEPENDENT STUDY IN BUSINESS**FWS. 3 hrs.**

Prerequisite: Introductory courses in the field and consent of instructor.

BUS 51. BUSINESS LAW I**F. 3 hrs.**

This course covers the following areas of law: contracts—the formation, requirements, interpretation, discharge, and enforcement thereof; principal and agent—the relationship between agents (those authorized to enter into agreements binding others), principals (those who engage agents to enter into contracts for them), and other contracting parties (those who enter into agreements through and with the agent of another); and employer-employee relationships.

BUS 52. BUSINESS LAW II**W. 3 hrs.**

This course covers the following areas of law: legal relationships between persons concerning personal property (all property other than land); bailments—legal relationships created where personal property belonging to one person is in the possession of another person; real property (land—legal relationships of the owner thereof and the transfer of his rights therein); a brief summary of the major Federal legislation regulating business; and a brief summary of the major Federal legislation in the area of labor and management.

BUS 53. BUSINESS LAW III**S. 3 hrs.**

This course covers the following areas of law: commercial paper—the study of common substitutes for money as used in business, including notes, drafts and checks; partnerships—the legal effect of agreements between persons to carry on a business; corporations—artificial persons created by law for the purpose of carrying on a business and a study of their formation, structure and powers; estates—a brief introduction to the passing of property from a deceased person to his heirs; and bankruptcy—a brief introduction to the discharge of a debtor from his debts as provided by Federal law.

BUS 57. BASIC MARKETING**W. 3 hrs.**

An understanding of the complexities of marketing and its important role in business. The course explains the influence of market research, especially on new products, and management's use of marketing for pricing strategies and other selling decisions.

BUS 58. SMALL BUSINESS MANAGEMENT**F. 3 hrs.**

Designed for those students contemplating small business ownership or management. Topics include: markets, inventory, ownership alternatives, long-range planning, travel and recreation industries.

Secretarial Science

SS 10. BEGINNING TYPEWRITING**F. 3 hrs.**

A course for those students with no previous training. No credit will be given if student has received junior or senior high school credit. Class meets daily.

SS 11. BEGINNING TYPEWRITING (continuation of SS 10) W. 3 hrs.

No credit will be given if the student has received more than one year of junior or senior high school credit. Class meets daily. Prerequisite: Secretarial Science 10 or equivalent.

CEBU 11. REVIEW TYPING**F. No Credit**

A course offered only in the Continuing Education night program and designed for people needing a general review of typing before entering SS 14 (Intermediate Typing) or who wish to acquaint themselves with the new features of today's manual and electric typewriters for the purpose of improving typing speed and accuracy. No credit is offered for this course.

- SS 14. INTERMEDIATE TYPEWRITING** **FS. 3 hrs.**
 Review of letter styles, forms of punctuation and other fundamentals. Direct dictation at typewriter. Intensive drill on letter placement with mailable copy. Development of speed required in the average office. Prerequisite: One year of high school typing or equivalent. Class meets daily.
- SS 15. ADVANCED TYPEWRITING** **W. 3 hrs.**
 Study of tabulations, telegrams, memos, business letters and legal forms. Fundamental skills are developed on duplicating machines. Prerequisite: Secretarial Science 14. Class meets daily.
- SS 17. DICTATION AND TRANSCRIPTION MACHINES** **S. 3 hrs.**
 A course to develop 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. Prerequisite: One year of high school typing, Secretarial Science 14, or enrollment in Secretarial Science 14.
- SS 21. SHORTHAND THEORY** **F. 4 hrs.**
 A course for those students with no previous knowledge of shorthand. A limited amount of dictation is given. No credit will be given if student has high school credit. Class meets daily.
- SS 22. SHORTHAND THEORY** **W. 4 hrs.**
 Continuation of Secretarial Science 21. No credit will be given if student has more than one year of junior or senior high school credit. Class meets daily. Prerequisite: Secretarial Science 21.
- SS 23. BEGINNING DICTATION** **FS. 4 hrs.**
 Review of principles of shorthand. Special attention given to application of office standards for mailable transcripts. Dictation is given at the rate of 80 to 100 words a minute. Prerequisites: (1) At least two quarters of shorthand theory or the equivalent and (2) Secretarial Science 14 or current enrollment in SS 14, or permission of the instructor. Class meets daily.
- SS 31. INTERMEDIATE DICTATION AND TRANSCRIPTION** **W. 4 hrs.**
 A dictation speed of 90 to 100 words a minute is attained with emphasis on mailable transcripts. Prerequisite: Secretarial Science 23. Class meets daily.
- SS 33. SECRETARIAL PRACTICE** **S. 3 hrs.**
 Skill is developed in the application of typing and shorthand to office situations and on transcribing machines. Business dress, business ethics, and personality development are discussed. Prerequisite: Secretarial Science 23 and Secretarial Science 14 or permission of instructor.
- SS 47. INDEPENDENT STUDY IN SECRETARIAL SCIENCE** **FWS. 1 hr.**
 Prerequisite: Introductory courses in the field and consent of instructor.
- SS 48. INDEPENDENT STUDY IN SECRETARIAL SCIENCE** **FWS. 2 hrs.**
 Prerequisite: Introductory courses in the field and consent of instructor.
- SS 49. INDEPENDENT STUDY IN SECRETARIAL SCIENCE** **FWS. 3 hrs.**
 Prerequisite: Introductory courses in the field and consent of instructor.
- SS 57. LEGAL TERMINOLOGY** **W. 3 hrs.**
 A course designed for students who plan to work as legal secretaries. The purpose of the course is to acquaint students with legal terminology as used in legal forms. Emphasis is placed on the spelling, meaning, and use of legal terms and phrases. Offered odd-numbered years only.

SS 58. LEGAL PROCEDURES I

W. 3 hrs.

A course to acquaint the student with everyday practices in the law office. Concentration on legal papers, forms, documents, and instruments. Offered odd-numbered years only.

SS 59. LEGAL PROCEDURES II.

S. 3 hrs.

A continuation of Legal Procedures I using actual material obtained from law offices including transcription. Offered odd-numbered years only.

SS 60. MEDICAL TRANSCRIPTION

S. 3 hrs.

The aim of this course is to build shorthand and transcription competency in working with medical correspondence and professional records. Transcribing machines and direct dictation will be used. Prerequisite: SS 23 or permission of the instructor.

SS 61. LEGAL TRANSCRIPTION

S. 3 hrs.

A course designed for students who plan to work as legal secretaries. The course will consist of transcribing legal material from both shorthand notes and transcribing machines. Emphasis will be placed on the correct arrangement and typing of various legal documents. Prerequisites: SS 14, SS 23, and SS 57, or permission of the instructor.

SS 62. SCIENTIFIC TRANSCRIPTION

S. 3 hrs.

Skill is developed in transcribing from dictation and prepared tapes specialized words and terms used in chemistry, physics, and other sciences. Emphasis on accuracy of transcription and correct spelling. Transcribing machines and direct dictation will be used. Prerequisite: SS 23 or permission of the instructor.

ONE- AND TWO-YEAR PROGRAMS

Accounting and Secretarial

The Division of Business offers one- and two-year programs in both accounting and secretarial science. The basic purpose of these programs is to afford students an opportunity to receive training which will in a relatively short time fit them for employment.

In the two-year accounting program general education is incorporated with two years of accounting and related subjects. The one-year curriculum offers only one year of accounting and related subjects.

The two-year secretarial program incorporates general education with the skills of shorthand, typing, and secretarial practices.

The nine-month clerical-secretarial program concentrates on the rapid development of skills to enable the student to seek employment in the shortest possible time.

Both the two-year accounting and two-year secretarial programs lead to the Associate of Commerce degree or the Mesa College Diploma.

ACCOUNTING (18 Months)

Associate in Commerce

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Accounting 31	3	Business 32	3	Secretarial Science 14	3
English 11	3	Accounting 32	3	Accounting 33	3
Business 43	4	English 12	3	English 13	3
Math. 31 or Science ...	3-5	Math. 27 or Science	3-5	Math. 35 or Science	3-5
Business 12	3	Elective	3	Business 11	3
	16-18		15-17		15-17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Economics 51	3	Economics 52	3	Economics 53	3
Business 51	3	Business 52	3	Speech 11	3
Soc. Sci. or Literature 3		Soc. Sci. or Literature 3		Soc. Sci. or Literature 3	
Psychology	3	Psychology	3	Psychology	3
Accounting 64	5	Accounting 62	3	Accounting 63	3
Physical Education	1	Physical Education	1	Physical Education	1
	<hr/>		<hr/>		<hr/>
	18		16		16

SUGGESTED ELECTIVES: Business Data Processing, Insurance, Personal Finance and Money Management, General Sociology, Salesmanship, History, Business Law (Bus. 53).

ACCOUNTING (9 Months)*

Certificate

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Accounting 31	3	Accounting 32	3	Accounting 33	3
Business 13	3	English 12	3	English 13	3
English 11	3	Elective	3	Secretarial Science 14 3	
Business 43	4	Speech 11	3	Business 11	3
Business 10	2	Business 32	3	Business 45	3
	<hr/>		<hr/>		<hr/>
	16		15		15

*Course descriptions are given in General Business and other sections of this catalog.

SECRETARIAL COURSE (18 Months)*

Associate In Commerce

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Secretarial Science 21 4		Secretarial Science 22 4		Secretarial Science 14 3	
Soc. Sci. or Literature 3		Soc. Sci. or Literature 3		Secretarial Science 23 4	
Business 12	3	Physical Education	1	Soc. Sci. or Literature 3	
Business 43	4	Accounting 13	3	Physical Education	1
	<hr/>	Elective	2	Business Elective	2-3
	17		<hr/>		<hr/>
			16		16-17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Soc. Sci. or Literature 3		Soc. Sci. or Literature 3		Soc. Sci. or Literature 3	
Physical Education	1	Secretarial Science 15 3		Elective	3
Business 51	3	Secretarial Science 31 4		Secretarial Science 33 .. 3	
Business 21, 22 or 23 .. 2		Business 14	3	Speech 11	3
Elective	2-4		<hr/>	Secretarial Science 17 .. 3	
Business 42	2		16		<hr/>
	<hr/>				15
	13-15				

SUGGESTED ELECTIVES: Accounting, Agriculture, Art, Business Data Processing, Economics, Home Economics, Income Tax, Insurance, Language, Music, Personal Finance, Psychology, and Salesmanship.

*Course descriptions are given under General Business, Secretarial Science, and other sections of this catalog.

NINE-MONTH OFFICE CLERICAL-SECRETARIAL PROGRAM

This curriculum is designed to meet the needs of those students who want a short business course which will allow them to develop maximum business skills in a brief time. The curriculum is flexible and lets the student select the business courses he wants to take and that he feels will enable him to reach his employment goal. A certificate is given.

SUGGESTED COURSES

English 4 or 11	Business 11	Secretarial Science 33
Secretarial Science 21 or 23	Secretarial Science 22 or 31	Secretarial Science 23
Secretarial Science 10	Secretarial Science 11	Secretarial Science 14
Business 43	Accounting 13	Secretarial Science 17
Business 42	Elective	Elective

OPTIONS

Speech 10 or 11	Automated Data Processing 8
Business 12	Automated Data Processing 12
Business 51	Automated Data Processing 13
Business 14	Legal or Medical Office Courses
Business 45	

Job-Entry Occupations in Business

This vocational program is designed to help students acquire skills for entry into a number of occupations in business. It also is intended to offer students with limited academic backgrounds an opportunity to gain additional skills before attempting a college-level program. For a description of the Job-Entry curriculum, see the Vocational-Technical section of this catalog.

DIVISION OF FINE ARTS

The Division of Fine Arts is composed of the departments of Music, Drama, and Art. These areas of study endeavor to provide courses and instruction primarily for the continued cultural development of students by bringing them in contact with the cultures of the past and present. Such studies invariably define the influence of the arts to intellectual and moral development that contribute to a fuller and nobler life for the individual and for society.

Instructional Staff: Mr. Bedden, Chairman; Mr. Blackburn, Head, Department of Music; Mr. Birkedal; Mr. Carmichael; Mrs. Guyton; Mr. Meyers; Mrs. Merosow; Mr. Robinson, Head, Department of Speech and Drama; Mr. Sanders; Mrs. Sanders; Mr. Schneider.

ART

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Soc. Sci. or Literature 3	3	Soc. Sci. or Literature 3	3	Soc. Sci. or Literature 3	3
Art 14	3	Art 15	2	Art 16	2
Art 41	3	Art 42	3	Art 43	3
Art 11	2	Art 12	2	Art 13	2
Physical Education	1	Physical Education	1	Physical Education	1
-----	15	-----	16	-----	16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Literature or Soc. Sci. 3	3	Literature or Soc. Sci. 3	3	Literature or Soc. Sci. 3	3
Psychology 21	3	Psychology 22	3	Psychology 23	3
Sophomore Art Classes 6	6	Sophomore Art Classes 6	6	Sophomore Art Classes 5	5
Physical Science 11	3	Physical Science 12	3	Physical Science 13	3
-----	15	-----	15	-----	15

DRAMA

Recommended Course of Study

for Drama Majors

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English	2	English	3	English	3
Biol. Sci. or Psychology 3	3	Biol. Sci. or Psychology 3	3	Biol. Sci. or Psychology 3	3
Social Science	3	Social Science	3	Social Science	3
Phys. Educ. (Dance) 1	1	Speech 16	3	Speech 10 or 11	3
Speech 15	3	Phys. Educ. (Dance) 1	1	Theatre Practice or Technical Theatre	2
Theatre Practice or Technical Theatre	2	Theatre Practice or Technical Theatre	2	Physical Education	1
Voice or Choir	1	Voice or Choir	1	Voice or Choir	1
-----	15	-----	16	-----	16

Summer Theatre Between Freshman and Sophomore Years—

6 Weeks: 3 Hours

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physical Science	5	Physical Science	5	Literature	3
Literature	3	Literature	3	Beginning Acting	2
Stage Movement	2	Beginning Acting	2	History of Theatre	2
Theatre Practice or Technical Theatre	2	Theatre Practice or Technical Theatre	2	Theatre Practice or Technical Theatre	2
History of Theatre	2	History of Theatre	2	Voice or Choir	1
Voice or Choir	1	Voice or Choir	1	Electives	8
Elective	3	Elective	3		18
	18		18		

MUSIC

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Music 14	3	Music 15	3	Music 16	3
Music 17	1	Music 18	1	Music 19	1
Applied Music	2	Applied Music	2	Applied Music	2
Soc. Sci. or Literature	3	Soc. Sci. or Literature	3	Soc. Sci. or Literature	3
Music 21	1	Music 22	1	Music 23	1
Music 24	2	Music 25	2	Music 26	2
Ensemble	1	Ensemble	1	Ensemble	1
Physical Education	1	Physical Education	1	Physical Education	1
	17		17		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Psychology 21	3	Psychology 22	3	Psychology 23	3
Music 51	3	Music 52	3	Music 53	3
Applied Music	3	Applied Music	3	Applied Music	3
Science 11	3	Science 12	3	Science 13	3
Soc. Sci. or Literature	3	Soc. Sci. or Literature	3	Soc. Sci. or Literature	3
Ensemble	1	Ensemble	1	Ensemble	1
Conducting	1	Conducting	1	Conducting	1
	17		17		17

Art

The Department of Art functions to enable the student to gain an understanding and appreciation of art principles in graphic and plastic art forms through numerous experiences gained in the basic courses offered. Development of creative ability is stressed in the use of various media and techniques. The art department also serves to promote artistic and cultural growth in the community by participating in art activities and by sponsoring frequent exhibits of student work and traveling exhibits in the college art gallery.

The Art Collection. The art department reserves the right to retain two examples of work from each student to add to its collection.

ART 11, 12, 13. FREEHAND DRAWING **FWS. 2 hrs.**

A basic course emphasizing art principles in outdoor sketching, drawing of still-life groups, and work from casts. Individuality is encouraged and interpretations expressed in various media, such as pencil, charcoal, pen and ink, colored chalks, lithograph and conte crayons. Part of the laboratory work is done outdoors where the student is trained to see, comprehend, and express graphically studies in compositional arrangements. Analytical observations are made from contemporary materials and reproductions. Four laboratory hours per week.

ART 14. INTRODUCTION TO ART **FS. 3 hrs.**

A basic art lecture course for beginning art majors who have limited high school background in art; also open to other students who wish to study art appreciation and do some studio work. Experienced art students may challenge this course by submitting an acceptable portfolio of previous work and passing a test of art terminology.

ART 15. DESIGN IN COLOR **W. 2 hrs.**

Various approaches to two-dimensional form are studied with emphasis on color theory and practice.

ART 16. THREE-DIMENSIONAL FORM **S. 2 hrs.**

Work is with three-dimensional design in a variety of media. A course leading to work in sculpture, media and processes, and ceramics.

ART 18. ELEMENTARY ART **W. 3 hrs.**

Methods of teaching art at preschool levels are stressed. Students work in various media in execution of problems pertaining to art for this age child. Art experiences for children designed to inspire enjoyment and expression. Preschool and kindergarten guidance emphasized as the foundations for appreciation and love of art.

ART 21, 22. ART IN THE HOME **WS. 2 hrs.**

A course designed especially for majors in Home Economics with stress placed on design and color problems in the home and everyday living.

ART 41, 42, 43. HISTORY OF ART **FWS. 3 hrs.**

A survey of art of all ages reflecting the various cultures of mankind from the prehistoric to the present.

ART 51. WATERCOLOR PAINTING **F. 2 hrs.**

Emphasis will be placed upon the study of form and composition as the student learns to apply various methods of watercolor rendering. Prerequisite: Art 13.

ART 53. FIGURE DRAWING **S. 3 hrs.**

A sophomore-level course open to art majors and non-art majors who meet the prerequisites. Two hours of lecture-discussion (human anatomy, proportions, critiques, etc.) and six hours of studio work each week. Prerequisites: Art 11, 12, 13.

ART 55, 56, 57. SCULPTURE **FWS 3 hrs.**

Studio work in carving, modeling or assemblage processes is done each quarter. Basic sculpture materials including plaster, clay, wood and metal are used. Some study of the work of contemporary sculptors is done. Prerequisite: Art 16. Intended for Art Majors.

ART 61, 62, 63. ART PROCESSES AND MEDIA **FWS. 3 hrs.**

Two-and-three dimensional problems, abstract and concrete, involving application to various craft materials. Six laboratory hours per week. Prerequisites: Art 15 and 16.

ART 65, 66, 67. CERAMICS**FWS. 3 hrs.**

A studio course in ceramic materials and processes, including hand-building, potter's wheel, glazing and firing. Equal emphasis is given to work in studio production of pottery and laboratory problems in clay bodies, glazes and decoration techniques. Prerequisite: Art 16 for art majors. Other students may take the course with permission of the instructor.

ART 71, 72, 73. PAINTING AND COMPOSITION**FWS. 3 hrs.**

Composition is stressed in creative problems; understanding of light and dark massing gained through preparatory designs for paintings. Oil and synthetic materials are studied and paintings executed in full color. Six laboratory hours per week. Prerequisites: Art 11, 12, 13 and Art 15.

ART 81, 82, 83. PRINTMAKING**FWS. 3 hrs.**

Introduction to the techniques and processes of various printmaking media, including intaglio, planographic, and relief. Etchings, engraving, aquatint, dry point, collography, woodcut, linocut, serigraphy, and stone lithography are the printing techniques available. The history of printmaking is also emphasized. Prerequisites: Art 11 and 12.

Drama

DRAM 11. STAGE MOVEMENT**F. 2 hrs.**

The analysis and practice of stage movement including basic techniques in gesture, mime and pantomime as related to period drama, modern drama and musical comedy. Emphasis is placed on developing an awareness of the use of the body as a means of expression.

DRAM 12. CREATIVE PLAY ACTIVITIES—DRAMA**S. 3 hrs.**

This course is designed for those students who will be working with preschoolers, kindergarten and elementary students. Through the creative process students will develop plays from stories, books, historical events, etc. Also, there will be a section on puppetry.

DRAM 14. SUMMER THEATRE**Smr. 3 hrs.**

Participation in the summer theatre and involvement in all phases of theatre operation, including acting, directing, scenery construction, box-office management, publicity, etc. It is recommended that a student enrolling in Summer Theatre should not plan to enroll in any other class during the summer quarter.

DRAM 17, 18, 19. PLAY PRODUCTION**FWS. 1 hr.**

This is a practical course of stagecraft concerned with the production of plays presented at the college. The students work in the areas of scenery, construction, painting, lighting, make-up, properties. Hours are arranged for laboratory assignment plus one hour a week in class assignment.

DRAM 21. BEGINNING BALLET**FWS. 1 hr.**

Basic elements of ballet concerned with body control and technique.

DRAM 22. INTERMEDIATE BALLET.**FWS. 1 hr.**

A continuation of Beginning Ballet (Drama 21).

DRAM 23. ADVANCED BALLET**FWS. 1 hr.**

A continuation of Intermediate Ballet (Drama 22).

- DRAM 27. BEGINNING MODERN DANCE** FWS. 1 hr.
The basic elements of dance and problem-solving in the categories of time, force, shape and/or design with participation in performance.
- DRAM 28. INTERMEDIATE MODERN DANCE** FWS. 1 hr.
A continuation of Beginning Modern Dance.
- DRAM 29. ADVANCED MODERN DANCE** FWS. 1 hr.
A continuation of Modern Dance.
- DRAM 31, 32, 33. HISTORY OF THEATRE** FWS. 2 hrs.
A course exploring the historical aspects of the theatre as an institution and showing its relationships to the other arts and to the social environment.
- DRAM 34, 35, 36. DEVELOPMENT OF THE CINEMA** FWS. 2 hrs.
Through the medium of classic films, this course explores the techniques and history of the moving-picture industry. The first quarter is devoted to the American film, the second quarter to the foreign film, and the third quarter to the documentary and the art film.
- DRAM 41. THEATRE PRACTICE: INTRODUCTION** F. 2 hrs.
- DRAM 42. THEATRE PRACTICE: COSTUME AND MAKE-UP** W. 2 hrs.
- DRAM 43. THEATRE PRACTICE: ACTING AND DIRECTING** S. 2 hrs.
This course introduces and acquaints the student with the theatre and the presentation of plays. The first quarter places an emphasis on types of plays, drama and the audience and what to look for in viewing a play. The second quarter places an emphasis on costuming and make-up. The third quarter is an introduction to the directing of plays, acting and stage techniques.
- DRAM 44. THEATRE PRACTICE: SCENE CONSTRUCTION** F. 2 hrs.
- DRAM 45. THEATRE PRACTICE: LIGHTING AND SOUND** W. 2 hrs.
- DRAM 46. THEATRE PRACTICE: SCENE DESIGN** S. 2 hrs.
A three-quarter sequence course designed to meet the basic stagecraft requirements of many four year institutions. The first quarter is concerned with the construction, handling and painting of scenery; the second quarter is an introduction to stage lighting; the third quarter is an introduction to scene design and the importance to the finished production.
- DRAM 51, 52. BEGINNING ACTING** WS. 2 hrs.
This course is designed to introduce the student to the principles and techniques of acting through pantomime, improvisation, and performance of solo, duo, and group scenes. It will be offered on demand (minimum of ten students). Prerequisites: Drama 41, 42, 43 or permission of the instructor.
- DRAM 54. SUMMER THEATRE** Smr. 3 hrs.
See course description under Drama 14.
- DRAM 55, 56, 57. INDEPENDENT STUDY IN PROBLEMS IN THEATRE** FWS. 1-3 hrs.
Independent work which may include a study of plays and papers; direction of a play (one-act or three-act); designing and erecting of scenery and/or costumes for a production; a theatre tour followed by discussion and papers on plays attended.

DRAM 61, 62, 63. PLAY PRODUCTION**FWS. 1 hr.**

A continuation of Drama 17, 18, 19. Provides opportunity for a student to receive credit in Play Production during sophomore year.

Music

THEORY, HISTORY, AND EDUCATION

MUS 10. MUSIC FUNDAMENTALS**WS. 2 hrs.**

A study of the basic music tools. No background in music is required. This course will include the essentials of music needed for teachers in grade-school classrooms. The course is recommended for those who do not desire the concentration of the regular Music Theory course, but who wish to obtain a knowledge of musical tools. It is also recommended as a preparation for music theory. Material to be covered will include the study of familiar songs from a melodic and harmonic viewpoint, scales, keys, notation, music reading and harmony.

MUS 11, 12, 13. MUSIC APPRECIATION**FWS. 2 hrs.**

A study of famous composers and compositions. Encourages an interest in concert music. Course designed for non-music majors, students who are not musicians but wish to increase their knowledge of music. All types of music from early masters to contemporary jazz are considered.

MUS 14, 15, 16. ELEMENTARY THEORY**FWS. 3 hrs**

This course is designed to give the student a thorough groundwork in the elements of music. A detailed study is made of keys, scales, modes, intervals, triads, seventh chords, etc. The techniques and rules of simple, four-part harmony are studied and practiced and keyboard techniques for the above are developed. Knowledge of piano essential; or piano studied concurrently with Music Theory.

MUS 17, 18, 19. SIGHT SINGING AND EAR TRAINING.**FWS. 1 hr.**

Sight singing is developed by practice in vocal recognition of tonal and rhythm patterns and by singing graded musical exercises. Ear training is developed by means of rhythmic, melodic, and harmonic dictation exercises. The course should be taken in conjunction with Elementary Theory since materials in both courses are correlated.

MUS 21, 22, 23. STRING CLASS**FWS. 1 hr.**

This course provides classroom instruction to beginners in bowed strings: violin, viola, cello, bass.

MUS 24, 25, 26. HISTORY OF MUSIC LITERATURE AND STYLES**FWS. 2 hrs.**

This course includes an in-depth study of the literature and styles of music. Ancient, Medieval and Renaissance music are covered during the fall, Baroque and Classic periods during the winter, Romantic and Modern music during the spring. The course work is geared to the music major and minor; however, any student with sufficient background may take the course.

MUS 27, 28, 29. PIANO CLASS**FWS. 1 hr.**

Open to all students, but required of music majors who are not proficient in piano. The class studies in the electronic piano laboratory, which makes it possible to provide individual instruction in a class situation.

MUS 31, 32, 33. WOODWIND CLASS**FWS. 1 hr.**

This course provides classroom instruction to beginners in woodwinds. Particular emphasis is given to obtaining proficiency in clarinet. Winter quarter deals mainly with flute and sax and spring quarter deals with oboe and bassoon. Woodwind class should be considered a full-year course.

MUS 35. CREATIVE PLAY ACTIVITIES—MUSIC**S. 3 hrs.**

This course is designed for those students who will be working with preschoolers, kindergarten and elementary students. Through the creative process students will develop simple tunes, knowledge and appreciation of music. A part of the course will be on the creating of musical instruments from simple objects.

MUS 37, 38, 39. VOICE CLASS**FWS. 1 hr.**

The fundamentals of singing are studied, including vocal tone, breath control, phrasing, range and diction. Standard song literature is studied. Open to all students.

MUS 41, 42, 43. BRASS CLASS**FWS. 1 hr.**

This course provides classroom instruction to beginners in brass instruments.

MUS 51, 52, 53. ADVANCED THEORY**FWS. 3 hrs.**

Only those who have mastered the material of Elementary Theory should register for this course. Topics studied include altered chords, modulations, non-harmonic tones, elementary counterpoint, and musical forms. Four-part harmony from melody and figured bass is stressed. Original composition is practiced and encouraged. Drill in sight-singing, and melodic and harmonic dictation is continued from the first year program.

MUS 67, 68, 69. CONDUCTING**FWS. 1 hr.**

An introductory study of conducting: Choir (Fall Quarter), Band (Winter Quarter), Orchestra (Spring Quarter).

APPLIED MUSIC—ENSEMBLE

Besides regularly scheduled class meetings, members of ensembles are required to attend special rehearsals and to take part in programs. All applied music courses are open to both freshmen and sophomores.

AMU 10, 20, 30. JAZZ ENSEMBLE**FWS. 1 hr.**

By audition only. Preference is given to participating members of marching band in the fall and wind ensemble in winter and spring quarters. The initial stages of the band's development include studying and playing dance band repertoire, practical performance and jazz improvisation. The group performs several concerts on campus each year, plays area dances and makes a concert tour in the spring.

AMU 31. MARCHING BAND**F. 1 hr.**

Open to all students regardless of major. The marching band performs at all home games and marches in several local parades. A limited number of scholarships are available by audition with the director. The band may accompany the football team out of town when need and finances permit. Marching band credit may be substituted for one hour of Physical Education requirement.

AMU 32, 33. SYMPHONIC WIND ENSEMBLE **WS. 1 hr.**

Open to all students, regardless of major, who demonstrate sufficient ability to study, rehearse, and present advanced forms of wind ensemble literature. The group presents a formal concert each quarter and presents concerts in local high schools. Occasionally guest conductors and nationally known soloists perform with the group.

AMU 37, 38, 39. INSTRUMENTAL ENSEMBLE **FWS. 1 hr.**

Groups are organized based upon the talents and interests of the students. These groups may consist of various combinations of woodwind, string, brass, and percussion instruments.

AMU 40. PEP BAND **W. 1 hr.**

Membership is open to any student based upon ability and instrumentation. The group performs at all home basketball games. Repertoire includes pop, jazz and rock tunes. Rehearses two hours per week during basketball season. The group may accompany the basketball team out of town when need and finances permit.

AMU 41, 42, 43. SYMPHONY ORCHESTRA **FWS. 1 hr.**

The Mesa College Civic Symphony Orchestra draws its personnel from the professional, amateur, and student musicians of Grand Junction and other Western Slope communities. At least three concerts are presented during the school year. Nationally known musicians appear with the orchestra as guest soloists. Admission by special permission of the director.

AMU 44, 45, 46. VOCAL ENSEMBLE **FWS. 1 hr.**

Vocal ensembles include men's and women's trios, quartets, double quartets, etc. Groups organized are based upon the talents and interests of the students.

AMU 47, 48, 49. COLLEGE CHOIR **FWS. 1 hr.**

Open to all men and women who wish to sing the best in all styles of choir literature. This group performs several concerts and membership is necessary to be eligible for the Modern Choir.

AMU 51, 52, 53. PIANO ACCOMPANYING **FWS. 1 hr.**

A course designed for giving piano majors actual experience in supervised accompanying.

AMU 57, 58, 59. COMMUNITY CHOIR **FW. 1 hr.**

Open to college faculty, students and community members, and performs with the community orchestra. Outstanding opportunity to sing the world's greatest music.

AMU 71, 72, 73. MODERN CHOIR **FWS. 1 hr.**

A selected group of singers who must also be members of the college choir. This "contact troupe" sings Broadway show tunes, jazz, and popular music, and entertains both on campus and at community functions. Auditions are held for membership in this group.

AMU 81, 82, 83. STEPPERETTES **FWS. 1 hr.**

A drill and dance group which performs for football and basketball games and for community organizations. Girls are selected on a tryout basis. Both freshman and sophomore girls may join. One hour of credit may be substituted for Physical Education requirement.

APPLIED MUSIC—INDIVIDUAL LESSONS

Individual music lessons are given in piano, voice, and most of the orchestral and band instruments. The fee, determined by the Music Department, is \$35.00 per quarter which entitles the student to one lesson a week per quarter. All applied music fees are to be paid at the time of registration.

The number of hours credit in applied music is to be determined for each student by the music staff. Those who register for one lesson per week may receive one or two hours credit. Music majors may register for four hours credit by special permission only.

Music majors and students performing in a major musical group (such as orchestra, band, and choir) are eligible for scholarship consideration to assist them in meeting the costs of applied lesson fees. Inquiries are to be directed to the Music Department.

AMU 11, 12, 13. VOICE	FWS. 1, 2, 4 hrs.
AMU 14, 15, 16. PIANO	FWS. 1, 2, 4 hrs.
AMU 17, 18, 19. ORGAN	FWS. 1, 2 hrs.
AMU 21, 22, 23. STRING INSTRUMENT	FWS. 1, 2, 4 hrs.
AMU 24, 25, 26. BRASS INSTRUMENT	FWS. 1, 2, 4 hrs.
AMU 27, 28, 29. WOODWIND INSTRUMENT	FWS. 1, 2, 4 hrs.
AMU 34, 35, 36. PERCUSSION	FWS. 1, 2 hrs.

DIVISION OF HEALTH PROGRAMS

Department of Nursing

Programs are offered in Associate Degree Nursing and Practical Nursing.

The number of students admitted to the nursing programs is limited. Applicants need to be in good health, have satisfactory references, and show aptitude for service in the area chosen.

Early application is essential. Special forms are required for Practical Nursing.

Instructional Staff: Mrs. Williams, Department Head; Mrs. Easter; Mrs. Keegan; Mrs. Morrow; Mrs. Mundy; Mrs. Renner; Mrs. Schumann; Mrs. Walden; Mrs. Young.

NURSING* (Transfer)

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Chemistry 21	5	Chemistry 22	5	Psychology 33	3
Psychology 21	3	Sociology 62	3	Psychology 23	3
Sociology 61	3	Home Economics 12	3	Sociology 63	3
Physical Education ..	1	Physical Education ..	1	Physical Education ..	1
	16		16	Elective	3
					16

*This freshman year curriculum, with greater emphasis on basic physical and social sciences, is suggested for the student who wishes to transfer to a 4-year collegiate program.

Associate-Degree Nursing

Initiated in September 1962, this program is fully accredited by the Colorado Board of Nursing and by the National League for Nursing. Upon completion of the prescribed course of study, the graduate receives the Associate in Science degree and is eligible to take the examination for licensure as a Registered Nurse.

The purpose of the nursing curriculum 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 St. Mary's, Grand Junction Osteopathic, and Veteran's Administration Hospitals, and other health and welfare agencies in the community. For additional information see the Vocational-Technical section of this catalog.

Practical Nursing

A 12-month course designed to prepare qualified men and women for service in hospitals and other health agencies as licensed practical nurses. Upon completion of the course, the graduate is qualified to take the licensing examination. For information please see the Occupational Education section of this catalog.

DIVISION OF HUMANITIES

The aims of the Division of Humanities are to promote in students cultural awareness, critical judgment, and facility in the use of language. Students are encouraged to understand, to evaluate, to appreciate, and to participate in the forms of man's expression. With these objectives in view, students should develop enduring values, both aesthetic and utilitarian.

For suggested curricula see General Education and General Liberal Arts, page 31, and Speech, page 65.

Instructional Staff: Mr. Showalter, Chairman; Mrs. Best; Mr. Berkey; Mrs. Boschi; Mr. Frobeck; Mrs. Gabciniarz; Mr. Johnson; Miss Lay; Mr. Dan MacKendrick; Miss Moor, Head, Department of English; Mrs. Peck; Mrs. Rick; Mrs. Robinson; Mr. Mountain, Director, Language Laboratory; Mr. Pilkenton, Mr. Sowada; Mr. Robinson, Head, Department of Speech and Drama; Mr. Carmichael; Mrs. Huffer; Mrs. Shaw, Director, Reading Laboratory.

Education

EDUC 51. INTRODUCTION TO EDUCATION **FWS. 3 hrs.**

A short survey of the field of education. Important aspects considered are: History of American Education, present philosophies of education, major problems of education, present practices, and the school as a social institution. Required of education majors.

EDUC 52. INTRODUCTION TO THE CLASSROOM **FWS. 3 hrs.**

The general purpose of this course is to expose the student to the actual experiences which may take place in his future employment as an educator. Objectives include: understanding role as a part of an educational team; developing professional methods in working with students and school problems; participating in classroom situations; opportunity for student to be of service to others; greater opportunity for self-understanding; to relate past, present, and future educational experiences; to help develop interpersonal relationship; to help student to take advantage of community resources; and to provide student with experience as a teacher aid. Prerequisite: Education 51.

EDUC 53. TEACHER AIDE SKILLS **WS. 3 hrs.**

This is primarily a laboratory course for prospective elementary teachers and persons who wish to become teacher aides for elementary grades. The course includes basic skills in library practice, practice in use of audio-visual equipment, reading materials, and laboratory equipment, duplicating machines, modern mathematics terminology, and creative projects to reinforce learning. Permission to register must be secured from instructor.

English

ENGL 1. ENGLISH AS A SECOND LANGUAGE **FWS. 3 hrs.**

This course is for the nonnative speaker of English. It includes listening, speaking, writing, pronunciation, usage, spelling, culture, and grammar. Upon completion of the course, students receive three hours of credit toward a Mesa College Diploma. Students may begin the course any quarter, and most should take it for three quarters.

ENGL 4. ENGLISH GRAMMAR**FWS. 3 hrs.**

This course is a review of functional grammar and usage as well as sentence structure and mechanics. The department recommends that students who make low scores on the American College Test take this course before English 11. Credit is not intended for transfer nor for Associate Degree requirements.

ENGL 11, 12, 13. ENGLISH COMPOSITION**FWS. 3 hrs.**

The primary objective of this course is to develop the ability to write well-organized paragraphs and essays. History of the language and vocabulary are given attention. The first quarter stresses informal writing; the second quarter stresses formal writing, including a research paper; the third quarter consists of the study of at least one novel and some other types of literature as well as some critical writing. The three quarters must be taken in sequence.

ENGL 15. TECHNICAL REPORT WRITING**FWS. 3 hrs.**

This course is designed to assist potential scientists, technologists, vocational technological specialists, and nurses to describe scientific processes in clear, correct language; to construct scientific statements with logic and clarity and to be able to present them orally or in writing; to write complex business letters; to draft agreements, contracts, and research proposals with accuracy. A permitted substitute for English 13 for certain students.

ENGL 17. VOCATIONAL COMMUNICATIONS I**F. 3 hrs.**

This course is specifically designed for the immediate needs of a vocational-career student. The primary purpose is to teach the basic sentence structure for clarity in thinking and writing. A structural and modern approach to grammatical analysis is used. Spelling and vocabulary of shop-related terminology is also studied.

ENGL 18. VOCATIONAL COMMUNICATIONS II**W. 3 hrs.**

Emphasizing relevant needs of written vocational communications, this course will include basic descriptions, progress reports, shop analyses, inter-office memos, business letters, job resumes, and related research procedures. Study of spelling and vocabulary will be continued.

ENGL 19. VOCATIONAL COMMUNICATIONS III**S. 3 hrs.**

Emphasis in this phase of the sequence course is on oral communications and the development of a fundamental appreciation of literary works.

ENGL 21. ENGLISH: SPELLING**FWS. 2 hrs.**

A course designed primarily to assist the student in overcoming spelling difficulties. Attention will also be given to pronunciation, meaning, and usage.

ENGL 22. ENGLISH: VOCABULARY**FWS. 2 hrs.**

This course emphasizes vocabulary improvement by means of word analysis and study of contributions from other languages. English 21 is not a prerequisite. The course is also recommended for reading improvement.

ENGL 31, 32, 33.—INTRODUCTION TO JOURNALISM**FWS. 3 hrs.**

A survey course in journalism including fundamentals in news and feature writing, advertising and business operations, study of outstanding newspapers, copyreading and proofreading techniques, newspaper layout, radio writing, and history of journalism. The course also includes some work in magazine writing and writing markets.

ENGL 51, 52, 53. CREATIVE WRITING**FWS. 3 hrs.**

The student is directed in practice to develop ease in written expression. Narrative exposition in the Fall Quarter, with emphasis on

form and content of critical and self-analysis themes, is followed by a study of the techniques of the short story and narrative composition in the Winter Quarter; criticism, biography, and the personal essay constitute the work of the Spring Quarter. Prerequisites: English 11, 12, and 13 or English 11 and 12 with permission of the instructor.

Foreign Language

Students who have had some foreign language in high school should check with the instructors regarding placement. Since some four-year schools now require two years of study in the same foreign language, departmental instructors recommend that the student begin his study of a foreign language during his freshman year so that he will have continuity of study under the same instructor with the same method and similar materials. The foreign language department operates a laboratory consisting of a monitoring console and fifteen student booths, each equipped with a dual-channel tape recorder, earphones, and microphone. Each student works individually in his respective language by imitating the language of native speakers on specially prepared tapes on which the student records his own voice also for practice in speaking and for comparison with the language of the native speaker.

FRENCH

FR 11, 12, 13. FIRST YEAR FRENCH FWS. 5 hrs.

This beginning course is an introduction to the French language and culture through the use of a culturally oriented text. All four language skills are developed and stressed at the beginning and continued throughout the year.

FR 51, 52, 53. SECOND YEAR FRENCH FWS. 3 hrs.

This course is a review of all four language skills together with the essentials of pronunciation, grammatical structure, and clear expression through a word study of vocabulary distinctions. Students prepare some exercises, both oral and written, which are completely original. Prerequisite: Two years of high school French or one year of college French or permission of the instructor. Open to freshmen who qualify.

GERMAN

GERM 11, 12, 13. FIRST YEAR GERMAN FWS. 5 hrs.

A three quarter sequence designed to develop basic skill in the understanding, speaking, reading, and writing of German. Initial emphasis is given to the development of the skills of understanding and speaking. As the program advances, emphasis is also given to the skills of reading and writing.

GERM 51, 52, 53. SECOND YEAR GERMAN FWS. 3 hrs.

A review and continuation of German grammar, with further practice in understanding, speaking, reading, and writing. Selections of German literature from the earliest beginnings to modern times will be studied. Prerequisites: two years of high school German or one year of college German. Open to freshmen who qualify.

ITALIAN

ITAL 10. CONVERSATIONAL ITALIAN FWS. 3 hrs.

This is an introductory course in which the student learns correct pronunciation, language patterns, and practical vocabulary through constant oral practice. Material from Italian culture and life style is specially selected to aid students planning to travel. This course is recommended for music majors. No prerequisite.

SPANISH**SPAN 10. CONVERSATIONAL SPANISH****FWS. 3 hrs.**

This is a semi-individualized "survival" course for English-speaking persons who work with child-care, Headstart, hospital and other programs that bring them in contact with Spanish-speaking people, as well as for persons who plan to travel in Spanish-speaking countries. The course will help develop a limited vocabulary and understandable pronunciation for using Spanish "on the job."

SPAN 11, 12, 13. FIRST YEAR SPANISH**FWS. 5 yrs.**

A three quarter sequence designed to develop basic skill in the understanding, speaking, reading, and writing of Spanish. Initial emphasis is given to the development of the skills of understanding and speaking. As the program advances, emphasis is also given to the skills of reading and writing.

SPAN 51, 52, 53. SECOND YEAR SPANISH**FWS. 3 hrs.**

A review and continuation of Spanish grammar, with further practice in understanding, speaking, reading, and writing. Readings are selected from standard Spanish and Spanish-American authors. Prerequisite: two years of high school Spanish or one year of college Spanish. Open to freshmen who qualify.

Literature**LIT 21. CHILDREN'S LITERATURE****FWS. 3 hrs.**

A course designed to give those who are interested in literature for the child an opportunity to survey the best in books. Material is judged for various grade levels as well as for preschool and special education. Skills in presenting literature to children are developed. The course is also intended for students majoring in Library Science.

LIT 31, 32, 33. WORLD LITERATURE**FWS. 3 hrs.**

The student is introduced to representative literary figures of the world, to major types and forms of literary classics, and to their cultural backgrounds. British and American writers are not included because of their availability in other courses offered. Works studied include Homer, the Bible, Sophocles, Dante, Cervantes, Goethe, Moliere, Pushkin and others.

LIT 34. MYTHOLOGY (Classical)**FS. 3 hrs.**

This is a one-quarter course offered to acquaint the student with the basic stories of Greek and Roman mythology which have been quoted so universally that a knowledge of them is essential to literary appreciation. Open to freshmen and sophomores. Offered Fall and Spring quarters.

LIT 35. MYTHOLOGY (Medieval)**W. 3 hrs.**

This is a one-quarter course in Norse, Oriental, and Medieval Mythology. It aims to acquaint the student with the early cultures of other races as well as some of the famous stories of medieval Europe upon which many of our masterpieces of literature are based. Open to freshmen and sophomores. Offered Winter Quarter and on demand.

LIT 41. INTRODUCTION TO LITERATURE—FICTION**FWS. 3 hrs.**

This study of novels by American, English and European authors of the nineteenth and twentieth centuries aims to broaden the student's knowledge of some of the world's best fiction and to acquaint the student with critical techniques in order that the student may form a basis for independent evaluation.

- LIT 42. INTRODUCTION TO LITERATURE—POETRY** FWS. 3 hrs.
This course is planned to develop the students' understanding and appreciation of English and American poetry. The class analyzes poems as to form and philosophy and later the individual student engages in evaluation of representative poetry. Open to freshmen and sophomores.
- LIT 43. INTRODUCTION TO LITERATURE—DRAMA** FWS. 3 hrs.
A short survey course in the development of dramatic literature beginning with the classic plays of the Greeks and continuing to the present-day theatrical writings. Open to freshmen and sophomores.
- LIT 44. INTRODUCTION TO LITERATURE—BIOGRAPHY** WS. 3 hrs.
Representative writings in biography, autobiography, and biographical fiction serve to acquaint the student with the development and place in literature of these three literary types. The course aims to develop in the student some critical appreciation of biography as an art form. Open to freshmen and sophomores.
- LIT 45. INTRODUCTION TO ORIENTAL LITERATURE** S. 3 hrs.
A survey of the literature of Asia, including the Near East, Middle East, and Far East. This course includes some of the great religious literature of the Orient, as well as poetry, prose, and drama.
- LIT 46. INTRODUCTION TO AFRO-AMERICAN LITERATURE** S. 3 hrs.
This is a survey course of American Literature as represented by the best known and most talented Afro-American authors of the Nineteenth and Twentieth Centuries. Writers are selected on the basis of literary merit rather than on their political or social prominence. Among others, works by W. E. B. DuBois, Langston Hughes, James Baldwin, LeRoi Jones, Eldridge Cleaver, Paul L. Dunbar, and James Wright are included in this course.
- LIT 47. INTRODUCTION TO LATIN-AMERICAN LITERATURE** S. 3 hrs.
This is a survey course to provide an insight into the cultural background of the Spanish-American, Mexican-American, and the Indian of the Southwest. The course is designed to show the relevance of these heritages to modern American culture.
- LIT 51, 52, 53. SURVEY OF ENGLISH LITERATURE** FWS. 3 hrs.
A course in the development of English poetry and prose from Beowulf to the present. The literature is presented against its political and social backgrounds. This course is designed to meet the requirements of those planning to major in English literature. Prerequisite: English 12.
- LIT 54. INTRODUCTION TO SHAKESPEARE** WS. 3 hrs.
This course provides an opportunity for students to be introduced to one of the world's greatest literary artists. His works are prominent in all literature, and his influence on the works of other artists in many fields of the humanities is a unifying discipline for literature courses. The course will cover five or six of Shakespeare's plays, from his earliest works to his latest, to show his growth and development as a dramatist. Prerequisite: English 11, 12, 13.
- LIT 61, 62, 63. UNITED STATES LITERATURE** FWS. 3 hrs.
This course consisting of three quarters presents the development of American prose and poetry from the seventeenth century to the present. It aims to develop appreciation of literature and to increase the student's understanding of America as it is today through knowledge of the thought and culture of the past. Credit will be given for any single quarter. Prerequisite: English 12.

Philosophy

PHIL 51. HISTORY OF PHILOSOPHY **FWS. 3 hrs.**

Greek and medieval philosophy; foundations of Greek thought; pre-Socratic philosophers; Socrates, Plato, Aristotle; Stoic, Cynic and Epicurean schools; Plotinus, Boethius, St. Augustine, St. Anselm, St. Thomas Aquinas. Problems of metaphysics, ethics, epistemology, aesthetics, cosmology, religion, politics and science. No prerequisite required. May be taken by permission of instructor.

PHIL 52. HISTORY OF PHILOSOPHY **WS. 3 hrs.**

Continuation of Philosophy 51. Machiavelli, Luther, Calvin, Erasmus, Copernicus, Galileo, Hobbes, Descartes, Spinoza, Locke, Berkeley, Hume, Kant, Rousseau, Hegel, Schopenhauer, Nietzsche, James. No prerequisite required. May be taken by permission of instructor.

Reading

READ 10. READING AND STUDY SKILLS **FWS. 3 hrs.**

This one-quarter course is recommended for all students whose college entrance test scores indicate a reading deficiency. A personalized approach is used to develop vocabulary, comprehension, and concentration. Study skills necessary for college success are emphasized. This course is open to all students. The class meets three times a week for three credit hours. Credit may be used for transfer, or for a diploma, or for a Mesa College degree requirement.

READ 13. READING IMPROVEMENT **FWS. 3 hrs.**

This developmental reading course stresses vocabulary, comprehension, and flexibility of rate. The course includes two hours of structured classroom work and one hour of skills practice in the Reading Center. This course is open to any student and is accepted for Mesa College degree requirements.

Speech

Recommended Course of Study for Speech Majors

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English	3	English	3	English	3
Biol. Sci. or Psychology	3	Biol. Sci. or Psychology	3	Biol. Sci. or Psychology	3
Literature	3	Literature	3	Literature	3
Physical Education	1	Physical Education	1	Physical Education	1
Speech 10, 11 or 12	3	Speech 11, 12 or 13	3	Speech 12 or 13	3
Debate or Radio-TV	3	Debate or Radio-TV	3	Debate or Radio-TV	3
	16		16		16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physical Science	5	Physical Science	5	Social Science	3
Social Science	3	Social Science	3	Discussion or Radio-TV	3
Debate or Radio-TV	3	Debate or Radio-TV	3	Electives	11
Oral Interpretation	3	Voice and Diction	3		
Elective	3	Elective	3		17
	17		17		

SPCH 10. SPEECH COMMUNICATIONS **FWS. 3 hrs.**

A course in international communication which is concerned with language, listening, response, defense of statement and/or non-verbal communication between two or more people.

SPCH 11. SPEECH MAKING **FWS. 3 hrs.**

Speech 11 is a basic course in speech designed to aid the beginning speech student in acquiring poise, ease and effectiveness in speaking. Emphasis is placed on platform behavior, diction, delivery and speech organization.

SPCH 12. SPEECH MAKING **FWS. 3 hrs.**

Speech 12 places emphasis on the organization and delivery of the various types of speech, i.e. convincing, persuasive, informative, entertaining speeches. Speech 12 is open to any freshman or sophomore who has completed Speech 11 or who has successfully completed two years of high school speech with an overall B average.

SPCH 13. SPEECH CRITICISM **S. 3 hrs.**

This course is concerned with the study of classical speeches and the delivery of extended speeches, public address and book reviewing.

SPCH 15. ORAL INTERPRETATION **FW. 3 hrs.**

This course places emphasis on the oral reading of prose, poetry and drama in an expressive and artistic manner. Diction, quality of tone and meaning of material receive special attention.

SPCH 16. VOICE AND DICTION **W. 3 hrs.**

A study of the development and use of the speaking voice with emphasis on voice placement, speech sounds and the phonetic alphabet.

SPCH 17. INTRODUCTION TO SPEECH THERAPY **F. 3 hrs.**

An introductory course for students interested in exploring the field of speech pathology and/or audiology. The student will be introduced to the disorders of speech and audiology. Offered subject to demand of sufficient number of students.

SPCH 23. RADIO-TELEVISION SPEECH **F. 3 hrs.**

Microphone techniques and radio announcing for all students interested in improving their oral reading. Communication of ideas, voice control and general American pronunciation. Tape-recorded projects.

SPCH 24. RADIO-TELEVISION WRITING **W. 3 hrs.**

Analysis and preparation of station announcements, program formats, commercials, news, musical introductions and short plays.

SPCH 25. TELEVISION PRODUCTION **S. 3 hrs.**

Analysis and preparation of short television programs.

SPCH 27, 28. DEBATE **FW. 3 hrs.**

Instruction and participation in Argumentation, Debate, Original Oratory and Extemporaneous Speaking with an opportunity to enter inter-collegiate competition.

SPCH 29. DISCUSSION **S. 3 hrs.**

This course is offered to provide another three hours credit for students interested in discussion. The topics for discussion are changed each year, and thus it is not repetitious in nature or content.

SPCH 45, 46, 47. PROBLEMS IN SPEECH **FWS. 1 hr.**

This is an independent study course which includes special problems and work in speech and/or speech activities. Each course has the credit value of one hour with the possibility of three credit hours to be earned by pursuing the total sequence. The course is designed to permit students to attain more proficiency and activity.

SPCH 51, 52. DEBATE **FW. 3 hrs.**

This is a continuation of Debate 27, 28.

SPCH 53. DISCUSSION **S. 3 hrs.**

This course is primarily designed to teach the student fundamentals and techniques of problem solving through cooperative group discussion efforts. Emphasis will be placed on committee membership aims and techniques.

DIVISION OF MATHEMATICS AND ENGINEERING

It is the function of the Division of Mathematics and Engineering to offer courses which

- 1) enable a student to complete two years of study before transferring to another college to complete the requirements for a baccalaureate degree in Mathematics or Engineering.
- 2) enable a student majoring in another area to complete a minor in Mathematics or Engineering.
- 3) will be a service to other divisions for students majoring in areas such as Business, Science, Pre-Professional, and Vocational-Technical.

Instructional Staff: Mr. Davis, Chairman; Mr. Bailey; Mr. Britton; Miss Hafner; Mr. Hawkins; Mr. Henson; Mr. Kerns; Mr. Luke; Mr. Murray; Mr. Phillips; Mr. Ramsey; Mr. Rybak.

ENGINEERING

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 15	3
Mathematics 50	5	Mathematics 51	5	Mathematics 52	5
Engineering 11	3	Engineering 12	3	Engineering 13	3
Physical Education 11 ..	1	Physical Education 12 ..	1	Physical Education 13 ..	1
Chemistry 31	5	Physics 51	5	Physics 52	5
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	17		17		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physics 53	5	Engineering 62	4	Engineering 63	4
Mathematics 53	5	Mathematics 63	5	Mathematics 66	5
Engineering 81	4	Engineering 83	4	Engineering 65 (2)	4
Soc. Sci. or Humanities (1, 2)	3	Soc. Sci. or Humanities (1, 2)	3	Soc. Sci. or Humanities (1, 2)	3
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	17		18		18

- (1) Students should take 9 credits in one area. (e.g. history, economics or humanities)
- (2) Students majoring in Civil Engineering should defer their Humanities until the junior year. A Diploma may be granted.
- (3) Electrical Engineering students substitute Engineering 83.

Suggested electives are Engineering 22, 23, Mathematics 31 (These courses will be very helpful in Mathematics and Engineering courses.)

MATHEMATICS

Associate in Arts or Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	Eng. 13 or Humanities 3	3
Mathematics 50	5	Mathematics 51	5	Mathematics 52	5
Chemistry 31	5	Chemistry 32	5	History 13	3
History 11	3	History 12	3	Physics 51	5
	—	Mathematics 31	1	Engineering 23	1
	16		—		—
			17		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physics 52	5	Physics 53	5	Mathematics 60	3
Mathematics 53	5	Mathematics 63	5	Mathematics 66	5
Speech 11	3	Engineering 52 or Elec. 4	4	Engineering 63 or Elec. 4	4
Physical Education	1	Physical Education	1	Physical Education	1
Elective	3	Elective	3	Elective	3
	—		—		—
	17		18		16

Engineering

ENGR 10. BASIC ENGINEERING DRAWING F. 3 hrs.

A course for students with little background for mechanical drawing and those who lack the basic fundamentals of drawing necessary for working with the space relationships of descriptive geometry. The course includes use of drawing instruments, lettering, geometric constructions, principles of orthographic projection, technical sketching, sectional and auxiliary views. Two lectures and four laboratory periods per week.

ENGR 11. INTRODUCTION TO FORTRAN PROGRAMMING FWS. 3 hrs.

Various math, science, and engineering problems are put in FORTRAN language and then run on the high speed computer. Emphasis will be on logic, flow charting, input and output. Prerequisite: Mathematics 22 or equivalent.

ENGR 12. ENGINEERING GRAPHICS AND DESIGN I FW. 3 hrs.

An introductory course in engineering graphics emphasizing creative engineering design. Topics include creative design, freehand sketching, projection systems, dimensioning, descriptive geometry, and conventional practices as they are applied in the design process.

ENGR 13. ENGINEERING GRAPHICS AND DESIGN II WS. 3 hrs.

A continuation of engineering graphics including a detailed study of manufacturing and production processes, computer aided graphic design, and graphical representation of design data, all of which will be applied to creative design problems. Prerequisites: Engineering 11 and 12.

ENGR 14. FORTRAN AND ENGINEERING PROBLEMS W. 3 hrs.

Implied Do-loops. 2 and 3 Dimensional Arrays—Common Storage—Equivalence statements. Problems dealing with arrays and subscripted variables. Computed Go To. Problems using function subprograms—external statements. Read and Write statements—transferring data to and from tape. Namelist statements.

ENGR 22. SLIDE RULE **FW. 1 hr.**

Theory and operation of the slide rule, including use of trigonometric scales and log log scales. Prerequisite: Students must have had or must be taking concurrently a course in trigonometry.

ENGR 23. VECTORS **WS. 1 hr.**

A brief introduction to vector algebra, primarily applied to engineering problems.

ENGR. 55. INDEPENDENT STUDY **1 hr.**

ENGR 66. INDEPENDENT STUDY **2 hrs.**

ENGR 62. STATICS **W. 4 hrs.**

Topics include principles of statics, study of vectors, forces and couples, force systems and their resultants, force systems of equilibrium (truss analysis, flexible cables, cranes), static friction (pivot and belt), centroids, radii of gyration of areas and masses, and moments of inertia. Prerequisite: Mathematics 51 and Physics 51, and to be taken concurrently with Mathematics 52.

ENGR 63. DYNAMICS **S. 4 hrs.**

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. Prerequisites: Engineering 62 and Mathematics 52.

ENGR 65. FLUID MECHANICS **S. 4 hrs.**

Basic concepts of fluid mechanics. Fluid properties, fluid statics, and introduction to dynamics, momentum equation, mechanical energy equation, applications to laminar and turbulent flow. Reynolds number applied to steady flow of incompressible fluids in pipes. Head loss analysis in closed conduits. Open channel flow analysis. Fluid measurements, weirs, orifices, nozzles. Introduction to steady compressible fluid flow in pipes. Co-requisite: Engineering 63.

ENGR 71. ELEMENTARY SURVEYING **F. 3 hrs.**

An introduction to the principles of surveying and mapping; familiarization with the basic instruments and their use. Two lectures and two laboratory periods per week. Prerequisites: Mathematics 29 or Mathematics 23.

ENGR 72. SURVEYING: CURVES AND EARTHWORK **W. 3 hrs.**

The course includes calculations and field procedures for surveying circular, spiral and parabolic curves; route planning, location and design; measurement and computation of earthwork quantities; and slope staking. Two lectures and two laboratories per week. Prerequisite: Engineering 71.

ENGR 73. ADVANCED SURVEYING **S. 3 hrs.**

Celestial observations to determine latitude, longitude, and true azimuth, photogrammetry, triangulation, state plane coordinate systems, and computer applications in surveying. Two lectures and two laboratories per week. Prerequisites: Engineering 71 and Engineering 72.

ENGR 74. TOPOGRAPHICAL SURVEYING **F. 3 hrs.**

The fundamentals of map-making. Includes use of Plane Table and alidade, basic control, contour mapping, map reading. Taught primarily for non-engineers who are students in related fields; i.e., Forestry, Geology, Archaeology, etc. Offered only if sufficient demand. Three lectures and one laboratory period per week. Prerequisite: Mathematics 21 or equivalent.

ENGR 81, 82, 83. CIRCUIT ANALYSIS I, II, III **FWS. 4 hrs.**

A general introduction to the analysis of any system of interconnected components with special emphasis on electrical circuits. The first quarter is devoted to establishing the essential features of the analysis scheme. The second quarter is concerned with the application of specialized techniques to electrical systems using the analysis scheme. Required of all engineers. Prerequisites: Mathematics 51 and Physics 51 with completion or concurrent enrollment in Physics 52.

Mathematics

MATH 1. BASIC MATHEMATICS **F. 3 hrs.**

Designed to reinforce the students' knowledge of basic arithmetic processes. Includes a review of addition, subtraction, multiplication, and division of whole numbers, followed by a more careful treatment of decimals and fractions. Evaluation of formulas, areas, volumes, unit conversion, powers and roots of numbers.

MATH 2. BASIC ALGEBRA **FW. 5 hrs.**

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.

MATH 11. MATHEMATICS FOR ELECTRONICS **F. 4 hrs.**

A review of algebra, geometry and the fundamental concepts of trigonometry; special products and factoring; simultaneous equations; exponents and radicals; quadratic equations; vector algebra including complex quantities and "j" operator. Class: 4 hours.

MATH 12. MATHEMATICS FOR ELECTRONICS **W. 4 hrs.**

Trigonometry as applied to technical work; use of tables; solution of right triangles; law of sines and cosines; logarithms; graphical representation of the trigonometric functions. Class: 4 hours.

MATH 13. MATHEMATICS FOR ELECTRONICS **S. 4 hrs.**

Mathematics used in solving problems involving vector and harmonic motion; complex rotation and vector algebra; functions and graphs; graphic methods used in solving problems relating to slope and rate of slope change; basic calculus, including limits; derivations and integrations; mechanics of La Place operational calculus as related to the study of control circuits; problem assignments illustrating applications; oscilloscope demonstrations showing mathematical interpretations of electronic waveforms; differentiation and integration to provide an understanding of expressions frequently encountered in technical literature. Class: 4 hours.

MATH 15, 16, 17. ELEMENTS OF MATHEMATICS I, II, III **FWS. 3 hrs.**

A course for prospective teachers in the elementary schools. Presents some of the basic principles which underlie mathematical processes and mathematical reasoning. Includes some areas of classical mathematics which are necessary for a working knowledge of the subject. Topics include logic and mathematical reasoning, number systems, some fundamental properties of geometric forms, the concept of a function, linear and quadratic functions, and some characteristics of modern mathematics. Prerequisite: Consent of instructor.

MATH 21. COLLEGE ALGEBRA I

FWS. 3 hrs.

The systems of integers, rational numbers, real numbers, and complex numbers are studied. Quadratic, exponential, and logarithmic functions, as well as some topics from matrices and the theory of equations, are included. Prerequisite: Mathematics 2 or a full year of modern second-year high school algebra.

MATH 22. COLLEGE ALGEBRA II

FWS. 3 hrs.

A continuation of Mathematics 21. Topics include functions and graphs, systems of equations, matrices, complex numbers, higher-degree equations, inequalities, progressions and the binomial theorem. Prerequisite: Mathematics 21 or consent of instructor.

MATH 23. TRIGONOMETRY

FWS. 3 hrs.

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: Mathematics 21 or equivalent.

MATH 25. DATA PROCESSING MATHEMATICS

W. 5 hrs.

This course is directed to those students who are studying in the fields of data processing and computer programming. Included are applications of number systems with other bases to computers, some number theory, matrix methods, linear programming, study of logic, Boolean algebra, introduction to trigonometry, and the study of sets as applied to the computer. Prerequisite: Mathematics 21 or equivalent.

MATH 26. MATHEMATICS FOR BIOLOGICAL SCIENCES

WS. 5 hrs.

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 with many examples from the biological sciences.

MATH 27. MATHEMATICS OF FINANCE

WS. 5 hrs.

Mathematical methods to the solution of business problems. The course starts with the treatment of simple interest and simple discount and develops gradually and logically through the topics of compound interest, annuities, perpetuities, bonds, and depreciation. Prerequisite: Mathematics 21.

MATH 28. COLLEGE ALGEBRA AND TRIGONOMETRY

FWS. 5 hrs.

This is a course in freshman mathematics for the mathematics or science student. Topics include properties of the real number system, equations and inequalities in one variable, and polynomial, rational, exponential, logarithmic, circular, and trigonometric functions. Prerequisite: Mathematics 21, or 3 years of high school mathematics and a good mathematics entrance exam score. (Trigonometry recommended).

MATH 29. COLLEGE ALGEBRA AND TRIGONOMETRY

FW. 5 hrs.

A continuation of Mathematics 28. Topics include inverse circular functions and conditional equations, matrices and determinants, systems of equations, complex numbers and vectors, sequences, series, math induction, the binomial theorem, and some probability. Prerequisite: Mathematics 28, or 3 years of high school mathematics (including trigonometry) and a good mathematics entrance exam score.

MATH 31. PROGRAMMABLE CALCULATOR

WS. 1 hr.

Theory and operation of the programmable calculator. Prerequisite: Mathematics 23 or consent of instructor.

MATH 35. INTRODUCTION TO PROBABILITY AND STATISTICS

WS. 5 hrs.

An introductory course in statistics and statistical methods, primarily intended for the agricultural sciences, business administration, economics, home economics, psychology, sociology, geology, and the medical sciences. Examples and exercises have been chosen from all of these subject areas. Some of the topics discussed are: analysis of data, elementary probability, binomial distribution, random sampling, student's t-distribution, regression and correlation, chi-square, F-distribution, and analysis of variance. Prerequisite: Mathematics 21.

MATH 50. ANALYTIC GEOMETRY WITH CALCULUS

FWS. 5 hrs.

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. Prerequisite: Mathematics 29 or equivalent.

MATH 51. CALCULUS

FWS. 5 hrs.

A continuation of Mathematics 50. Differential and integral calculus combined with analytic geometry, together with applications. Special emphasis in calculus on the transcendental functions. Prerequisite: Mathematics 50.

MATH 52. CALCULUS

FWS. 5 hrs.

A continuation of Mathematics 51, with special emphasis placed on polar coordinates, conic sections, hyperbolic functions, and vectors in a plane. The formulas and methods of integration and applications of integration are covered. Prerequisite: Mathematics 51.

MATH 53. CALCULUS

FWS. 5 hrs.

The last course in the sequence of courses in analytic geometry and calculus. This course is designed to cover the topics of vectors in three-dimensions, partial derivatives of functions of several variables, multiple integration, and infinite series. Prerequisite: Mathematics 52.

MATH 55. INDEPENDENT STUDY

1 hr.

MATH 56. INDEPENDENT STUDY

2 hrs.

MATH 60. SPECIAL PROBLEMS IN COMPUTER SCIENCE

S. 3 hrs.

Elementary numerical analysis using the high speed computer. Much work will be done with subprogramming. Topics that may be considered are Taylor's Theorem, Truncating Errors, Iteration Processes, least square methods. Prerequisite: Engineering 11 and Mathematics 52.

MATH 63. INTRODUCTION TO DIFFERENTIAL EQUATIONS

WS. 5 hrs.

An introduction to the formal study of differential equations with applications. Some of the topics covered are: equations of order one, elementary applications, nonhomogeneous equations, variation of parameters, inverse differential operators, Laplace transforms, and non-linear equations. Prerequisite: Mathematics 53 or consent of instructor.

MATH 66. INTRODUCTION TO LINEAR ALGEBRA

S. 5 hrs.

This course is designed to give students a foundation so that they can apply the notions and techniques of the algebra and geometry of vector spaces, linear transformations and matrices, linear equations, quadratic forms and symmetric matrices, and elementary Eigenvalue Theory. Also prepares the student for advanced work by developing his powers of abstract reasoning. Prerequisite: Mathematics 53.

DIVISION OF PHYSICAL EDUCATION

The Division of Physical Education provides instructional programs in health education, recreation leadership and physical education activities for all students. The activity program is designed to secure optimum health and physical fitness based on the individual needs and interests of the students. Students working on degrees must take three different activities.

Instructional Staff: Mr. Nelson, Chairman; Mr. Bergman; Mr. Brunelli; Mr. Madsen; Mrs. Humphries; Mr. Purrin; Mrs. Tolman; Mr. Tucker; Mrs. Sanders.

PHYSICAL EDUCATION

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Biology 11	3	Biology 12	3	Biology 13	3
Physical Science 11	3	Physical Science 12	3	Physical Science 13	3
Social Science	3	Social Science	3	Social Science	3
HPE 42	3	HPE 48	2	HPE 49	2
HPE 47	2	PE Activity	1	HPE 41	3
	17		15		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Biology 14	5	Biology 15	3	Psychology 74	5
Literature	3	Literature	3	Education 51	3
Psychology 21	3	Psychology 22	3	Literature	3
HPE 51	2	HPE 52	2	HPE 53	2
Elective	3	HPE 43	3	HPE 20	2
	16	PE Activity	1	PE Activity	1
			15		16

Health and Physical Education

HPE 20. FIRST AID**FS. 2 hrs.**

A course in which the student learns the proper emergency first aid techniques to deal with personal or community disaster. The American National Red Cross course content is used and an ARC Standard or Advanced certificate is issued to qualified students. Lecture and laboratory.

HPE 21. LIFESAVING**FWS. 2 hrs.**

A course designed to provide the interested student with a basic water safety and lifesaving skills background. The American National Red Cross course content is used and an ARC Senior Lifesaving certificate is issued to qualified students. Lecture and laboratory.

HPE 22. WATER SAFETY INSTRUCTOR'S COURSE**S. 2 hrs.**

A course designed to provide the student with the skills and techniques necessary to teach all aspects of the swimming and diving program. The American National Red Cross course content is used and an ARC W.S.I. certificate is issued to qualified students. Lecture and laboratory. Prerequisite: ARC Senior Lifesaving certification.

**HPE 32. BEGINNING IMPROVISATION AND COMPOSITION
IN DANCE****S. 2 hrs.**

A course that provides dance students with the basic elements of improvisation and composition and an opportunity to choreograph their own dance pieces.

HPE 41. PERSONAL AND COMMUNITY HEALTH**WS. 3 hrs.**

A course designed to acquaint the student with the health problems of the community, as well as personal health problems. Emphasis on development of proper attitudes and health practices. Lecture and laboratory.

HPE 42. INTRODUCTION TO PHYSICAL EDUCATION**F. 3 hrs.**

A course to acquaint the students with the background, growth, philosophical basis, and current trends in physical education. Designed for physical education majors. Lecture. Recommended for Freshman majors.

HPE 43. SPORTS OFFICIATING**W. 3 hrs.**

A class for physical education majors wishing to acquaint themselves with the skills and techniques of officiating the three major sports: football, basketball, and baseball. Lecture and laboratory. Sophomore standing recommended.

HPE 45. OUTDOOR RECREATION**S. 3 hrs.**

An introductory course to acquaint students with the skills required for camping and related activities, such as backpacking, fishing, hunting, and other recreational sports.

HPE 47. FUNDAMENTALS OF SPORTS**F. 2 hrs.**

Men majors: Fundamental skills in football and basketball. Lecture and laboratory.

Women majors: Fundamental skills in field hockey and speedball. Lecture and laboratory.

Freshman physical education majors are encouraged to take HPE 47 and continue through the entire Theory and Practice series while attending Mesa College.

HPE 48. FUNDAMENTALS OF SPORTS**W. 2 hrs.**

Coeducational class dealing with the fundamentals of volleyball. Lecture and laboratory.

- HPE 49. FUNDAMENTALS OF SPORTS** S. 2 hrs.
Coeducational class dealing with the fundamentals of swimming. Lecture and laboratory.
- HPE 51. FUNDAMENTALS OF SPORTS** F. 2 hrs.
Coeducational class dealing with the fundamentals of tennis. Lecture and laboratory.
- HPE 52. FUNDAMENTALS OF SPORTS** W. 2 hrs.
Coeducational class dealing with the fundamentals of social dance. Lecture and laboratory.
- HPE 53. FUNDAMENTALS OF SPORTS** S. 2 hrs.
Coeducational class dealing with the fundamentals of gymnastics. Lecture and laboratory.
- HPE 55, 56, 57. INDEPENDENT STUDY IN HEALTH** FWS. 1, 2, 3 hrs.
- HPE 71. CONTEMPORARY ISSUES IN HEALTH** S. 3 hrs.
A course designed to probe in depth into the topics of drugs and human sexuality. Prerequisite: Sophomore standing.
- HPE 61, 62, 63. PHYSICAL EDUCATION ASSISTANTSHIP** FWS. 1 hr.
A course that provides qualified students an opportunity to assist public school teachers in physical education activities.

Physical Education Activities

- | | |
|----------------------------------------|----------------------------------|
| PE 11. SWIMMING | PE 34. BALLET |
| PE 12. DIVING | PE 35. MODERN JAZZ BALLET |
| PE 13. BOWLING | PE 36. PADDLE BALL |
| PE 14. GOLF | PE 37. HATHA YOGA |
| PE 15. BADMINTON | PE 51. SOFTBALL |
| PE 16. SQUARE AND FOLK DANCE | PE 52. VOLLEYBALL |
| PE 17. SOCIAL DANCE | PE 53. FLAG FOOTBALL |
| PE 18. MODERN DANCE | PE 54. SOCCER |
| PE 19. ARCHERY | PE 55. BASEBALL |
| PE 20. TENNIS | PE 56. BASKETBALL |
| PE 21. SKIING | PE 57. SPEEDBALL |
| PE 23. HANDBALL | PE 58. WATER POLO |
| PE 24. WEIGHT TRAINING (MEN) | PE 59. FIELD HOCKEY |
| PE 25. WRESTLING (MEN) | PE 71. VARSITY FOOTBALL |
| PE 26. TRACK AND FIELD | PE 72. VARSITY BASKETBALL |
| PE 28. BODY IMPROVEMENT (WOMEN) | PE 73. VARSITY BASEBALL |
| PE 33. GYMNASTICS | PE 74. VARSITY WRESTLING |
| | PE 75. VARSITY TENNIS |
| | PE 77. VARSITY TRACK |

NOTE: All classes are coeducational unless specified otherwise. Not all classes are offered each quarter. Students must select required activity courses so as to have credit in three differently numbered courses. Each activity course is for one credit hour.

DIVISION OF PHYSICAL SCIENCES

It is the intent of the Physical Science Division to offer courses which will enable students to

- 1) pursue the cultural aspects of scientific subjects.
- 2) prepare for advanced work in scientific education.
- 3) prepare for technicians' work in the various physical science fields.

Instructional Staff: Mr. Putnam, Chairman; Mr. Allmaras; Mr. Bose; Mr. Foutz; Mr. Pynn; Mr. Girdley; Mr. Johnson; Mr. Leno; Mr. Roadifer; Mr. White; Mr. Young.

TWO-YEAR CHEMISTRY PROGRAM

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 15	3
Chemistry 31	4	Chemistry 32	4	Chemistry 33	4
Mathematics 28	5	Mathematics 29	5	Mathematics 50	5
Chemistry 31 Lab.	1	Chemistry 32 Lab.	1	Chemistry 33 Lab.	1
Chemistry 11	1	Pol. Sci. or Literature	3	Pol. Sci. or Literature	3
Pol. Sci. or Literature	3		16		16
	17				

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Mathematics 51	5	Chemistry 52	3	Chemistry 53	3
Chemistry 51	3	Chemistry 55	2	Chemistry 56	2
Chemistry 54	2	Physics 42	4	Physics 43	4
Physics 41	4	Physical Education ..	1	Physical Education ..	1
Physical Education ..	1	Elective	3	Physics 43 Lab.	1
Physics 41 Lab.	1	Physics 42 Lab.	1	Elective	3
	16		14		14

CHEMISTRY

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 15	3
Chemistry 31	4	Chemistry 32	4	Chemistry 33	4
Mathematics 28	5	Mathematics 29	5	Mathematics 50	5
Pol. Sci. or Literature	3	Pol. Sci. or Literature	3	Pol. Sci. or Literature	3
Chemistry 11	1	Physical Education ..	1	Physical Education ..	1
Chemistry 31 Lab.	1	Chemistry 32 Lab.	1	Chemistry 33 Lab.	1
	17		17		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Chemistry 51	3	Chemistry 52	3	Chemistry 53	3
Chemistry 54	2	Chemistry 55	2	Chemistry 56	2
Mathematics 51	5	Mathematics 52	5	Mathematics 53	5
Physics 51	4	Physics 52	4	Physics 53	4
Physical Education ..	1	Elective	2	Elective	2
Physics 51 Lab	1	Physics 52 Lab	1	Physics 53 Lab	1
	16		17		17

PRE-DENTISTRY

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Chemistry 31	4	Chemistry 32	4	Chemistry 33	4
Chemistry 31 Lab	1	Chemistry 32 Lab	1	Chemistry 33 Lab	1
Mathematics 28	3	Mathematics 29	5	Biology 43	4
Chemistry 11	1	Biology 42	4	Biology 43 Lab	1
Biology 41	4	Biology 42 Lab	1	Speech 11	3
Biology 41 Lab	1				
	19		18		16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physics 41	4	Physics 42	4	Physics 43	4
Physics 41 Lab	1	Physics 42 Lab	1	Physics 43 Lab	1
Chemistry 51 and 54 ..	5	Chemistry 52 and 55 ..	5	Chemistry 53 and 56 ..	5
Psychology 21	3	Psychology 22	3	Psychology 23	3
Physical Education ..	1	Physical Education ..	1	Physical Education ..	1
Soc. Sci. or Literature ..	3	Soc. Sci. or Literature ..	3	Soc. Sci. or Literature ..	3
	17		17		17

Note: Some dentistry schools require one quarter of calculus.

GEOLOGY

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Geology 31	4	Geology 32	4	Geology 33	4
Geology 31 Lab	1	Geology 32 Lab	1	Geology 33 Lab	1
English 11	3	English 12	3	English 13 or 15	3
Biology 21	4	Biology 31	4	Physics 10	4
Biology 21 Lab	1	Biology 31 Lab	1	Physics 10 Lab	1
Mathematics 28	5	Mathematics 29	5	Mathematics 50	5
	18		18		18

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Geology 52	2	Geology 53	2	Geology 54	3
Geology 52 Lab	1	Geology 53 Lab	1	Geology 54 Lab	1
Geology 61	2	Geology 62	2	Geology 63	2
Geology 61 Lab	1	Geology 62 Lab	1	Geology 63 Lab	1
Chemistry 21 or 31	4	Chemistry 22 or 32	4	Chemistry 23 or 33	4
Chemistry Lab	1	Chemistry Lab	1	Chemistry Lab	1
Speech 11*	3	Forestry 22*	3	Elective*	3
Soc. Sci. or Literature ..	3	Soc. Sci. or Literature ..	3	Soc. Sci. or Literature ..	3
	17		17		18

*Earth Science majors should substitute Physical Science 21, 22, 23.

**PRE-MEDICINE
AND PRE-VETERINARY MEDICINE**
Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13 or 15	3
Chemistry 31	4	Chemistry 32	4	Chemistry 33	4
Mathematics 26	5	Biology 42	4	Biology 43	4
Physical Education	1	Mathematics 29	5	Mathematics 50	5
Chemistry 31 Lab.	1	Chemistry 32 Lab.	1	Chemistry 33 Lab.	1
Biology 41	3	Biology 42 Lab.	1	Biology 43 Lab.	1
Chemistry 11	1				
Biology 41 Lab.	1		18		18
	19				

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physics 51	4	Physics 52	4	Physics 53	4
Physics 51 Lab.	1	Soc. Sci. or Literature ..	3	Soc. Sci. or Literature ..	3
Soc. Sci. or Literature ..	3	Chemistry 52 and 55 ..	5	Chemistry 53 and 56 ..	5
Chemistry 51 and 54 ..	5	Elective	2	Elective	2
Elective	3	Physical Education	1	Physical Education	1
	18	Physics 52 Lab.	1	Physics 53 Lab.	1
			16		16

*It is recommended that pre-medical students work toward a major in either biology or chemistry. Students should be aware that many medical schools are now requiring mathematics through calculus and thus it may be advisable to alter the second year program to include calculus unless the student is assured that calculus is not required.

PRE-OPTOMETRY AND PRE-PHARMACY

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13 or 15	3
Mathematics 28*	5	Mathematics 29	5	Mathematics 50	5
Biology 41	3	Biology 42	4	Biology 43	4
Chemistry 31	4	Chemistry 32	4	Chemistry 33	4
Biology 41 Lab.	1	Biology 42 Lab.	1	Biology 43 Lab.	1
Chemistry 31 Lab.	1	Chemistry 32 Lab.	1	Chemistry 33 Lab.	1
	17		18		18

*Students with a deficiency in mathematics will replace the indicated course with: Math 21, Fall Quarter; Math 28, Winter Quarter; and Math 29, Spring Quarter.

SECOND YEAR* (Pre-Optometry)

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Psychology 21	3	Psychology 22	3	Psychology 23	3
Soc. Sci. or Literature ..	3	Soc. Sci. or Literature ..	3	Soc. Sci. or Literature ..	3
Physics 41	4	Speech 11	3	Biology 53	4
Physics 41 Lab.	1	Elective	2	Biology 53 Lab.	1
Physical Education	1	Physics 42	4	Physics 43	4
Elective	3	Physics 42 Lab.	1	Physics 43 Lab.	1
	15	Physical Education	1	Physical Education	1
			17		17

*Consult with counselor regarding Mathematics 51, 52, 53 for Optometry.

SECOND YEAR (Pre-Pharmacy)

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physics 41	4	Physics 42	4	Physics 43	4
Economics 51	3	Economics 52	3	Economics 53	5
Chemistry 51 and 54 ..	5	Chemistry 52 and 55 ..	5	Chemistry 53 and 56 ..	5
Speech 11	3	Non-Professional Elect. 3	3	Non-Professional Elect. 3	3
Physics 41 Lab.	1	Physics 42 Lab.	1	Physics 43 Lab.	1
	18		16		16

PHYSICAL SCIENCE*

Associate in Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Mathematics 28	5	Mathematics 29	5	Mathematics 50	5
Chem. 31 or Geol. 31	4	Chem. 32 or Geol. 32	4	Chem. 33 or Geol. 33	4
Soc. Sci. or Literature	3	Soc. Sci. or Literature	3	Soc. Sci. or Literature	3
Chem. or Geol. Lab.	1	Chem. or Geol. Lab.	1	Chem. or Geol. Lab.	1
	16		16		16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physics 51	4	Physics 52	4	Physics 53	4
Mathematics 51	5	Mathematics 52	5	Mathematics 53	5
Chemistry 51 and 54 or electives	5	Chemistry 52 and 55 or electives	5	Chemistry 53 and 56 or electives	5
Physical Education	1	Physical Education	1	Physical Education	1
Physics 51 Lab.	1	Physics 52 Lab.	1	Physics 53 Lab.	1
	16		16		16

*Students with a deficiency in mathematics will make the same substitutions suggested in the Engineering curriculum.

Chemistry

CHEM 11. CHEMICAL PROFESSIONS

F. 1 hr.

This course is designed to assist the student in assessing his abilities and desires to pursue professions requiring a considerable background of chemistry. It also covers methods of study for scientific fields and is intended to be valuable in the pre-professional programs leading to the study of medicine, dentistry, pharmacy, chemists and chemical assistants.

CHEM 12, 13. CHEMICAL PROFESSIONS

WS. 1 hr.

Courses designed to continue the study of the chemical professions and the various techniques, instruments and materials used in chemistry and chemical analyses.

CHEM 21, 22. GENERAL CHEMISTRY

FWS. 4 hrs.

A lecture course in fundamental principles of chemistry and their application. The areas covered include atomic structure, bonding, periodic laws, gas laws, mass relationships, classification of compounds, oxidation-reduction, electrochemistry and ionic equilibrium. Designed for students in Liberal Arts, Nursing, Homemaking and Agriculture. Prerequisites: High School algebra or satisfactory entrance examination scores. Four lectures per week.

CHEM 21, 22. GENERAL CHEMISTRY LABORATORY

FWS. 1 hr.

The laboratory sessions are designed to acquaint the student with the instruments and procedures used in basic chemistry. The work involves metric measurement, observation of chemical changes, and observation of the physical properties of some elements and a few selections and compounds. The laboratory gives the student a chance to observe, discover, and report on the elementary properties of matter. The laboratory work undertaken enhances the classroom study. One three-hour session per week.

80 MESA COLLEGE

CHEM 23. INTRODUCTION TO ORGANIC CHEMISTRY S. 4 hrs.

A lecture course in fundamentals of Organic Chemistry. Four lectures per week. Prerequisite: Chemistry 22 or 32.

CHEM 23. INTRODUCTION TO ORGANIC CHEMISTRY LABORATORY S. 1 hr.

Basic organic procedures are undertaken enabling the student to (1) observe the properties of organic compounds, (2) identify organic compounds, and (3) undertake an organic preparation. One three-hour session per week.

CHEM 31, 32. GENERAL INORGANIC CHEMISTRY FW. 4 hrs.

Fundamental principles and applications of general inorganic chemistry. The areas covered include atomic structure, periodic law, gas laws, kinetic theory, stoichiometry, bonding, oxidation-reduction, thermodynamics, electrochemistry, and chemical equilibrium. Designed for Chemistry, Pre-Medicine, Pre-Veterinary Medicine, Engineering and other science majors. Mathematics 21 or Mathematics 28 must be taken prior to, or concurrently with, this course. Prerequisites: High School Chemistry and satisfactory entrance examination score, or Chemistry 21. Four lectures per week.

CHEM 31, 32. GENERAL INORGANIC CHEMISTRY LABORATORY FW. 1 hr.

The laboratory work consists of an introduction of gravimetric, volumetric, and instrumental quantitative analysis. One three-hour session per week.

CHEM 33. INORGANIC CHEMISTRY AND QUALITATIVE ANALYSIS S. 3 hrs.

A lecture course designed to thoroughly acquaint the student with the equilibrium systems of Inorganic Chemistry in a theoretical and practical way with emphasis on the broad view of inorganic chemistry. Three lectures per week.

CHEM 33. INORGANIC CHEMISTRY AND QUALITATIVE ANALYSIS LABORATORY S. 2 hrs.

This laboratory consists of two three-hour sessions per week with a total of six hours. The work undertaken consists of a study of a few selected equilibrium systems of inorganic chemistry. To facilitate this study, qualitative analysis is intermixed with many ion concentration determinations.

CHEM 41. INTRODUCTORY INORGANIC, ORGANIC AND PHYSIOLOGICAL CHEMISTRY F. 3 hrs.

A lecture course designed to investigate principles of Inorganic Chemistry, Organic Chemistry, and Biochemistry. It is intended primarily for persons pursuing the Associate Degree Nursing Program and the Medical Office Assistant Program. Prerequisite: High School Chemistry or Chemistry 21.

CHEM 42. PHYSIOLOGICAL CHEMISTRY W. 2 hrs.

Continuation of biochemistry including the study of metabolism of carbohydrates, proteins, and lipids. Prerequisite: Chem 41.

CHEM 48. INDEPENDENT STUDY IN CHEMISTRY FWS. 1 hr.

The primary purpose of this course is to provide the opportunity for students who were engaged in on-going research in high school to continue that research during their freshman and sophomore years in college. This course is open to any student with an interest in chemistry, but academic credit will be awarded only for outstanding work. Prerequisite: permission of the instructor.

CHEM 49. INDEPENDENT STUDY IN CHEMISTRY FWS. 2 hrs.

The primary purpose of this course is to provide the opportunity for students who were engaged in on-going research in high school to continue that research during their freshman and sophomore years in college. This course is open to any student with an interest in chemistry, but academic credit will be awarded only for outstanding work. Prerequisite: permission of the instructor.

CHEM 51, 52, 53. ORGANIC CHEMISTRY FWS. 3 hrs.

Lectures and discussions concerning the chemical and physical properties of the major classes of organic compounds. Mechanistic, stereochemical acid-base, and related theories are used throughout to relate and unify the various parts of the subject. Course may be taken with or without accompanying laboratory. Prerequisite: Chemistry 32 or consent of the instructor.

CHEM 54, 55, 56. ORGANIC CHEMISTRY LABORATORY FWS. 2 hrs.

Laboratory exercises to accompany Chemistry 51, 52, 53. Provides experience in the syntheses and with the reactions of many classes of compounds. Classical qualitative analysis is introduced. Some experience with methods used to establish theoretical principles is also obtained.

Geology

GEOL 21, 22, 23. EARTH SCIENCE FWS. 4 hrs.

A general approach to the broad aspects of geology and closely related fields. The earth's environment in space, its atmosphere, hydrosphere, and composition are considered fall quarter. The winter quarter study of earth processes is expanded during spring quarter to consider the origin and physical changes of the earth and the evolution of life forms throughout earth history. Designed for non-science majors without and previous earth science experience, who need a laboratory science (refer to lab description). Should be taken in sequence. Four lectures.

GEOL 21, 22, 23. EARTH SCIENCE LABORATORY FWS. 1 hr.

Consists of weekly two hour lab investigations and one or more field trips per quarter. Should be taken concurrently with Earth Science Lecture. Fall quarter involves map interpretation and mineral and rock examination. Topography and structure of the earth are investigated winter quarter by use of photos, maps, and cross-sections. Interpreting regional and general geologic history by examining the rock sequence and fossil specimens concludes spring quarter.

GEOL 31, 32. GENERAL GEOLOGY FW. 4 hrs.

A study of the earth, its materials, development of landforms and the geologic processes acting on and within the earth. Designed as an introductory course for geology and other science majors. Should be taken in sequence. Four lectures per week.

GEOL 31, 32. GENERAL GEOLOGY LABORATORY FW. 1 hr.

A laboratory course designed to supplement the General Geology lecture course. Devoted to the study of rocks and minerals and the study and interpretation of topographic and geologic maps. Should be taken in sequence. May be taken separately or in conjunction with lecture. Meets for two hour sessions or field trip each week.

GEOL 33. HISTORICAL GEOLOGY S. 4 hrs.

Origin of the earth and development of the earth's crust through geologic time. Includes the evolution of life forms in the fossil record. Four lectures per week. Prerequisite: Geology 22 or 32.

GEOL 33. HISTORICAL GEOLOGY LABORATORY S. 1 hr.

Interpretation of geologic maps and aerial photographs and study of representative fossils. Several field trips to study local geologic sections. One all-day field trip. One day per week for two hours.

GEOL 41. ENVIRONMENTAL EARTH SCIENCE STUDIES FWS. 2 hrs.

A two-quarter hour course for students planning a career in research management and environmental control. Individual study of the local area and a seminar format are used to build a foundation of knowledge to be utilized in solving environmental problems. Open to advanced students upon consultation.

GEOL 42. MAP DRAFTING AND READING W. 3 hrs.

A one-quarter course intended for students not taking a full year's program in drafting. Lettering and use of elementary drafting equipment. Maps, their construction and interpretation are included. Two hours of lecture and two hours of laboratory each week.

GEOL 51. ROCKY MOUNTAIN GEOLOGY S. 3 hrs.

A study of the physical and historical geology of the Western Colorado region, primarily in the field. One lecture per week and one 3-hour laboratory plus four all-day field trips and four half-day field trips. Prerequisite: Geology 33.

GEOL 52, 53. PALEONTOLOGY FW. 2 hrs.

The morphology, classification, evolution, ecology, methods and uses of fossil invertebrates. Two lectures per week. Prerequisites: Geology 23 or 33.

GEOL 52, 53. PALEONTOLOGY LABORATORY FW. 1 hr.

Identification and environmental connotations of representative fossil invertebrates. One or more field trips each quarter. One day per week for two hours.

GEOL 54. STRATIGRAPHY S. 3 hrs.

A study of the formation, composition, sequence, correlation, description and classification of stratified rocks of the earth's crust. Three lectures per week. Prerequisite: Geology 52.

GEOL 54. STRATIGRAPHY LABORATORY S. 1 hr.

Field trips to study local stratigraphic units. One field trip per week.

GEOL 61. CRYSTALLOGRAPHY F. 2 hrs.

A study of the solid state of matter, the crystalline state, morphological crystallography, crystal classification and crystal chemistry. Also a study of crystal models and natural crystals. Two lectures per week. Prerequisite: Chemistry 31, Geology 21 or 31, or consent of the instructor.

GEOL 61. CRYSTALLOGRAPHY LABORATORY F. 1 hr.

Crystals and crystal models are measured, studied, and classified. Different methods of describing and illustrating crystals are learned.

GEOL 62, 63. MINERALOGY WS. 2 hrs.

Physical properties, description, occurrence, association and identification of the more common minerals; physics and chemistry of minerals; mineral uses. Two lectures per week. Prerequisite: Geology 61.

GEOL 62, 63. MINERALOGY LABORATORY WS. 1 hr.

Chemical techniques for identifying certain elements and ions are studied in relation to mineral groups. Unknown minerals are identified and the physical and chemical properties and origins of many minerals are learned.

GEOL 65. GEOLOGIC MAPPING**S. 5 hrs.**

A survey of mapping and measuring techniques implemented by actual mapping of mines, mapping by transit, surface mapping by alidade and plane table, use of aerial photographs, and measuring of stratigraphic sections.

GEOL 66. ECONOMIC GEOLOGY**S. 4 hrs.**

Studies of the nature, occurrence and distribution of economic deposits of coal, petroleum, oil shale, metals, and other non-metals. Emphasis will be placed on these fields with greatest promise of employment. Will include an overview of the field of geology emphasizing exploration, development, equipment, taxation, prices, etc.

GEOL 67. ROCKS AND MINERALS**W. 3 hrs.**

A review of the more common rock-forming minerals and the more common types of igneous, metamorphic, and sedimentary rocks. Ore-forming minerals will be studied as time permits. Lectures will be supplemented by laboratory studies emphasizing sight identification.

Physical Science

PSCI 11, 12, 13. SURVEY OF PHYSICAL SCIENCE**FWS. 3 hrs.**

A logically developed course in physical science rather than a "cut-down" version of the elementary courses in the various departments represented. Its aim is to give a definite conception of the physical world and some appreciation of the scientific method and its sociological significance. Sequence of topics will be as follows: Survey of Physical Science 11 includes force and motion, heat, electricity, sound, and light; Survey of Physical Science 12 includes the chemistry of matter and nuclear energy; Survey of Physical Science 13 includes astronomy, meteorology, and geology. Not recommended for students who are taking or have taken other college courses in physical science.

PSCI 14. BASIC ELECTRICITY FOR A-V**F. 3 hrs.**

This course is designed to teach the fundamental principles of electricity and to develop an understanding of electrical circuitry and its application.

PSCI 15. BASIC ELECTRONICS**W. 3 hrs.**

This course is designed to give the students a basic background of electronics to help understand the fundamental principles of electronics and to help develop an understanding of electronic circuitry.

PSCI 16. BASIC ACOUSTICS AND OPTICS**S. 3 hrs.**

A beginning in the theory and operation of sound and acoustical principles, their behavior, function, and properties. Also covered will be the field of optics, principles, and theory of operation, as applied to both visual and mechanical means.

PSCI 18. REGIONAL NATURAL SCIENCE**S. 3 hrs.**

A course designed to acquaint students with the physiographic and ecologic relationships of the natural environment, with emphasis placed on the climate, geology, vegetation, wildlife, and the scenic and recreational attractions of the region. Related activities are included.

PSCI 21. SOLAR SYSTEM ASTRONOMY**F. 3 hrs.**

Introductory course intended for liberal arts students, prospective teachers or science majors. Subjects include: measurement of location and time, navigation, gravity, sun, planets, comets, meteors, satellites, the moon, astronomical instruments, and space travel. Two group observing nights and other activities will be scheduled. No laboratory.

PSCI 22. STELLAR SYSTEM ASTRONOMY**W. 3 hrs.**

Students may enter without Solar Astronomy with permission of the instructor. Subjects include: stars, variable stars, binaries, clusters, nebula, galaxies, space measurements, stellar and galactic evolution. Two group observing nights and other activities will be scheduled. No laboratory.

PSCI 23. WEATHER AND CLIMATE**S. 3 hrs.**

A non-mathematical introductory course intended primarily for liberal arts students, prospective teachers, or science majors. Subjects include atmospheric structure, heat, pressure, wind, moisture, instruments, storms, forecasting, and climate. One field trip, study of daily weather maps, local observing and some practice forecasting. No laboratory.

PSCI 31. OLD WORLD ARCHAEOLOGY**F. 3 hrs.**

A survey of the archaeology of Eurasia and Africa with emphasis on the emergence and spread of early man on his scientific and technologic advances up to and including the Iron Age. Basic archaeological concepts such as excavation procedures and modern dating methods are discussed. Class meets three periods per week.

PSCI 32. NEW WORLD ARCHAEOLOGY**W. 3 hrs.**

A survey of archaeology of North, Middle and South America emphasizing origin of inhabitants, distribution of sites, changes in tools, and scientific achievements. The first portion of the course deals primarily with Paleo-Indian Traditions and the latter portion with the Inca, Myan and Aztec Civilizations. Class meets three periods per week.

PSCI 33. SOUTHWESTERN ARCHAEOLOGY**S. 3 hrs.**

A survey of archaeology of the American Southwest. The course is designed to acquaint the student with the principal pre-Columbian peoples of this region, their origins, distribution, and technological achievements. Typical sites of each culture are disclosed. Class meets three periods per week.

PSCI 36. MUSEOLOGY I—INTRODUCTION TO MUSEOLOGY**W. 3 hrs.**

This is a seminar-type course involving extensive readings combined with laboratory exercises in exhibition theory and administrative museum activities. The course is intended to furnish a thorough background in the history and literature of museums, museum methods and objectives. Prerequisite: A major or strong interest in Zoology, Botany, Anthropology, Geology, Paleontology, History, Art, or any other subject to which the museum method is applicable.

PSCI 36. MUSEOLOGY I—INTRODUCTION TO MUSEOLOGY LABORATORY**W. 1 hr.**

Laboratory exercises and experience in exhibition, curatorial methods, casting and molding, and other museum techniques.

PSCI 37. MUSEOLOGY II—INTRODUCTION TO MUSEOLOGY**W. 3 hrs.**

This is a seminar-type course designed as a continuation of the Museology I course but with intensive work in areas merely surveyed previously. It will treat, in depth, the duties and functions of various curatorial departments in a museum. Some actual specimen restoration and exhibit preparation will be done by the students and as a final project, a scale model exhibit will be prepared. Prerequisite: Museology I.

PSCI 37. MUSEOLOGY II—INTRODUCTION TO MUSEOLOGY LABORATORY

W. 1 hr.

Laboratory exercises and experience in exhibition, curatorial methods, casting and molding, and other museum techniques.

Physics**PHYS 10. INTRODUCTION TO PHYSICS**

S. 4 hrs.

A course in physics consisting of lectures, demonstrations, discussions, for the non-science major. Four lectures per week.

PHYS 10. INTRODUCTION TO PHYSICS LABORATORY

S. 1 hr.

A three-hour laboratory with special emphasis on the understanding of underlying principles and methods of physics and their application to life in modern times.

PHYS 41, 42, 43. GENERAL PHYSICS

FWS. 4 hrs.

This is a basic course in non-calculus physics with a thorough presentation stressing fundamental principles and relationships, practical applications and problem solving. The subject areas covered are mechanics, heat, sound, light, electricity, and modern physics. Cannot be taken without concurrent registration in the laboratory course. Four lectures per week. Prerequisite: Mathematics through college trigonometry.

PHYS 41, 42, 43. GENERAL PHYSICS LABORATORY

FWS. 1 hr.

This course permits the student to observe some of the principles discussed in the lecture class, take and evaluate quantitative data, and learn to prepare detailed laboratory reports. Designed to be taken with the lecture course but is not mandatory. One three-hour session per week.

PHYS 48. INDEPENDENT STUDY IN PHYSICS

FWS. 1 hr.

The primary purpose of this course is to provide the opportunity for students who were engaged in on-going research in high school to continue that research during the freshman and sophomore years in college. This course is open to any student with an interest in physics, but academic credit will be awarded only for outstanding work. Prerequisite: permission of the instructor.

PHYS 49. INDEPENDENT STUDY IN PHYSICS

FWS. 2 hrs.

The primary purpose of this course is to provide the opportunity for students who were engaged in on-going research in high school to continue that research during the freshman and sophomore years in college. This course is open to any student with an interest in physics, but academic credit will be awarded only for outstanding work. Prerequisite: permission of the instructor.

PHYS 51: ENGINEERING PHYSICS I

FS. 4 hrs.

A university level course in elementary physics for engineers, mathematicians, and physical science majors. This first of a three-quarter sequence is devoted entirely to the study of mechanics. Principles and mathematical models are stressed. Application to a wide variety of situations is used as a device to develop insight. The calculus and vector descriptions are used frequently. Four lecture-recitation periods per week. Concurrent registration in Math 51 is a minimum math corequisite.

PHYS 51. ENGINEERING PHYSICS I LABORATORY

FS. 1 hr.

Laboratory work in mechanics is accomplished in one three-hour period per week. This course is normally taken concurrently with Physics 51.

PHYS 52. ENGINEERING PHYSICS II FW. 4 hrs.

This second in the three-quarter sequence considers the fields of electricity and magnetism. Presentation techniques and objectives are the same as for Physics 51. Lecture-recitation, prerequisites follow logically from Physics 51.

PHYS 52. ENGINEERING PHYSICS II LABORATORY FW. 1 hr.

Laboratory work in electricity and magnetism is undertaken in one three-hour period per week. This course is normally taken concurrently with Physics 52.

PHYS 53. ENGINEERING PHYSICS III WS. 4 hrs.

This course is concerned with wave motion, sound, heat, light, and a brief introduction to modern physics. Four lecture-recitation periods per week. Prerequisite: Satisfactory completion of Physics 52.

PHYS 53. ENGINEERING PHYSICS III LABORATORY WS. 1 hr.

Laboratory work in wave motion, sound, heat and light are undertaken in one three-hour period per week. This course is normally taken concurrently with Physics 53.

PHYS 64. MODERN PHYSICS S. 4 hrs.

This course is an extension of the Physics 51, 52, 53 sequence. It is devoted to the study of special relativity, quantum effects and theory, nuclear physics and the solid state. Four lecture-discussion periods per week. Prerequisite: Physics 53.

PHYS 64. MODERN PHYSICS LABORATORY S. 1 hr.

This laboratory course in modern physics meets for one three-hour period per week. Investigations into charge on the electron, Planck's constant, photoelectric effect and related phenomena are undertaken. Enrollment in this course is normally concurrent with Physics 64.

DIVISION OF SOCIAL SCIENCE

Courses offered by the Division of Social Science are designed to accomplish the following:

1. To prepare the student for more advanced work in upper division courses to be taken at a four-year college or university.
2. To help prepare students for a more active, intelligent role as citizens in their respective communities.
3. To meet the needs of students interested in participating in one of the technical or vocational programs offered by the college.

Instructional Staff: Mr. Don MacKendrick, Chairman; Mr. Daily; Mrs. Fink; Mr. Harper; Mr. Hightower; Mr. Holloway; Mr. Jones; Mr. Meeker; Mr. Morton; Mr. Nicholson; Mr. Perry; Mr. Roberts; Mr. Tiemann.

SOCIAL SCIENCE

Associate in Arts

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Political Science 11	3	Political Science 12	3	Political Science 13	3
History 11 or 24	3	History 12 or 25	3	History 13 or 26	3
Foreign Language or Electives	5-6	Foreign Language or Electives	6	Foreign Language or Electives	6
Physical Education	1	Physical Education	1	Physical Education	1
	15-16		16		16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Literature	3	Literature	3	Literature	3
Science 11	3	Science 12	3	Science 13	3
Psychology or Biology ..	3	Psychology or Biology ..	3	Psychology or Biology ..	3
Economics 51	3	Economics 52	3	Economics 53	3
History 31	3	History 32	3	History 33	3
Sociology 61	3	Sociology 62	3	Sociology 63	3
	16		16		18

POLITICAL SCIENCE

Associate in Arts

FIRST YEAR

Fall Quarter		Winter Quarter		Spring Quarter	
	Hours		Hours		Hours
English 11	3	English 12	3	English 13	3
Political Science 11	3	Political Science 12	3	Political Science 13	3
History 31	3	History 32	3	History 33	3
Geography 11	3	Geography 12	3	Geography 13	3
Biology 11 or Psychology 21	3	Biology 12 or Psychology 22	3	Biology 13 or Psychology 23	3
Physical Education	1	Physical Education	1	Physical Education	1
	16		16		16

SECOND YEAR

Fall Quarter		Winter Quarter		Spring Quarter	
	Hours		Hours		Hours
Physical Science	5	Physical Science	5	Physical Science	5
Literature 61	3	Literature 62	3	Literature 63	3
Political Science 81	3	Political Science 82	3	Political Science 83	3
Political Science 54	3	History 40	3	Political Science 53	3
Economics 51	3	Economics 52	3	Economics 53	3
	17		17		17

PRE-LAW*

Associate in Arts

FIRST YEAR

Fall Quarter		Winter Quarter		Spring Quarter	
	Hours		Hours		Hours
English 11	3	English 12	3	English 13	3
Political Science 11	3	Political Science 12	3	Political Science 13	3
History 11	3	History 12	3	History 13	3
Mathematics 21 or 28	3-5	Mathematics 22 or 29	3-5	Mathematics 23 or 50	3-5
Biology 11	3	Biology 12	3	Biology 13	3
Physical Education	1	Physical Education	1	Physical Education	1
	16-18		16-18		16-18

SECOND YEAR

Fall Quarter		Winter Quarter		Spring Quarter	
	Hours		Hours		Hours
Physical Science	4-5	Physical Science	4-5	Physical Science	4-5
Foreign Language	5	Foreign Language	5	Foreign Language	5
Literature	3	Literature	3	Literature	3
Speech 11	3	Speech 12	3	Elective	3
Elective*	3	Elective	3		
	18-19		18-19		15-16

*Recommended Electives: Accounting or Economics.

Social Science

ANTHROPOLOGY

ANTH 11, 12, 13. INTRODUCTION TO ANTHROPOLOGY FWS. 3 hrs.

A three-quarter introductory survey of the basic concepts of anthropology. Major areas studied are the biological nature of man, the evolution of man, race, and the development and history of culture.

ANTH 55. INDEPENDENT STUDY (ANTHROPOLOGY) FWS. 1 hr.

ANTH 56. INDEPENDENT STUDY (ANTHROPOLOGY) FWS. 2 hrs.

Research and/or reading courses designed for the advanced student. Each student registering for these courses will be assigned to an instructor for advising, consultation, and evaluation. The student, in consultation with his assigned instructor, determines the nature and scope of the study undertaken. The student is expected to have adequate background in the field to assure success in independent endeavor. Registration with consent of instructor only.

ECONOMICS

ECON 55. INDEPENDENT STUDY (ECONOMICS) FWS. 1 hr.

ECON 56. INDEPENDENT STUDY (ECONOMICS) FWS. 2 hrs.

See Independent Study course description under ANTH 55, 56.

ECON 51, 52, 53. PRINCIPLES OF ECONOMICS FWS. 3 hrs.

An introductory course the dual purpose of which is to provide basic background for the student who plans to pursue advanced study in the field as well as to equip the ordinary citizen with some basic tools of economic analysis needed for enlightened citizenship. The study includes an analysis of American capitalism, national income, government and fiscal policies, money, banking and monetary policies, the economics of the firm, international economic policies, competitive economic systems, and some current domestic and international economic problems. Not open to freshmen. Course must be taken in sequence. Economics 51 is prerequisite to Economics 52; Economics 51 and 52 are prerequisite to Economics 53.

GEOGRAPHY

GEOG 11. INTRODUCTION TO GEOGRAPHY F. 3 hrs.

This course is a basic survey of essentials of college geography, including vocabulary, basic principles and techniques.

GEOG 12. CULTURAL GEOGRAPHY W. 3 hrs.

A survey of world regional geography, with attention focused on social and behavioral patterns resulting from environment.

GEOG 13. ECONOMIC GEOGRAPHY S. 3 hrs.

The relationship of geographical factors to economic life of people in various world regions constitutes the emphasis of this course.

GEOG 55. INDEPENDENT STUDY (GEOGRAPHY) FWS. 1 hr.

GEOG 56. INDEPENDENT STUDY (GEOGRAPHY) FWS. 2 hrs.

See Independent Study course description under ANTH 55, 56.

HISTORY

HIST 11, 12, 13. WESTERN CIVILIZATIONS FWS. 3 hrs.

This course seeks to give the student a background in political, economic, social, cultural, and military history of mankind from ancient to modern times, with particular emphasis being given to the development of western civilization. Class discussion, reports, lectures, and assigned readings are used to accomplish this purpose.

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HIST 14, 15, 16. HISTORY OF EASTERN CIVILIZATION FWS. 3 hrs.

A survey of the history of Asia. Fall quarter: The history and culture of Asia before Western penetration. Winter quarter: The penetration of the Orient by the Occident and its impact. Spring quarter: The forces of nationalism and modernity in a new and more committed Asia.

HIST 20. HISTORY OF COLORADO F, W. or S. 3 hrs.

A survey of the history of Colorado from pre-historic times to the present. The course includes consideration of the pre-historic peoples, the trapping and trading era, the mining period, and economic, political and social development of the state.

HIST 24, 25, 26. HISTORY OF LATIN AMERICA FWS. 3 hrs.

A survey of the history of Latin America. In the first quarter pre-Columbian civilizations, the Colonial period, and the Revolutionary period will be studied. Second quarter: The emergence of the Latin-American republics. Third quarter: 20th Century problems and prospects. Considerable attention will be given to relations between Latin America and the United States.

HIST 31, 32, 33. UNITED STATES HISTORY FWS. 3 hrs.

A survey course in the history of the United States. Fall quarter: Colonial period to Age of Jackson; Winter quarter: Expansionist Era to Progressive Era; Spring quarter: World War I to the present.

HIST 35. HISTORY OF BLACK AMERICA WS. 3 hrs.

This is a history of the Black American from early beginnings in Africa to modern times. It concerns itself with the struggle, on the part of the Negro-American, for identity, equality, and acceptance through the changing attitudes of Anglo-Americans. It treats the varying responses of the Black Americans to their minority status.

HIST 36. HISTORY OF BLACK AMERICA FWS. 3 hrs.

A continuation of History 36.

HIST 48. INDEPENDENT STUDY (HISTORY) FWS. 1 hr.

HIST 49. INDEPENDENT STUDY (HISTORY) FWS. 2 hrs.

See Independent Study course description under ANTH 55, 56.

POLITICAL SCIENCE

POLS 11, 12, 13. AMERICAN GOVERNMENT FWS. 3 hrs.

A course which treats the framework and functions of the national government. Some attention is given to both state and local governments. An attempt is made to bring into relief the contemporary scene—philosophical, political, social, economic—within which the government operates and within which the student will be called upon to perform the duties of responsible citizenship.

POLS 55. INDEPENDENT STUDY (POLITICAL SCIENCE) FWS. 1 hr.

POLS 56. INDEPENDENT STUDY (POLITICAL SCIENCE) FWS. 2 hrs.

See Independent Study course descriptions under ANTH 55, 56.

POLS 58. PHILOSOPHY OF AMERICAN DEMOCRACY W. or S. 3 hrs.

A course which deals with significant issues in the contemporary political culture. Ordinarily the instructor chooses relevant topics. Reading, lecture and discussion.

POLS 54. STATE AND LOCAL GOVERNMENTS**F. 3 hrs.**

A course designed for advanced political science students. The objective of this course is to gain an understanding of political theory of states, the meaning of federalism, the influence of Constitutionalism, the development of state constitutions, and a survey of the states' executive, legislative and judicial branches. Prerequisites: Political Science 11, 12, and 13.

POLS 61, 62, 63. COMPARATIVE GOVERNMENTS**FWS. 3 hrs.**

An introduction to the comparative study of politics. The emphasis is on the principal political systems. Fall quarter: Political culture, modern ideologies, Great Britain. Winter quarter: France, Germany, Soviet Union. Spring quarter: The developing nations. Models are Tanzania, Mexico or Brazil, Yugoslavia, Iran or Turkey.

PSYCHOLOGY**PSY 21, 22, 23. GENERAL PSYCHOLOGY****FWS. 3 hrs.**

A course designed to give the student a fundamental understanding of the causes and methods of behavior, and to give him practical suggestions for the control and improvement of his own life. Factors in development, motivation, emotions, the special senses, attention and perception, learning, and thinking. The role of psychology in the solving of personal and social problems including a study of individual differences, intelligence, dynamic factors in personality, and social and vocational adjustment.

PSY 33. HUMAN GROWTH AND DEVELOPMENT**FWS. 3 hrs.**

This course is designed to assist the student in understanding the psychological and physiological development of the individual from conception through the period of old age.

PSY 55. INDEPENDENT STUDY (PSYCHOLOGY)**FWS. 1 hr.****PSY 56. INDEPENDENT STUDY (PSYCHOLOGY)****FWS. 2 hrs.**

See Independent Study course description under ANTH 55. 56.

PSY 74. EDUCATIONAL PSYCHOLOGY**S. 5 hrs.**

The psychological principles underlying the social, emotional and intellectual development of the child as these relate to educational theory and practice. It is recommended that those students who are primarily interested in education take this course as a continuation of Psychology 21 and 22, which are prerequisites.

SOCIAL SCIENCE**SOCS 11. INTRODUCTION TO SOCIAL SCIENCE—
SOCIOLOGY****F. 3 hrs.**

An introduction to the fields of anthropology and sociology.

**SOCS 12. INTRODUCTION TO SOCIAL SCIENCE—
GOVERNMENT****S. 3 hrs.**

A survey of government.

**SOCS 13. INTRODUCTION TO SOCIAL SCIENCE—
ECONOMICS****W. 3 hrs.**

An introduction to the field of economics.

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SOCS 14. INTRODUCTION TO SOCIAL SCIENCE-- PSYCHOLOGY **S. 3 hrs.**

A study of some findings on perception, motivation, prejudice, and other related topics of importance in understanding and dealing with people in work and leisure-time activities.

SOCS 48. EXPLORATORY STUDY IN THE SOCIAL SCIENCES **FWS. 1 hr.**

SOCS 49. EXPLORATORY STUDY IN THE SOCIAL SCIENCES **FWS. 2 hrs.**

All freshman and sophomore students who desire to explore areas of interest, such as history, political science, sociology, psychology, etc., will be assigned to an "on the job" work experience in such places as the elementary schools, municipal and county offices, state home, mental health clinics, etc. It is expected that the students will arrange their own time and work on the job two hours for each hour enrolled.

SOCIOLOGY

SOO 44. MARRIAGE AND THE FAMILY **FWS. 3 hrs.**

The development of marriage and the family in various selected cultures from primitive times to date; an examination of the important aspects of courtship and marriage; contemporary marital and domestic problems; changing functions of the family, efforts at stabilization, and the problem of adjustment to a changing society.

SOC 55. INDEPENDENT STUDY IN SOCIOLOGY **FWS. 1 hr.**

SOC 56. INDEPENDENT STUDY IN SOCIOLOGY **FWS. 2 hrs.**

See Independent Study course description under ANTH 55, 56.

SOC 61, 62. GENERAL SOCIOLOGY **FW. 3 hrs.**

A survey of concepts in the study of sociology, acquainting students with terminology, basic principles involved, and important theoretical concepts. Includes a study of basic group relationships, ranging from family to world, with approaches from the standpoint of race, nationality, population factors, social mobility, ecology, and mass behavior patterns. The two quarters should be taken consecutively and 61 is prerequisite to 62.

SOC 63. SOCIAL PROBLEMS **S. 3 hrs.**

Introductory approach to some of the major social problems of the modern world, including crime, poverty, divorce, disease, mass conformity, political apathy, sub-standard housing, and mental health. Students prepare papers on special studies in addition to regular textbook assignments, discussions, and lectures. Prerequisite: Sociology 61 and 62.

Occupational Education

Area Vocational School

- Audio-Visual and
Graphic Communications — 95, 115, 122**
- Auto Body and Fender — 96, 119**
- Auto Mechanics and
Technology — 96, 118**
- Child Care Center — 99, 116**
- Data Processing — 97, 112**
- Electronics Technology — 100, 116**
- Engineering Technician — 101, 118**
- Fire Science Technology — 103, 121**
- Health Programs — 104, 123**
- Job Entry — 105, 123**
- Law Enforcement
Technology — 106, 126**
- Medical Office Assistant — 106, 107**
- Nursing, Associate Degree — 104, 124**
- Nursing, Practical — 104, 125**
- Radiologic Technology — 107, 127**
- Secretary—Legal,
Medical, Scientific — 108**
- Travel and Recreation
Management — 109, 128**
- Welding — 110, 129**

Area Vocational School

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

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

The Area Vocational School provides the professional services of a Vocational Guidance Specialist and a Job Development and Placement Specialist. With offices located in the Vocational-Technical building, these counselors are available to assist students with information about vocational training opportunities and to aid them in their plans for employment after completion of their training.

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

The following curricula lead to the Associate in Applied Science Degree, the Mesa College Diploma, or a Certificate. High school dropouts, high school graduates, and adults may enroll for any of these programs. If a student seeks the Associate in Applied Science Degree he must meet the general requirements of the program and follow the suggested curriculum for the skill in which he enrolls. (The student must be a high school graduate or must complete the GED test.) If a student does not seek the degree, he may enroll for whatever individual courses he desires and for whatever number of credit hours he wishes.

OCCUPATIONAL EDUCATION

Audio-Visual and Graphic Communications Technology

Associate in Applied Science

Mr. Ackerman, Mr. Hendrickson

A two-year technical program designed to prepare the student to enter business, industry, and educational systems upon completion of one of the two options. The student will develop basic skills in the audio-visual option from simple familiarization with and repair of hardware used in the various production techniques encountered in the educational media field.

In the Graphic Communications option the student will develop basic skills in visual information design, visual information reproduction, and visual information recording, storage, and retrieval.

AUDIO-VISUAL AND GRAPHIC COMMUNICATIONS TECHNOLOGY CURRICULUM

(Occupational course descriptions begin on pages 115, 122.)

FIRST YEAR

Core Curriculum for Both Options

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 15	3
Graphic Arts I	3	Commercial Design and Layout	3	Human Relations	3
Graphic Arts III	3	Business Mathematics	4	Practice and Problems in Material Prod.	3
Introduction to Edu- cational Media	3	Elective	3	Still Photography	3
Physical Education	1	Introduction to Social Science	3	Elective	3
Introduction to Social Science	3	Physical Education	1	Physical Education	1
	16		17		16

SECOND YEAR

Audio-Visual Option

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Basic Electricity Audio-Visual	3	Electronics for Audio- Visual	3	Transcription Equip- ment Maintenance	5
Sound Application	3	Advanced Production II	3	Advanced Production III	5
Organization of In- structional Material	3	Organization of In- structional Matl. II	3	Field Practice Seminar	3
Intro. to Education	3	Projection Equipment Maintenance	4	Acoustics and Optics	3
Elective	3	Elective	3		16
	15		16		

SECOND YEAR

Graphic Communications Option

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Darkroom Procedures	3	Advertising	3	Photography for Photolithography	3
Cold-Type Composition and Paste-Up I	3	Cold-Type Composition and Paste-Up II	3	Graphic Communica- tions Problems	3
Duplicating Offset I	3	Duplicating Offset II	3	Printing Plant	3
Elective	2	Newspaper Practices	3	Electives	6
Intro. to Journalism	3	Printing Estimates	3		15
Elective	3	Elective	2		
	17		17		

Auto Body and Fender

Associate in Applied Science

Mr. Sidener, Mr. Bollen, Mr. Walcher

At the end of one year a student will be awarded a certificate of capability. Upon completion of the requirement set forth in the curriculum, a student will receive the Associate in Applied Science Degree. Practical application covers all phases of body and fender repair, including a comprehensive unit in auto painting. Training gives the necessary laboratory skills, knowledge of theory, principles and related subjects essential to enter and progress competitively in the occupation. Students may enter the program any quarter.

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

Automotive English	9 hrs.
Social Science	9 hrs.
Physical Education	3 hrs.
Auto Body	66 hrs.
Elective	6 hrs.

Total required for graduation93 hrs.

AUTO BODY AND FENDER CURRICULUM

(Occupational course descriptions begin on page 110.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English (Auto)	3	English (Auto)	3	English (Auto)	3
Applied Math	3	Repair and Refinishing	5	Repair and Refinish. II	5
Gen. Auto Body Repair	5	General Refinishing	4	Arc Welding	3
Shop Practice	1	Physical Education	1	Physical Education	1
Physical Education	1	Auto Reconditioning	3	Auto Reconditioning	3
Oxyacetylene Welding	3				
	16		16		15

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Intro. to Social Science	3	Intro. to Social Science	3	Intro. to Social Science	3
Repair and Refinishing III	5	Repair and Refinishing IV	5	Repair and Refinishing V	5
Frame Repair	4	Estimating	2	Shop Management	3
Panel and Spot Painting	3	Human Relations	3	Estimating	2
	15	Frame Repair	2	Elective	3
			15		15

Auto Mechanics

Associate in Applied Science

Mr. Charlesworth, Mr. Tyler, Mr. Fresquez, Mr. Walcher

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

The curriculum is designed in modules of five weeks each except Engines which is ten weeks. Generally there are seven modules offered each quarter and a student may enroll in two of these of his own choice. This system allows anyone interested to enroll for any module he wishes and therefore become proficient in one or more aspect of Auto Mechanics.

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

English	9 hrs.
Physical Education	3 hrs.
Engineering Drawing	3 hrs.
Auto Mechanics	66 hrs.
Social Science	9 hrs.
Electives	3 hrs.

Total required for graduation 93 hrs.

AUTO MECHANICS CURRICULUM

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Physical Education	1	Physical Education	1	Elective	3
Auto Mechanics Math. 3		Physics	3	Physical Education	1
Clutch, Standard Transmission and Overdrive	5	Clutch, Standard Transmission, and Overdrive	5	Automatic Transmissions	5
Driveline & Differentials	5	Driveline & Differentials	5	Filling Station	5
Carburetors	5	Carburetors	5	Service Station State Inspection	5
Electrical System	5	Electrical System	5	Air Conditioning	3
Brakes	5	Brakes	5	Foreign Cars	5
Engines	12	Engines	12	Suspension & Alignment	5
Ignitions	5	Ignitions	5	Auto Mechanics English	3
Auto Mechanics English	3	Auto Mechanics English	3	Intro. to Social Science	3
Intro. to Social Science	3	Intro. to Social Science	3		
Engineering Drawing	3				

Automated Data Processing

Associate in Applied Science

Mr. Buckley, Mr. Dickson, Mr. Youngquist

The electronic data processing field offers a wide diversification of job possibilities for trained personnel. Key Punch operators assist in the preparation of punched cards in which the data is originally recorded. Machine operators supervise the operation of the data processing machines. Computer personnel plan the patterns to be followed by the computer to produce many types of information.

A student at Mesa College will, during the two years of attendance, spend much time working directly on and with the data processing machines including the electronic computer. Problems similar to those of actual business will be solved by the student using IBM machines.

Data Processing technicians are employed by business and industry in the following positions:

Machine Operators	Programmers
Machine Supervisors	Research
Installation Supervisors	Computer Specialists

Students electing the two-year data processing program listed below are required to complete the following:

English 11, 12, and 13 or Literature 21, 31, 32, 33, 35, 41, 42, 43, 44, 45, 46, or 47	9 hrs.
Physical Education	3 hrs.
Social Science, Literature, Psychology, or any combination	18 hrs.
Accounting	14 hrs.

Mathematics 21, 25, and 35 or higher-level Math approved by adviser	13 hrs.
Business or Accounting	6 hrs.
Automatic Data Processing	30 hrs.
TOTAL	93 hrs.

DATA PROCESSING CURRICULUM

(Occupational course descriptions begin on page 112.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Accounting 31	3	Accounting 32	3	Accounting 33	3
Business 45	3	Automated Data Processing 13	5	Automated Data Processing 55	5
Automated Data Processing 12	2	Mathematics 25	5	Mathematics 35	5
Mathematics 21 or 22	3	Automated Data Processing 31	3	Physical Education	1
Physical Education	1				17
	15		19		

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Economics 51	3	Economics 52	3	Economics 53	3
Psychology 21	3	Psychology 22	3	Psychology 23	3
Automated Data Processing 52	5	Automated Data Processing 53	5	Automated Data Processing 54	5
Business or Accounting	3	Business or Accounting	3	Accounting 64	5
	14	Physical Education	1		16
			15		

The nine-month data processing curriculum presented below is designed to provide a level of competency necessary for job entry at different levels of the data processing occupations. After the first quarter a student would be employable as a keypunch operator; after the second quarter, as a unit record machines operator; and after completion of the program, as a computer operator. The student will learn the necessary skills to be employable as determined by the job market.

DATA PROCESSING NINE-MONTH CERTIFICATE PROGRAM

(Occupational course descriptions begin on page 112.)

All Students

Fall Quarter	*Hours	Winter Quarter	*Hours	Spring Quarter	*Hours
Introduction to Data Processing	3	Unit Record	10	Elective	10
Keypunch and Verifier	5	Introduction to Business	3	Introduction to Social Science 14	3
English	5	Computer Operator	10	Personal Finance	3

Accounting Option

Fall Quarter	*Hours	Winter Quarter	*Hours	Spring Quarter	*Hours
Accounting 31	5	Accounting 32	5	Accounting 33	5
Elective	5			Elective	5
Business Math	5			Elective	5

SUGGESTED ELECTIVES: Beginning Typing, Reading, English (Spelling), Business Communication, Algebra, Basic Mathematics, Personal Finance, Speech, English Vocabulary, Human Relations, Insurance.

Secretarial Option

Fall Quarter	*Hours	Winter Quarter	*Hours	Spring Quarter	*Hours
Intermediate Typing	5	Shorthand	5	Dictation Machine	5
Shorthand	5			Shorthand	5
Elective	5			Secretarial Accounting	5

SUGGESTED ELECTIVES: Beginning Typing, Reading, Advanced Typing, Algebra, Basic Mathematics, Business Communication, Speech, English (Spelling), Income Tax, Beginning Dictation, Personal Finance, English Vocabulary, Human Relations, Insurance.

*Contact hours per week (not credit hours).

Child Care Center Director

Associate in Applied Science

Mrs. Bremer

A Children's Day-Care Center curriculum is offered to meet the needs of those presently employed in nursery schools or day-care centers and those contemplating working in the field.

Students majoring in this curriculum take courses designed to increase their understanding of the education and care of children. It is required that the student have laboratory experience in Mesa College's Child Development Center and other community child-care 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, etc. Placement is dependent on individual maturity and professional growth.

Requirements for the Associate in Applied Science degree in Child Care Center Director include the following:

English.....	9 hrs.
Social Science or Literature.....	9 hrs.
Physical Education.....	3 hrs.
Psychology.....	9 hrs.
Required courses for Child Care Center Director	49 hrs.
Electives, including Speech	11-14 hrs.

Total required for graduation..... 93 hrs.

CHILD CARE CENTER CURRICULUM

(Occupational course descriptions begin on page 118.)

Associate in Applied Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Psychology 21	3	Psychology 22	3	Psychology 33	3
Home Economics 12	3	Home Economics 38	3	Nursery School	
Home Economics 34	3	Art 18	3	Education II	2
Speech 11 or 14	3	Nursery School		Creative Play—Drama	3
Physical Education	1	Educa. I	2	HPE 20: First Aid	2
	16	Physical Education	1	Physical Education	1
			15	Electives	2
					16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Marriage and Family ..	3	Literature	3	Home Economics 43	3
Business 54	3	Home Economics 43	3	Child Care Internship ..	6
Home Economics 41	3	Child Welfare	2	Techniques of Adult	
Literature	3	Social Science	3	Education	3
Elective	4	Elective	5	Music 35	3
	16		16		15

SUGGESTED ELECTIVES: Applied Psychology, Typing, Home Furnishings, Home Planning, Basic Clothing, Art, Personal Development.

Electronics Technology

Associate in Applied Science

Mr. Almaras, Mr. Timpte

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

The curriculum is organized to provide a basic preparation for entry employment in a variety of occupations in the field of electronics. The courses are arranged in workable sequence suitable to the instructional needs of the students with an appropriate balance between technology courses, general education courses, and laboratory applications. It is not a pre-engineering curriculum suitable for transfer to four-year institutions.

A graduate of this program will have a good foundation in the principles of electronics and considerable facility with the "hardware" encountered in the electronics industry.

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

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

English 11, 12, 15	9 hrs.
Social Science	9 hrs.
Physical Education	3 hrs.
Electronics	76 hrs.

Total required for graduation97 hrs.

ELECTRONICS TECHNOLOGY CURRICULUM

(Occupational course descriptions begin on page 116.)

Associate in Applied Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Winter Quarter	Hours
English 11	3	English 12	3	Mathematics 13	4
Mathematics 11	4	Mathematics 12	4	Basic Electronics	7
Shop Processes	2	Alternating Current Analysis	7	Physics	5
Concepts of Direct- Current Circuits	7	Physical Education	1	Physical Education	1
Physical Education	1				
	17		15		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Pulse and Video Circuits I	5	Communication Theory II	4	Research Project	1
Transistor Electronics Communication Theory I	4	Pulse and Video Circuits II	4	Calibration and Maint. of Test Equipment	4
Introduction to Social Science (Sociology)	3	Electrical-Electronic Drafting	2	Ultra-High Frequencies and Microwaves	4
	16	Human Relations	3	Intro. to Computers	4
		English 15	3	Intro. to Social Science (Government)	3
			18		18

Engineering Technician

Mr. Ramsey, Mr. Rybak

Engineering technology is that part of the technological field which requires the application of scientific and engineering knowledge with methods of technical skills in support of engineering activities. This program is designed to enable technicians to take the ideas of design, research, and advance planning of the engineer (who nowadays has little time for application) and translate them into practical application; to work with the engineer to take a design from idea to planning and then to production. The demand for the services of engineering technicians is great due to the extreme shortage of engineering technicians. Career opportunities are excellent.

Students interested in Engineering Technology should have good communication techniques, math and physical science aptitude, at least one and one-half years of high school algebra and geometry, and one year of chemistry or physics. Students should be curious about how things work and should have some mechanical aptitude.

Requirements for the Associate in Applied Science degree in Engineering Technology (Civil) include the following:

English 11, 12, 13 or 15	9 hrs.
Physical Education	3 hrs.
Social Science	9 hrs.
Engineering Technology	35 hrs.
Mathematics	15 hrs.
Physics	5 hrs.
Engineering 11, 12, 13	9 hrs.
Engineering 71, 72, 73	9 hrs.

Total required for graduation94 hrs.

CIVIL ENGINEERING TECHNICIAN CURRICULUM

(Occupational course descriptions begin on page 118.)

Associate in Applied Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 15	3
Mathematics 11	4	Mathematics 12	4	Mathematics 13	4
Engineering Tech. 67	3	Engineering Tech. 40	3	Engineering Tech. 30	3
Engineering 12	3	Engineering 11	3	Engineering 13	3
Physical Education	1	Physical Education	1	Mathematics 31	1
Social Science elective	3	Social Science elective	3	Social Science elective	3
	<u>17</u>		<u>17</u>		<u>17</u>

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Engineering 71	3	Engineering 72	3	Engineering 73	3
Engineering Tech. 11	2	Engineering Tech. 62	3	Engineering Tech. 63	3
Engineering Tech. 64	3	Engineering Tech. 12	3	Engineering Tech. 65	3
Engineering Tech. 63	3	Elective	3	Engineering Tech. 68	3
Physical Education	1	Physical Education	1	Engineering Tech. 52	3
Elective	3				
	<u>15</u>		<u>18</u>		<u>15</u>

Requirements for the Associate in Applied Science degree in Engineering Technology (Drafting) include the following:

English 11, 12, 13 or 15	9 hrs.
Social Science	9 hrs.
Physical Education	3 hrs.
Mathematics	15 hrs.
Physics	5 hrs.
Engineering 11, 12, 13	9 hrs.
Engineering Technology	42 hrs.
Engineering 74	3 hrs.
<hr/>	
Total required for graduation	95 hrs.

DRAFTING TECHNICIAN CURRICULUM

(Occupational course descriptions begin on page 118.)

Associate in Applied Science

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 15	3
Mathematics 11	4	Mathematics 12	4	Mathematics 13	4
Engineering 12	3	Engineering Tech. 5b ..	3	Engineering 13	3
Engineering 74	3	Engineering 11	3	Engineering Tech. 40...	3
Physical Education	1	Engineering Tech. 59...	3	Physical Education	1
Engineering Tech. 61...	1	Physical Education	1	Engineering 22	1
	<hr/>		<hr/>	Mathematics 31	1
	17		18		<hr/>
					15

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Engineering Tech. 57...	3	Engineering Tech. 54...	3	Engineering Tech. 65...	3
Engineering Tech. 53...	3	Engineering Tech. 58...	3	Engineering Tech. 57...	3
Engineering Tech. 11...	2	Engineering Tech. 51...	3	Engineering Tech. 58...	3
Engineering Tech. 64...	3	Engineering Tech. 62...	3	Engineering Tech. 63...	3
Engineering Tech. 87...	3	Social Science elective..	3	Social Science elective..	3
Social Science elective..	3		<hr/>		<hr/>
	17		14		15

Options:

Electrical Applied—In place of ETEC 57 and ETEC 53 during Fall Quarter, take ELEC 17.

In place of ETEC 54 and ETEC 58 during Winter Quarter, take ELEC 18.

ELEC 17—Concepts of Direct Current Circuits.

ELEC 18—Alternating Current Circuit Analysis.

Civil Applied—In place of ETEC 54 (Mechanical Drafting), take ETEC 12 (Fluid Mechanics and Hydrology).

In place of ETEC 58 (Electrical Systems), take ETEC 40 (Concrete).

Fire Science

Associate in Applied Science

This two-year program is designed to train students for service with fire protection agencies both public and private, investigators, insurance claim adjusters, safety inspectors, etc. Upon completion of the curriculum the student will receive the Associate in Applied Science degree.

This program has been initiated in the night school in order to provide presently employed firemen the opportunity to upgrade their education and skills.

FIRE SCIENCE TECHNOLOGY CURRICULUM

(Occupational course descriptions begin on page 121.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Political Science 11— Government	3	Survey of Physical Science 12	3	Survey of Physical Science 13	3
Speech 10	3	Mathematics	5	Blueprint Reading	3
Fundamentals of Fire Prevention	3	Related Codes and Ordinances I	3	Related Codes and Ordinances II	3
Fire Apparatus and Equipment	3	Fire Protection— Equipment	3	Chemistry	5
Elective	3	Elective	3	Human Relations	3
	15		17		17

Electives: Mathematics 1, 2, 21
Psychology 21, 22

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Fire Hydraulics	3	Hazardous Material II. 3	3	Fire Department Administration	3
Hazardous Material I ..	3	Plant Layout for Fire Safety	3	Rescue and First Aid ..	3
English 11	3	Fire Fighting Tactics and Strategy	3	Insurance	3
Psychology 21	3	Social Science	3	Fire and Investigation ..	3
Elective	3	English 12	3	English 15	3
Physical Education ..	1	Physical Education	1	Physical Education	1
	15		18		15

HEALTH PROGRAMS

(Department of Nursing)

(See page 59 for additional information)

Mrs. Williams, Mrs. Easter, Mrs. Keegan, Mrs. Morrow, Mrs. Mundy, Mrs. Renner, Mrs. Schumann, Mrs. Walden, Mrs. Yours.

Associate-Degree Nursing

Associate in Science

Admission to the Associate-Degree Nursing program is based upon a strong high school background, including chemistry. Preference is given to those in the upper half of their high school class, with an ACT composite standard score of 18 or above. Students are required to have at least a 2.0 grade average in nursing courses at the end of Spring Quarter of their freshman year and to maintain this each succeeding quarter thereafter in order to continue in the program. Courses must be successfully completed in sequence as numbered.

ASSOCIATE DEGREE NURSING CURRICULUM

(Occupational course descriptions begin on page 124.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13	3
Biology 14	5	Biology 15	4	Biology 53	3
Psychology 33	3	Psychology 22	3	Psychology 23	3
*Nursing 11	5	Home Economics 12	3	Nursing 33	5
Physical Education	1	Nursing 22	6	Physical Education	1
	17		18		17

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Chemistry 41	3	Nursing 52	8	Speech 11	1
Nursing 51	10	Sociology 62	3	Nursing 63	10
Sociology 61	3	Electives	3	Nursing 73	2
	16	Physical Education	1		15
			18		

*Each nursing course includes laboratory (clinical experience). For example, Nursing 11 consists of three class hours and two three-hour laboratory periods per week. The proportion of laboratory to class time increases as the student progresses in the program.

Practical Nursing

Certificate

High School graduation or equivalent (G.E.D.) and satisfactory scores on aptitude tests and/or ACT tests are required for admission.

Applicants follow the same procedures as all other applicants to Mesa College. Supplementary forms and detailed instructions for making application specifically for Practical Nursing may be secured from the Division of Health Programs.

PRACTICAL NURSING CURRICULUM

(Occupational course descriptions begin on page 125.)

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Nutrition	3	Nursing Arts and		Pediatrics	2
Nursing Arts and		Skills II	4	Conditions of Illness II	4
Skills I	8	Obstetric Nursing II	2	Pharmacology	2
Obstetric Nursing I	1	Conditions of Illness I	4	First Aid	2
Structure and Function	3	Drugs and Dosage	1	Clinical Nursing II	6
Personal Health	1	Clinical Nursing I	4		
Personal and Vocational					
Relationships	1		15		16
Physical Education	1				
	18				
		Summer Quarter	Hours		
		Conditions of			
		Illness III	2		
		Community Health	1		
		Clinical Nursing III	13		
		Vocational			
		Relationships	1		
			17		

Job Entry Training In Business

Certificate

An Occupational Program Designed to Help Students Acquire Skills for Job Competency

Mrs. Uhrlaub

This program is designed for high school drop-outs, high school graduates, and adults who desire to gain skills of Typing, Shorthand, Bookkeeping, and related courses for entry into occupations in business such as Bookkeeper, Receptionist, File Clerk, Typist, and Stenographer. For students who have a limited academic background, the program provides an opportunity to review and improve before attempting a college-level curriculum.

The program is designed for 11 months' training. No college credit and no grades are given. The student progresses at his own rate of speed. Upon leaving the program, he will be given a certificate stating his accomplishments. Classes meet six hours per day, five days per week.

Course material in the Job Entry Training program is programmed so that the student may progress at his individual pace. A block of material is learned; the student is tested. He then reworks the material or related material and moves to the next block of material. Entry level is determined by testing in all subjects.

Civil Service standards serve as a guide for course outlines in all subject areas.

If the student has completed the basic courses or is doing exceptionally well in his work, he is allowed to take classes outside the program. Most commonly selected ones are Accounting, Key punch, Medical Terminology, and Medical Laboratory Techniques.

JOB ENTRY CURRICULUM

(Occupational course descriptions begin on page 123.)

No.	Course	Total Class Hrs.	No.	Course	Total Class Hrs.
JET 1	Shorthand	220	JET 5	Typewriting	220
JET 2	Bookkeeping	440	JET 6	Word Study	105
JET 3	Business Mathematics and Office Machines	155	JET 8	Speech	55
JET 4	Business English	220	JET 9	Personal Development and Piling	56

Law Enforcement Technology

(Police Science)

Associate in Applied Science

This two-year program is designed to train students for service with law-enforcement agencies. Upon completion of the curriculum the student will receive the Associate in Applied Science degree.

Regular full-time students and presently employed police officers are admitted to this program. Some of the classes will be held in the evening in order to give employed law-enforcement officers the opportunity to avail themselves of this learning environment.

Some law-enforcement organizations maintain age and physical standards that the student should investigate.

LAW ENFORCEMENT TECHNOLOGY CURRICULUM

(Occupational course descriptions begin on page 126.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Introduction to Law Enforcement	3	Survey of Physical Science 12	3	**Defensive Tactics and Firearms Training ...	3
Political Science 11	3	Political Science 12	3	English 13 or 15	3
*Survey of Physical Science 11	3	Scientific Aids To Crime Detection ..	3	Political Science 13	3
English 11	3	Police Procedures	1	Survey of Physical Science	3
Administra. of Justice and Court Procedures ..	3	Physical Education	1	Laws and Techniques of Interrogation,	
Physical Education	1	English 12	3	Arrest	3
	16		16	Physical Education	1
					16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Psychology 21	3	Investigative Techniques	3	Psychology 23	3
Laws of Search and Seizure	3	Psychology 22	3	Sociology 63	3
Sociology 61	3	Sociology 62	3	Speech 10	1
Business Math	3	Photography	3	Special Problems in Law Enforcement	3
State and Local Government	3	Juvenile Delinquency and Procedure	3	Criminal Law	3
	15		15		15

*Other Physical Sciences may be substituted.

**An elective.

Medical Office Assistant

In the field of medicine, the new and interesting career of Medical Office Assistant has been receiving increased attention in recent years. This career area has grown rapidly and offers a wide choice of positions in doctors' offices, hospitals, clinics, research foundations, and drug companies. Mesa College offers a nine-month certificate program to prepare young women for this career.

MEDICAL OFFICE ASSISTANT NINE-MONTH CURRICULUM

(Occupational course descriptions begin on page 123.)

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	Business 11	3	Social Science	3
Health 47	3	Biology 15	4	Health 58	3
Secretarial Science 14 ..	3	Secretarial Science 15 ..	3	Business 43	4
Biology 14	5	Health 54	3	Secretarial Science 17 ..	3
Speech 1B	3	Accounting 13	3	Instructional—First	
				Aid	2
	17		16		15

Substitutions or Additions—Nutrition, Business 51, Personal and Community Health, Business 32, Business 14, Business 15.

Radiologic Technology

Associate in Applied Science

Miss Ward

A two-year Associate Degree program which continues through two summers. Admissions to this program are sometimes limited because of limitations placed upon the college by clinical facilities of the area.

Radiologic Technologists enjoy a variety of career opportunities. The large majority are employed by hospital laboratories performing duties important to radiation diagnosis and therapy. A lesser number are employed in other areas of health care such as physicians' offices, radiology laboratories outside the hospital, public health organizations, community health clinics and veterinary offices and clinics. A minority find employment in commercial positions connected with the manufacture, distribution and servicing of radiologic equipment. A few technologists are employed in industry.

RADIOLOGIC TECHNOLOGY CURRICULUM

(Occupational course descriptions begin on page 127.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Radiologic Orientation ..	3	English 12	3	Radiographic—	
Medical Terminology ..	3	Human Anatomy	3	Positioning II	4
English 11	3	Basic Electronics	3	English 13	3
General Chemistry	4	Basic Radiographic—		Introduction to	
Radiologic		Exposure	5	Physics	4
Fundamentals	3	Radiographic—		Radiographic Special--	
	16	Positioning I	2	Procedures	4
			16		15
		Summer Quarter	Hours		
		Radiation Therapy	5		
		Clinical Experience	5		
			10		

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Departmental		Nuclear Medicine	3	Radiologic Review	3
Administration	3	General Physics	4	General Physics	4
Psychology 21	3	Clinical Experience	5	Clinical Experience	6
General Physics	4	Physical Education	1	Physical Education	1
Clinical Experience	4		13		14
Physical Education	1				
	15				
		Summer Quarter	Hours		
		Radiologic Review	3		
		Clinical Experience	6		
			9		

Secretary—Legal, Medical, Scientific

Associate in Applied Science

This two-year program consists of a combination of general education and skill-building courses. It is especially designed to provide an opportunity for the student to attain a high degree of occupational competency as a secretary in the legal, medical, or scientific field.

The program offers courses which enable a student to take both shorthand and machine dictation, transcribe, type, handle routine office tasks, and prepare office correspondence and reports.

Mesa College awards the Associate in Applied Science degree following successful completion of this program.

SECRETARY—LEGAL, MEDICAL, SCIENTIFIC CURRICULUM

FIRST YEAR—All Students

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English 11	3	English 12	3	English 13 or 15	3
Secretarial Science 14	3	Secretarial Science 15	3	Business 11	3
Secretarial Science 23	4	Secretarial Science 31	4	Business 12	3
Business 42	2	Elective	3	Business 43	4
Psychology 21	3	Psychology 22	3	Psychology 23 or 33	3
	<hr/>		<hr/>		<hr/>
	15		16		16

SECOND YEAR—Medical

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Social Science 11	3	Biology 15	4	Physical Education 41	3
Biology 14	5	Health 54	3	Biology 53	5
Speech 16	3	*Elective	6	Secretarial Science 68	3
Health 47	3	Accounting 13	3	Health 56	3
Physical Education	1	Physical Education	1	Physical Education	1
	<hr/>		<hr/>		<hr/>
	15		17		15

*Suggested elective: Chemistry 21 and/or Chemistry 41.

SECOND YEAR—Legal

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Business 51	3	Business 52	3	Business 53	3
Social Science 11	3	Business 14	3	Secretarial Science 33	3
Speech 11	3	Secretarial Science 58	3	Secretarial Science 59	3
Physical Education	1	Secretarial Science 57	3	Secretarial Science 61	3
Mathematics 15 or 21	3	Physical Education	1	Social Science 13	3
Elective	3	Accounting 13	3	Physical Education	1
	<hr/>		<hr/>		<hr/>
	16		18		16

SECOND YEAR—Scientific

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Mathematics 15 or 31	3	Mathematics 22	3	Mathematics 23	3
Physical Science 17	3	Physical Science 12	3	Physical Science 13	3
Engineering 11	3	Accounting 13	3	Secretarial Science 62	3
Physical Education	1	Business 14	2	Social Science 13	3
Business 45	3	Physical Education	1	Elective	3
Elective	3	Elective	3	Physical Education	1
	<hr/>		<hr/>		<hr/>
	16		16		16

Travel And Recreation Management

Associate in Applied Science Degree

Mr. Cassidy

This curriculum has been developed in recognition of the importance of the recreation and tourist industries in Western Colorado and the Rocky Mountain Region. The program is designed to train students to serve recreation- and tourist-related industries. Employment possibilities for graduates of the program range from receptionist and office work with limited supervisory responsibilities to positions entailing management responsibilities in a wide range of service agencies, such as transportation company personnel, travel agents, air hostesses, office managers, assistant managers, assistant recreational directors, tour and resort guides, ticket agents, and others.

The specific requirements for the Associate in Applied Science degree with emphasis in Travel and Recreation Management include:

Accounting 13 or 31	3 hrs.
Business Division subjects	25 hrs.
Travel and Recreation	24 hrs.
Social Science	6 hrs.
Psychology	3 hrs.
English	9 hrs.
Speech	3 hrs.
Physical Education	3 hrs.
Mathematics 15 and 16	6 hrs.
Regional Natural Science	3 hrs.
Electives	8 hrs.
TOTAL	93 hrs.

TRAVEL AND RECREATION MANAGEMENT CURRICULUM

(Occupational course descriptions begin on page 128.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Business 12	3	English 12	3	English 13 or 15	3
English 11	3	Business 43	4	Math 16	3
Business 26	3	Math 15	3	Physical Science 18	3
History 20	3	Business 14	3	Travel and Recreation 11	3
Psychology 21, 22 or 23	3	Business 27	3	Accounting 13 or 31	3
Physical Education	1	Physical Education	1	Physical Education	1
	<hr/> 16		<hr/> 17		<hr/> 16

SECOND YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
Business 51	3	Business 57	3	Travel and *Recreation 53	16
Travel and Recreation 51	3	Travel and Recreation 52	3	(Work Experience)	1
Speech 11	3	Electives	8		
Business 58	3		<hr/> 14		<hr/> 15
Economics 51	3				
	<hr/> 15				

*This course is available fall, winter, spring or summer quarter.

Welding

Certificate

Mr. Branton, Mr. Hill, Mr. Nutting

This program is designed for twelve months in length. If a student leaves before completion, he will be awarded a certificate of capability. If he completes the program, he will be awarded a certificate of completion. The course is designed to give the student the required knowledge of metals, layout work and welding processes. A student will gain manipulative skills and related information essential to enter and progress in the occupation. Instruction and shop practice are given in oxyacetylene and electric arc welding of ferrous and non-ferrous metals in all positions. Students may enter the program in any quarter.

WELDING CURRICULUM

(Occupational course descriptions begin on page 129.)

FIRST YEAR

Fall Quarter	Hours	Winter Quarter	Hours	Spring Quarter	Hours
English	3	Human Relations	3	Arc Welding III	7
Oxyacetylene		Oxyacetylene		Fabrication Layout	3
Welding I	3	Welding II	4	Arc Welding Theory	2
Applied Math I	3	Blueprint Reading	3	Elective	3
Oxyacetylene Theory	3	Applied Math II	3		—
Arc Welding I	3	Arc Welding II	4		15
	—		—		—
	15		17		—

SUMMER

Summer Quarter	Hours
Arc Welding IV	7
Metallurgy	5
Shop Management	2
Structural Welding	
Theory	2
	—
	16

Occupational Course Descriptions

Auto Body and Fender

ABF 10. APPLIED MATHEMATICS F. 3 hrs.

A brief review of the arithmetic, shop mathematics, and algebra that students will need to handle the mathematical aspects of auto mechanics.

ABF 11. GENERAL AUTO BODY REPAIR F. 5 hrs.

An introduction to theory and practices of auto body repair. Basic principles involved are studied and practiced.

ABF 12. SHOP PRACTICE F. 1 hr.

General information pertaining to technical aspects. Includes safety practices, tools, and materials. Orientation of student to school rules, regulations and curriculum. Safety practices while training. Type of work encountered in the field.

- ABF 13. OXYACETYLENE WELDING** **F. 3 hrs.**
 The course includes the theory and practice of oxyacetylene welding of mild steel, the identification of base and filler metals and melting temperatures of various metals. Special emphasis is placed on root penetration and fusion of welding materials. If time permits, some brazing and bronze welding of mild steel and cast iron, as used in auto-body repair, will be included. Class: 2 hours. Shop: 8 hours.
- ABF 16. AUTO RECONDITIONING** **WS. 3 hrs.**
 This course affords instruction in new car preparation; glass removal and installation; minor panel repair and refinishing; spot painting; cleaning, dyeing and repair of upholstery; engine cleaning and airbrush painting; exterior-finish buffing and polishing; general automotive detail procedures.
- ABF 21. GENERAL REFINISHING** **W. 4 hrs.**
 A comprehensive study of auto refinishing which will include metal conditioners, primers, sealers, surfacers, reducers, thinners, and the different types of paints and the techniques used to apply them.
- ABF 24. REPAIR AND REFINISHING I** **W. 5 hrs.**
 Bench work on auto body parts. Manipulative practice of skills needed to advance in general auto body work with emphasis on auto finishing. Shop: 15 hours.
- ABF 32. PANEL AND SPOT PAINTING** **F. 3 hrs.**
 Paint composition, refinishing products and their correct usage, color matching and procedures to be used in making a lacquer or acrylic spot repair. Class: 3 hours. Shop: 1 hour.
- ABF 33. ARC WELDING** **S. 2 hrs.**
 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. Shop: 4 hours.
- ABF 34. REPAIR AND REFINISHING II** **S. 5 hrs.**
 Continuation of Repair and Refinishing I. Emphasizes all types of metal work. Includes working with aluminum, galvanized iron, and other metals utilized in auto body work. Shop: 15 hours.
- ABF 50. FRAME REPAIR** **F. 4 hrs.**
- ABF 51. FRAME REPAIR** **W. 2 hrs.**
 Inspection, measurement and repair methods used to repair unitized and conventional frames. Shop: 10 hours.
- ABF 54. REPAIR AND REFINISHING III** **F. 5 hrs.**
 Continuation of shop learning practices. Severe collision repair procedures are studied. Shop: 15 hours.
- ABF 64. REPAIR AND REFINISHING IV** **W. 5 hrs.**
 Continuation of shop learning procedures. Emphasis on metal work and spot painting. Shop: 18 hours.
- ABF 71. SHOP MANAGEMENT** **S. 3 hrs.**
 Study of shop operation, expenditures, floor-plan design and equipment for the modern-day shop. Expectations and management of employees.

- ABF 72. ESTIMATING** **S. 2 hrs.**
 Study of parts catalogs, flat rate, R&R procedures, insurance adjustments, and the writing of collision repair bids.
- ABF 74. REPAIR AND REFINISHING V** **S. 5 hrs.**
 Concentration of shop and learning experiences in area in which student wishes to specialize. Shop: 15 hours.

Automated Data Processing

- ADP 8. PRODUCTION KEYPUNCH** **FWS. No Credit**
 A course designed to equip the student with skills and knowledge necessary for job entry in keypunch and verifier. Through application of business problems in data processing, the program utilizes techniques to build speed and accuracy. It also includes methods of using companion data processing equipment. Prerequisite: Typing, ADP 12 or consent of instructor.
- ADP 12. KEYPUNCH AND VERIFIER** **FWS. 2 hrs.**
 A preliminary course in the fundamentals of the keypunch and verifier with emphasis on developing operational skills. Prerequisite: Typing.
- ADP 13. PRINCIPLES OF PUNCH-CARD EQUIPMENT** **W. 5 hrs.**
 A course designed to acquaint students with the operation and application of automatic data processing equipment. The student will use the latest IBM equipment in gaining an ability to solve business problems at electronic speeds. Systems and procedures involved in data processing will be stressed throughout.
- ADP 21. COMPUTER OPERATOR** **W. 3 hrs.**
 This course trains the student in computer operation. The student will learn to compile programs written by computer programmers. Class participants will use the computer in actual business applications and learn how to solve problems evolving from operation of the equipment. Prerequisite: BUS 45 or consent of instructor.
- ADP 47. INDEPENDENT STUDY IN DATA PROCESSING** **FWS. 1 hr.**
 Prerequisites: Introductory courses in the field and consent of instructor.
- ADP 48. INDEPENDENT STUDY IN DATA PROCESSING** **FWS. 2 hrs.**
 Prerequisites: Introductory courses in the field and consent of instructor.
- ADP 49. INDEPENDENT STUDY IN DATA PROCESSING** **FWS. 3 hrs.**
 Prerequisites: Introductory courses in the field and consent of instructor.
- ADP 51. ASSEMBLER LANGUAGE** **F. 5 hrs.**
 A beginning programming course that will include computer logic flow charting and programming fundamentals. The student will write programs in Assembler language for the IBM 360 System.
- ADP 52. COBOL PROGRAMMING** **F. 5 hrs.**
 The student will write programs using Cobol. An emphasis will be placed on traditional business applications such as payroll, accounts receivable and inventory control. Methods will be covered enabling the student to debug and document their programs. Prerequisite: ADP 55 or consent of instructor.

ADP 53. FORTRAN IV**W. 5 hrs.**

The student has an opportunity to become acquainted with Fortran language structure and translation of scientific, mathematical and engineering formulas into Fortran coding. The course also involves symbol table development, data sort, list merge, file search, tape and disk file packing, the synthesis-phase-structure of Fortran resulting in locate and seizure logic, data capture and retrieval procedure as applied to tape-to-tape, disk-to-tape, and disk-to-disk. Also includes an introduction to the mechanics of Fortran simulator problems applicable to business, history, education, psychology, social behavioral sciences, geology, engineering, mathematics, medicine, biology, and environmental analysis. Prerequisite: ADP 55 or consent of instructor.

ADP 54. AUTOMATED SYSTEMS**S. 5 hrs.**

This course requires students to work together as a systems team to analyze actual business applications and convert these to an automated system. The new system will be designed and flowcharted by the students and the programs written in Cobol. The course emphasizes the methods of system documentation which will permit adequate disclosure. Prerequisite: ADP 52 or consent of instructor.

ADP 55. RPG AND FLOW-CHARTING**S. 5 hrs.**

A beginning programming course that includes computer logic flow-charting and programming fundamentals. The student has an opportunity to progress in RPG; the application will primarily be reports and financial statements. Operating procedures for the 360 systems are explained. Prerequisite: BUS 45 and ADP 12, or currently enrolled in ADP 12; or consent of instructor.

Auto Mechanics

AMEC 11. APPLIED MATH FOR AUTO MECHANICS**F. 3 hrs.**

A brief review of the arithmetic, shop math, and algebra that students will need to handle the mathematical aspects of auto mechanics.

AMEC 14. INTERNAL COMBUSTION ENGINES**FW. 12 hrs.**

A basic study of the internal combustion engines dealing with types, design, construction, principles of operation and application of engine components. The physical principles of cooling, lubrication, ignition and fueling as well as minor engine tune-ups are studied.

AMEC 15. APPLIED PHYSICS FOR AUTO MECHANICS**W. 3 hrs.**

A survey course of the principles of physics used in auto mechanics. No laboratory.

AMEC 21. CLUTCHES, STANDARD TRANSMISSIONS AND OVERDRIVES**FW. 5 hrs.**

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

AMEC 22. DRIVELINES AND DIFFERENTIALS**FW. 5 hrs.**

This class is a comprehensive study of U-joints, drive shafts, engine mounts, and conventional or limited-slip differentials. Nomenclature, gear and bearing failure, repair, and adjustment of all component parts are included in the instruction.

AMEC 23. CARBURETORS**FW. 5 hrs.**

The chemical properties of fuels, fuel and air ratios, metering, atomizing, vaporizing and mixing are studied. The complete fuel system is thoroughly treated. Single, dual and four barrel carburetors, single and double action fuel pumps of all popular makes are included.

AMEC 24. ELECTRICAL SYSTEMS FW. 5 hrs.

Starters, generators, alternators, voltage regulators, solenoids, switches, relays, lights, wiring and cables are thoroughly covered both in theory and practical application. A complete lab on the servicing and adjustment of these units, using the latest equipment, is part of this course.

AMEC 25. AUTOMOTIVE BRAKE SYSTEMS FW. 5 hrs.

This is a complete course in the servicing and repair of the hydraulic brake system. Includes the basic principles of hydraulics, servicing the linings, drums, cylinders, lines and power booster units, adjusting and bleeding the system.

AMEC 27. AUTOMATIC TRANSMISSIONS S. 5 hrs.

The principles of operation of planetary gear sets, fluid couplings, torque converters, servor, bands, clutch packs and control circuits are the main objectives of this course.

AMEC 28. FILLING STATION S. 5 hrs.

This course is designed to prepare persons for employment in service stations. The course consists of instruction in service-station management, station records, merchandising, lubrication, and minor repairs and parts replacement.

AMEC 29. SERVICE-STATION STATE INSPECTION S. 5 hrs.

This course is designed to train students to inspect motor vehicles in compliance with Colorado state inspection regulations. Students will be taught the regulations, how to inspect a vehicle, and how to perform necessary repairs and adjustments, such as headlight aim, brake adjustment and minor electrical adjustments and repairs.

AMEC 31. ENGINE REBUILDING FW. 12 hrs.

This course has been designed to develop basic skills in the specialized field of automotive engine rebuilding. It includes cylinder reboring, reconditioning of connecting rods, pistons, pins, valve seats and guides, surface grinding and general engine rebuilding.

AMEC 33. AIR CONDITIONING S. 5 hrs.

This class will cover: an introduction to the principles of refrigeration; the methods of operation and control; assembly of connections and components; proper handling of refrigerants; use of testing equipment; conducting efficiency tests; and general maintenance work.

AMEC 34. FOREIGN CARS S. 5 hrs.

This course is a study of foreign car problems and minor repairs and how they differ from their American counterparts. Only the most common foreign cars will be studied because of the expense of special tools. Cars to be studied are: Colt, Datsun, Mazda, Toyota, Volkswagon, Volvo, Pinto (engine and transmission), and Mercedes-Benz. It is recommended that a student take tune-up, engines, brakes, and electrical systems before taking this course.

AMEC 35. SUSPENSION AND ALIGNMENT S. 5 hrs.

The theory, function, disassembly, repair and adjustment of the shocks, springs, wheels, tires, axles, suspension, and steering geometry are included in this class. Study and practice of wheel balancing and alignment techniques are included with the diagnosis of alignment problems and the analysis and correction of tire wearing problems, vibrations, hard steering, pulling, etc.

AMEC 36. IGNITION SYSTEMS**FW. 5 hrs.**

All units comprising the ignition system, consisting of the primary and secondary circuits, are studied here. The distributor and related parts, coil, ignition switch, resistors, spark plugs, cables and wiring, as well as ignition timing are fully covered. All adjustments and service procedures are included.

Audio-Visual

AVIS 11. GRAPHIC ARTS I**F. 3 hrs.**

This course is designed to develop competencies in the preparation of graphic materials.

AVIS 12. PRACTICES AND PROBLEMS IN MATERIALS PRODUCTION**W. 3 hrs.**

An independent study course to provide direct experience for the audio-visual student in developing and producing finished projection materials.

AVIS 13. INTRODUCTION TO GRAPHIC COMMUNICATIONS**F. 3 hrs.**

An introduction to graphic arts technology as related to the reproduction of various graphic design techniques; provides opportunity to develop basic skills in offset lithography, screen process, and relief printing.

AVIS 15. INTRODUCTION TO EDUCATIONAL MEDIA**S. 3 hrs.**

An introductory formal course in educational media designed to impart the philosophy, aims and content of the field. Emphasis will be placed on the role of communications technology in education. Operation of equipment and production of materials will be overviewed.

AVIS 16. SOUND APPLICATION**S. 3 hrs.**

This course is designed to develop competencies in the recording of sound for use by teachers in classroom situations.

AVIS 51. ADVANCED PRODUCTION I— STILL PHOTOGRAPHY**F. 3 hrs.**

This course is designed to develop proficiencies in the production of still photographic materials which teachers can use in classroom situations.

AVIS 52. ADVANCED PRODUCTION II— MOTION PICTURE PHOTOGRAPHY**W. 3 hrs.**

This course is designed to develop proficiencies in the production of 8-mm and 16-mm motion picture materials which teachers can use for instructional purposes.

AVIS 53. ADVANCED PRODUCTION III**S. 5 hrs.**

This course is designed to develop proficiencies in basic television production skills for use in both education and industry. Students will become involved with camera operation, studio lighting, set design, television direction, operation of video tape equipment and other skills basic to television operation.

AVIS 54. ORGANIZATION OF INSTRUCTIONAL MATERIALS I**S. 3 hrs.**

This class will serve as a basic course in the techniques of procedural operation of an instructional materials center, a study of the methods of keeping records and data procedures, and basic in-service training techniques.

- AVIS 55. ORGANIZATION OF INSTRUCTIONAL MATERIALS II** W. 3 hrs.
A study of library techniques and procedures, both book and film, physical arrangements and traffic patterns. Sources of equipment and materials will be researched and studied.
- AVIS 56. FIELD PRACTICES SEMINAR** S. 3 hrs.
Students will work in public schools, colleges, businesses or other agencies as audio-visual technicians in an one-the-job environment. Their services will actually be utilized by the participating agencies during this period of training.
- AVIS 57. PROJECTION EQUIPMENT MAINTENANCE** W. 4 hrs.
A course in understanding the mechanical and electronic operation of projection equipment, and a study of repair and maintenance problems. The course will consist largely of applied laboratory.
- AVIS 58. TRANSCRIPTION EQUIPMENT MAINTENANCE** S. 5 hrs.
A study of understanding the mechanical and electronic operation of tape recorders, record players, and other magnetic storage devices, covering repair, problem locating, and trouble-shooting. The course will consist largely of applied laboratory.

Child Care

- CCCD 11. NURSERY SCHOOL EDUCATION** S. 3 hrs.
The nursery school as a laboratory for learning about children; its philosophy, goals, and operation. Students will spend one morning a week at assigned laboratory experience, and have a group meeting one day a week for discussion and evaluation.
- CCCD 51. PRINCIPLES OF CHILD WELFARE** W. 2 hrs.
History and philosophy of child welfare movement. Study of laws affecting children at all governmental levels. Local, state and national agencies offering family and child welfare services. Licensing and health regulations for children's centers.
- CCCD 52, 53. INTERNSHIP IN LICENSED CENTERS** WS. 3 hrs.
Students spend a minimum of three hours per day working in licensed centers under a qualified teacher. Supervised by college instructor with conference periods and evaluation of student's progress.
- CCCD 55. TECHNIQUES OF ADULT EDUCATION** S. 3 hrs.
This class is intended to help the student understand the teacher's role in adult education: to know how and why adults want to learn; how to plan a course of study for adults; and to learn methods and techniques used in teaching.
- CCCD 58. INDEPENDENT STUDY IN CHILD CARE** FWS. 2 hrs.
- CCCD 59. INDEPENDENT STUDY IN CHILD CARE** FWS. 3 hrs.

Electronics

- ELEC 14. SHOP PROCESSES** F. 2 hrs.
The course is designed to help the student develop information in the use of hand tools, machine tools, equipment and various types of materials which he will encounter in his work as a technician. Laboratory exercises are designed to introduce students to tools, materials and equipment. Shop safety is stressed. Class: 1 hour. Laboratory: 2 hours.

ELEC 17. CONCEPTS OF DIRECT CURRENT CIRCUITS F. 7 hrs.

An introduction to electronics, atomic structure, electrostatics, basic electrical units, electronic components and diagrams, powers of ten ammeters, voltmeters, ohmmeters, multimeters. Magnetic fundamentals, electromagnetism, meter movements, special meters, Kerchoff's first and second laws, electrical power, self inductance, mutual inductance, inductors, capacitors, capacitors marking systems, capacitor theory. Class: 4 hours. Laboratory: 6 hours.

ELEC 18. ALTERNATING CURRENT CIRCUIT ANALYSIS W. 7 hrs.

Generation of alternating current, alternating current fundamentals, multi-polar generators, introduction to vectors, A-C resistive circuits, inductance, inductive reactance and impedance, series L-R circuits analysis, parallel L-R circuits analysis, R-L time constants, capacitance and capacitive reactance, series R-C circuits analysis, parallel R-C circuits analysis, R-C time constants, series R-L-C circuit analysis, parallel R-L-C circuit, power in A-C circuits, series, parallel resonant R-L-C circuits, Q and bandwidth of resonant circuits, impedance matching and reflected impedance, transformer losses and ratings; application of vector algebra in the analysis of impedance networks. Prerequisites: Mathematics ELEC 11. The course is conducted in conjunction with Mathematics ELEC 12. Class: 4 hours. Laboratory: 6 hours.

ELEC 19. BASIC ELECTRONICS S. 7 hrs.

Electron emission, thermionic emitters, vacuum tube, static and dynamic characteristics, concepts of semiconductors, classes of amplifier operations, transistor types, transistor equivalent circuits, beam power vacuum tubes, multisection tubes, gas tubes, phototubes and electron-ray indicators, cathode-ray tube, high frequency tubes, tube and semiconductor manual and specification interpretation, tube designation and basing. Prerequisites: ELEC 15 and ELEC 18. Class: 4 hours. Laboratory: 6 hours.

ELEC 51. PULSE AND VIDEO CIRCUITS I F. 5 hrs.

The study of electronic circuit technology applying the principles of vacuum tubes to circuits designed to produce nonsinusoidal or pulse signal waveshapes. Analysis of multivibrators, blocking and shock excited oscillators, limiters, clippers and sweep generator circuits will be made both in the classroom and laboratory. Class: 3 hours. Laboratory: 4 hours.

ELEC 52. PULSE AND VIDEO CIRCUITS II W. 4 hrs.

A continuation of ELEC 51 with emphasis on the analysis of electronic circuits and systems utilizing the circuits studied in ELEC 51. Television and radar is studied applying the principles of pulse shaping circuits. Class: 2 hours. Laboratory: 4 hours.

ELEC 53. TRANSISTOR ELECTRONICS I F. 4 hrs.

A course of semiconductor action, junction transistor, static characteristics; principles of transistor circuitry, transistor circuit parameters, common-base amplifier, common-emitters amplifier and bias stabilization. Laboratory application will be by auto amplifiers, voltage-regulated power supplies, superheterodyne receivers and transistors, transmitters. Class: 2 hours. Laboratory: 4 hours.

ELEC 56. COMMUNICATION THEORY I F. 4 hrs.

Amplitude modulation and frequency modulation. Radio frequency oscillators and power amplifiers, antennas, modulators, radio-frequency measurements. Two-way communications. Requirements for government radio operator licenses. Communications application. Prerequisite: ELEC 19. Class: 2 hours. Laboratory: 4 hours.

ELEC 57. COMMUNICATION THEORY II **W. 4 hrs.**
Continuation of ELEC 56. Prerequisite: ELEC 51. Class: 2 hours.
Laboratory: 4 hours.

ELEC 58. PHYSICS **F. 5 hrs.**
Graphical and mathematical analysis of force; laws of motion, machines, mechanical power, strength of material, fluid mechanics and thermal conductivity; basic principles of physics. Emphasis on applied problems. Class: 4 hours. Laboratory: 4 hours.

ELEC 59. ULTRA HIGH FREQUENCIES AND MICROWAVES I **S. 4 hrs.**
Line sections, wave guides and cavities; UHF tubes and oscillators; klystrons, magnetrons and traveling-wave tubes; microwave antennas; principles of radar and microwave systems. Prerequisite: ELEC 19 and ELEC 51. Class: 2 hours. Laboratory: 4 hours.

ELEC 61. CALIBRATION AND MAINTENANCE OF TEST EQUIPMENT **S. 4 hrs.**
An introductory presentation of the basic theory and principles of the construction and operation of instruments most often used by industry. Emphasis will be placed on the standardization, calibration, serving and maintenance of the major portion of industrial test equipment. Class: 2 hours. Laboratory: 4 hours.

ELEC 64. RESEARCH PROJECT **W. 1 hr.**
Individual assignment to the development of apparatus of special interest to the student with the instructor's approval. Students provide their materials. A written report of the work will be made. Frequent conferences between the student and his adviser will serve to guide the student's progress. In writing the report the student will be guided by principles learned in ELEC 55. Prerequisite: ELEC 55. Laboratory: 3 hours.

ELEC 65. INTRODUCTION TO COMPUTERS **S. 4 hrs.**
The student is introduced to the binary concept. He is shown how two states can be used to perform logic functions and count. He will use simpler logic gates to construct more complex devices. The student studies Boolean algebra, logic truth tables, and how the transition from a logic requirement to a gating network is accomplished. He also will deal with digital subsystems, and study the mathematical process of binary addition including methods of complimentary binary subtraction, binary coded decimal counting and code conversion. Finally he brings together the above knowledge by discussing digital systems.

Engineering

ELEC 11. SPECIFICATIONS AND COST ESTIMATES **F. 2 hrs.**
Preparation of specifications and contract documents. Estimates of cost and construction. Bidding schedules for civil engineering projects. Prerequisite: 2 years of high school mechanical drawing or Engineering 10 or consent of instructor.

ELEC 12. FLUID MECHANICS AND HYDRAULICS **W. 3 hrs.**
Properties of fluids, viscosity, steady, laminar and turbulent flow, Reynolds Number. Hydrostatic pressure on submerged plane surfaces. Bernoulli's Energy Theorem. Pilot 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.

- ETEC 13. TECHNICAL MATHEMATICS** **F. 4 hrs.**
 A review of algebra, geometry and the fundamental concepts of trigonometry; special products and factoring; simultaneous equations; exponents and radicals; quadratic equations; vector algebra including complex quantities and "j" operator. Class: 4 hours.
- ETEC 14. TECHNICAL MATHEMATICS** **W. 4 hrs.**
 Trigonometry as applied to technical work; use of tables; solution of right triangles; law of sines and cosines; logarithms; graphical representation of the trigonometric functions. Class: 4 hours.
- ETEC 15. TECHNICAL MATHEMATICS** **S. 4 hrs.**
 Mathematics used in solving problems involving vector and harmonic motion; complex rotation and vector algebra; functions and graphs; graphic methods used in solving problems relating to slope and rate of slope change; basic calculus, including limits; derivations and integrations; mechanics of La Place operational calculus as related to
- ETEC 30. CONSTRUCTION PRACTICES** **S. 3 hrs.**
 A study of construction techniques, materials, structural systems, and job, site planning.
- ETEC 40. CONCRETE I** **W. 3 hrs.**
 An introduction to cement, aggregates, selection and design of concrete mixtures, and sampling and testing procedures.
- ETEC 51. ELECTRICAL-ELECTRONIC DRAFTING** **W. 2 hrs.**
 A course designed to develop ability to work with symbols, terms, and drafting standards which are used in electrical and electronic drafting, and to apply them to the drafting of electrical circuits and basic electrical and electronic apparatus. Prerequisite: Engineering 10 or equivalent.
- ETEC 52. DRAFTING AND DESIGN—STRUCTURAL** **S. 3 hrs.**
 This course is designed to apply the principles of design to arrive at solutions to structural problems and to present these solutions in the form of detailed drawings using proper drafting techniques. Prerequisite: ETEC 62 or consent of instructor.
- ETEC 53. DESIGN AND DRAFTING—TOPOGRAPHICAL** **F. 3 hrs.**
 This course covers the history, fundamentals, and methods of map-making. There are two three-hour classes per week, each consisting of a one-hour lecture and discussion period and a two-hour lab period during which map-making skills will be practiced. Prerequisite: Engineering 10 or equivalent.
- ETEC 54. MECHANICAL DRAFTING** **W. 3 hrs.**
 Drafting practices and techniques as required by various engineering fields are covered. Skills are developed by using standard drafting instruments and equipment during the lab hours. Prerequisite: Engineering 10 or equivalent.
- ETEC 55. DRAFTING AND DESIGN—MECHANICAL SYSTEMS** **W. 3 hrs.**
 The basic design methods and problems of various mechanical systems for buildings and industry are covered. During the lab portions of this course, simple systems will be designed and drawn for various mechanical systems. Prerequisite: Engineering 10 or equivalent.
- ETEC 56. INTRODUCTION TO MACHINE DESIGN** **S. 3 hrs.**
 Applying design principles to machine members. Drawing designed members to standards of industry. Utilizing standard joining techniques and available stock items in designs. Prerequisite: Engineering 10 or equivalent.

ETEC 57. DRAFTING AND DESIGN—ELECTRICAL SYSTEMS

F. 3 hrs.

The interrelationship of electric heating, wiring, audio, lighting, elevators, and acoustics to architecture. Prepare electrical systems designs using standard procedure. Prerequisite: Engineering 10 or equivalent.

ETEC 58. DRAFTING AND DESIGN—ARCHITECTURAL

W. 3 hrs.

Architectural fundamentals of perspective drawings, shadows and architectural rendering. Symbols, use of templates and special equipment. Working drawings and specifications. Class: 2 hours. Laboratory: 4 hours.

ETEC 59. TECHNICAL ILLUSTRATING I

3 hrs.

The study of techniques used to prepare illustrations for advertising, marketing, and educational purposes. Basic rendering, airbrush, and scratchboard techniques are applied to pictorial, exploded, and orthographic views resulting in a variety of illustrations and transparencies.

ETEC 60. TECHNICAL ILLUSTRATING II

3 hrs.

A continued study of the techniques used to prepare a variety of illustrations. Emphasis is placed on advanced rendering, airbrush, and pictorial projection techniques. Prerequisite: ETEC 59.

ETEC 61. REPRODUCTIONS

F. 3 hrs.

Use of all types of reproduction methods, blueprinting, offset printing, photographic copying, thermofaxing. Class: 1 hour. Laboratory: 3 hours.

ETEC 62, 63. STRENGTH OF MATERIALS I, II

WS. 3 hrs.

Stress and strain of members in tension, compression, shear and torsion. Beam and column deflection and design. Properties of riveted and welded joints. Centroids and moments of inertia. Laboratory investigations of the properties of various materials and testing procedures used in engineering. Co-requisite: ETEC 64. Class: 3 hours. Laboratory: 3 hours.

ETEC 64. MECHANICS

F. 3 hrs.

Basic principles of statics. Applications of the basic equilibrium equations to coplanar, and concurrent, nonconcurrent force systems. Miscellaneous topics include friction, hydrostatic loading, cables and arches.

ETEC 65. INDEPENDENT STUDY IN ENGINEERING TECHNOLOGY

3 hrs.

Qualified students conduct an in depth study of a problem of their choice related to engineering technology with instructor's approval. A maximum of 5 credits may be awarded dependent upon the extent of the study. Prerequisite: Instructor's permission.

ETEC 66. MUNICIPAL ENGINEERING

W. 3 hrs.

Water supply and sewage; the responsibility of the sanitary engineer in rural and city environment; rainfall and ground run-off ecology; collection and distribution of water supplies; the treatment of water: clarification, filtration, chlorination, fluoridation, coagulation, flocculation. The bacteriology of sewage and sewage treatment, storm sewage, development of sewer systems, sewage disposal, sedimentation, filtration, sludge, treatment and disposal, digestion, lagoons, and septic systems.

ETEC 67. SOILS ENGINEERING

S. 3 hrs.

Properties of soils with compaction, consistency, classification, moisture, frost-action, permeability, strength, lateral pressure, bearing capacity, piling foundations, soil exploration, spread-footings, subgrades and pavements. Earth dams. Class: 3 hours. Laboratory: 2 hours.

ETEC 68. HIGHWAY ENGINEERING**W. 3 hrs.**

Specific problems of highways, including planning, economy, finance, location, characteristics of design such as curves, alignment, grades, earthwork columns, subgrades, section of equipment, job planning, estimating and proposal preparation.

Fire Science

FIRS 51. FUNDAMENTALS OF FIRE PREVENTION**F. 3 hrs.**

Organization and function of the fire prevention organization; inspections; surveying and mapping procedures; recognition of fire hazards; engineering a solution of the hazard; endorsement of the solution; public relations as effected by fire prevention.

FIRS 52. FIRE HYDRAULICS**F. 3 hrs.**

Review of basic mathematics; hydraulic laws and formulas as applied to the fire service; application of formulas and mental calculation to hydraulic problems; water supply problems; underwriters' requirements for pumps.

FIRS 53. FIRE APPARATUS AND EQUIPMENT**F. 3 hrs.**

Driving laws, driving technique, construction and operation of pumping engines, ladder trucks, aerial platforms, specialized equipment; apparatus maintenance.

FIRS 54. HAZARDOUS MATERIALS I**F. 3 hrs.**

A review of basic chemistry, storage, handling, laws, standards and fire fighting practices pertaining to hazardous materials.

FIRS 61. PLANT LAYOUT FOR FIRE SAFETY**W. 3 hrs.**

An analysis of industrial fire protection.

FIRS 62. RELATED CODES AND ORDINANCES I**W. 3 hrs.**

Familiarization with national, state, and local laws and ordinances which influence the field of fire prevention.

FIRS 63. FIRE FIGHTING TACTICS AND STRATEGY**W. 3 hrs.**

Review of fire chemistry, equipment, and manpower; basic fire fighting tactics and strategy; methods of attack; pre-planning fire problems.

FIRS 64. HAZARDOUS MATERIALS II**W. 3 hrs.**

Continuation of the study of hazardous materials covering storage, handling, laws, standards, and fire fighting practices with emphasis on fire fighting and control at the contemporary officer level.

FIRS 71. FIRE DEPARTMENT ADMINISTRATION**S. 3 hrs.**

Consideration of basic concepts and principles of administration applicable to the organization and administration of an efficient fire department.

FIRS 72. RESCUE AND FIRST AID**S. 5 hrs.**

Rescue practices, the human body, emergency care of victims, child-birth, artificial respiration, toxic gases, chemical and diseases, radioactive hazards, rescue problems, and techniques.

FIRS 73. PROPERTY AND CASUALTY INSURANCE**S. 3 hrs.**

An analysis of the fire insurance rating structure. Elements involved in establishing insurance rates. The grading system for cities and towns, the classification of cities and towns, and hazard factors in occupancy, construction and exposures.

FIRS 74. FIRE INVESTIGATION S. 3 hrs.

Introduction to arson and incendiarism, arson laws, and types of incendiary fires. Methods of determining fire cause, recognizing and preserving evidence, interviewing and detaining witnesses. Procedures in handling juveniles, court procedure and giving court testimony.

FIRS 75. FIRE PROTECTION EQUIPMENT AND SYSTEMS S. 3 hrs.

Portable fire extinguishing equipment; sprinkler systems; protective systems for special hazards; fire alarm and detection systems.

Graphic Communications

GRCO 70. DARKROOM PROCEDURES F. 3 hrs.

A study of the darkroom, its equipment, and functions. The chemistry of photography and film is studied and the student has an opportunity to become proficient at processing film.

GRCO 71. COLD-TYPE COMPOSITION AND PASTE-UP I F. 3 hrs.

A basic study of cold-type composing involving the use of various composing machines. Also includes development of paste-up techniques, word spacing, type selection, use of white space and machine proficiency. Lab required.

GRCO 72. COLD-TYPE COMPOSITION AND PASTE-UP II W. 3 hrs.

A more advanced study of cold-type composition and paste-up. Skills are developed in multiple form work and more complicated techniques are developed. Lab required. Prerequisite: GRCO 71.

GRCO 73. DUPLICATING—OFFSET I F. 3 hrs.

Methods of printing and duplicating are introduced. Principles of offset duplicating explained and practiced.

GRCO 74. DUPLICATING—OFFSET II W. 3 hrs.

Various machines explained and skills practiced. Long-runs, color and quality copy produced.

GRCO 75. COMMERCIAL DESIGN AND LAYOUT W. 3 hrs.

A lecture and laboratory course in fundamental principles and techniques using a variety of both black-and-white and color media; pattern and design concepts are studied.

GRCO 76. PHOTOGRAPHY FOR PHOTO-LITHOGRAPHY AND PLATEMAKING W. 3 hrs.

Various techniques of camera, platemaking and darkroom work are developed. Also includes various methods of screening, masking and color separation. Lab required.

GRCO 77. GRAPHIC COMMUNICATIONS PROBLEMS S. 3 hrs.

All skills developed by the student to produce work and solve problems that occur in the graphic arts field are practiced. This course is designed to develop the student's ability to deal with various situations on his own. Lab only—6 hours. For Graphic Communications majors only.

GRCO 78. NEWSPAPER PRACTICES W. 2 hrs.

A study of the technical problems and techniques dealing with the production of newspapers.

GRCO 79. PRINTING PLANT MANAGEMENT S. 3 hrs.

A study of management techniques needed for printing, dealing especially with problems of work flow, rush orders, overtime, and other production matters.

GRCO 80. PRINTING ESTIMATING**S. 3 hrs.**

A study of costs and cost-estimating techniques specifically related to the printing industry.

Health Programs

(Also see Nursing and Practical Nursing)

HLTH 47. MEDICAL TERMINOLOGY**F. 3 hrs.**

This course includes basic medical terminology as applied to major systems of the body and related diseases. It includes special applications as related to medical practice with special emphasis on spelling.

HLTH 54, 55. LABORATORY TECHNIQUES**FW. 3 hrs.**

The student becomes acquainted with basic laboratory procedures such as blood counts, urinalysis, EKG, etc. Actual laboratory experiences are provided.

HLTH 59. MEDICAL OFFICE ASSISTING**S. 3 hrs.**

The student learns professional office relationships with patients and their families; and to observe, keep records, help with physical examinations, and assist the physician in many ways.

Job Entry

JET 1. SHORTHAND**FWS. Smr. 3 hrs.**

Gregg Beginning Theory to Advanced Shorthand is programmed. Gregg kits with theory workbooks and records for dictation practice at home are used. Tapes are available for practice at school. Students may cover the equivalent of a year of college shorthand. Transcription skills are taught. Goal: 80 wpm.

JET 2. BOOKKEEPING**FWS. Smr. 3 hrs.**

Clerical recordkeeping (Sales slips, invoices, simple routine office tasks as introduction to bookkeeping.)

Bookkeeping. Twenty-six chapters in double-entry bookkeeping teach the student basic procedures through payroll accounts, taxes, and financial reports. Workbook materials, special problems, and supplementary projects are used.

JET 3. BUSINESS MATHEMATICS AND OFFICE MACHINES**FW. Smr. 3 hrs.**

Includes basic mathematics, as needed, and opportunity to develop mathematics and machine skills on the 10-key adding machine and electronic calculator. Material is parallel to that required in the college-credit course. Tests must be passed covering basic computations on the machines. Additional materials are available for the development of speed.

JET 4. BUSINESS ENGLISH**FWS. Smr. 3 hrs.**

A comprehensive review of functional grammar and punctuation followed by work in various types of business communications such as employment letters, sales letters, or social business letters. Emphasis is placed on mailable copy for written work and on following instructions for all work.

JET 5. TYPEWRITING**FWS. Smr. 3 hrs.**

The student may cover the equivalent of a year of college typewriting. Gregg-programmed texts, keyboard learning tapes, skill development materials, centering, tabulation, letter forms, business forms, reports, manuscripts, medical forms, composing and answering business letters, workbooks, self tests and related office problems are taught and practiced. Duplicating machines and transcribing machines are taught. Goal: 50 wpm.

JET 6. WORD STUDY

FWS. 3 hrs.

This course combines spelling and vocabulary building. It also allows opportunity to combine knowledge acquired in Business English and Word Study in an office-practice setting.

JET 7. SPEECH

Smr. 3 hrs.

Directed toward giving the student confidence in dealing with people in an office. Job interviews, telephone manners, receptionist techniques, and short speeches before the classroom are techniques employed.

JET 8. PERSONAL DEVELOPMENT AND FILING

FWS. Smr. 2 hrs.

Human relations, personal development, clothing for offices, hair care, and hygiene, to prepare people for employment. Basic rules accepted in most businesses, with actual practice in filing.

JET 9. OFFICE PRACTICE

FWS. Smr. Arr.

Course covers basic techniques of finding, applying for, and securing a job; how to get along with people; improving typing skills; working with office forms and supplies (qualities of paper and carbon, etc.); knowledge of postal and shipping services; handling mail; telephone techniques; communication equipment available for modern office use; how to handle banking and credit services; financial transactions; and mechanizing office operations. Helps the student understand the modern office.

Nursing (Associate Degree)

NURS 11. FUNDAMENTALS OF NURSING

F. 5 hrs.

The student learns and applies basic principles of nursing and cares for patients who present common nursing problems. Concepts of health care and of nursing as a profession are included. Three class hours; six laboratory hours.

NURS 22. FUNDAMENTALS OF NURSING II

W. 5 hrs.

Learning of basic principles is continued and applied to patients presenting nursing problems. The student further develops psychomotor and communication skills.

NURS 33. MATERNITY AND INFANT NURSING

S. 5 hrs.

The student learns to care for mothers in the pre- and post-partum period as well as during labor and delivery, and for the infants. She views the life-cycle from the focus of the family, and learns to teach parents in the care of themselves and their infants. Experience is gained in the hospital and in other health and social agencies where mothers and infants are found. Three class hours; six laboratory hours.

NURS 51, 52. NURSING OF CHILDREN AND ADULTS

F. 10 hrs., W. 8 hrs.

In these courses the student learns to care for patients of all ages presenting increasingly difficult nursing problems. Special emphasis is given to the care of children and to patients with medical-surgical conditions. The total needs of each patient are considered by the student as she plans and gives nursing care based on scientific principles. Four class hours; 12 laboratory hours.

NURS 63. PROBLEMS IN NURSING

S. 10 hrs.

Content is aimed toward meeting the needs of students as they complete the program. Student cares for patients requiring a variety of nursing measures and a higher degree of knowledge, judgment, and skill. Three class hours; 15 laboratory hours.

NURS 73. TRENDS IN NURSING**S. 2 hrs.**

The history of nursing is reviewed. Special attention is given to current trends in nursing and health care, as well as changes projected for the future. The student is encouraged to assume a responsible role as a registered nurse to meet future demands.

Practical Nursing

PN 11. NURSING ARTS AND SKILLS I**F. 8 hrs.**

This course is designed to teach the basic patient side nursing skills, to orient students to nursing institutions and to give them actual experience with patients. Time is spent in both classroom and hospital laboratory areas.

PN 12. OBSTETRIC NURSING I**F. 1 hr.**

The student is introduced to the history of obstetric nursing, reviews the physiology and anatomy of the reproductive system, and studies the care of the expectant mother through the prenatal period.

PN 13. NUTRITION**F. 3 hrs.**

A study of the function of foods and their relationship to health.

PN 16. STRUCTURE AND FUNCTION**F. 3 hrs.**

A study of the structure and function of the human body, along with related medical terminology. Provides an introduction to bacteriology with emphasis on common forms of pathogenic bacteria.

PN 17. PERSONAL HEALTH**F. 1 hr.**

A study of and a guide to good personal health. Includes personal hygiene, mental health, ways of coping with the hazards to good health, and a brief look at drug abuse.

PN 18. PERSONAL AND VOCATIONAL RELATIONSHIPS**F. 1 hr.**

The student is oriented to school life and to ethics and interpersonal relationships.

PN 21. NURSING ARTS AND SKILLS II**W. 2 hrs.**

This course teaches the more advanced techniques and skills used in care of patients, with emphasis placed on asepsis.

PN 22. OBSTETRIC NURSING II**W. 2 hrs.**

A study of the care of the expectant mother during birth and the post-partum period. Also includes the study of the infant during the natal and post-natal periods. Laboratory experience is included.

PN 23. CONDITIONS OF ILLNESS I**W. 4 hrs.**

The care of the elderly; rehabilitation nursing, with special study of exercises and diversional therapy; care of patients with specific disorders of the musculoskeletal system requiring the use of casts, traction, and surgery in their correction; and a study of the nursing care of the patient being prepared for surgery and immediately following surgery. Emotional and psychiatric disorders the nurse may encounter in the general hospital are included.

PN 24. DRUGS AND DOSAGE**W. 1 hr.**

Designed to teach the student guidelines for giving medications; also gives some historical background. Arithmetic is included.

PN 25, 35, 45. CLINICAL NURSING I, II, III W S Smr. 4, 6, 13 hrs.

Under supervision the student gains experience in various clinical facilities as related to curriculum content.

- PN 32. PEDIATRICS** **S. 2 hrs.**
The student studies growth and development of the normal child and diseases and treatments peculiar to children. A brief overview of mental retardation is included.
- PN 33. CONDITIONS OF ILLNESS II** **S. 4 hrs.**
A course designed to teach the student about the diseased conditions of the body. Treatment, diet therapy, and nursing care of patients with these conditions, primarily medical and surgical, are studied.
- PN 34. PHARMACOLOGY** **S. 2 hrs.**
A study of specific medications, their uses, effects, and untoward actions in relation to the human body.
- PN 43. CONDITIONS OF ILLNESS III** **Smr. 2 hrs.**
A study of communicable diseases and the laws governing patients with communicable disease. An overview of disaster and emergency nursing and civil defense plans as related to the community and/or hospital. A brief study of the duties of the practical nurse in home nursing is included.
- PN 46. COMMUNITY HEALTH** **Smr. 1 hr.**
This course is designed to provide information about the role of community, state and federal government in safeguarding and improving the health of people. Student learns about the local Department of Public Health and its functions. Field trips are included.
- PN 47. VOCATIONAL RELATIONSHIPS** **Smr. 1 hr.**
Designed to teach legal and ethical responsibilities of a practical nurse. How to apply for a job, how to retain it, and how to resign.

Law-Enforcement

(Police Science)

- POLC 11. ADMINISTRATION OF JUSTICE AND COURT PROCEDURES** **F. 3 hrs.**
A survey of American Jurisprudence, pertinent historical background, and a study of both federal and state court systems and the procedures employed therein.
- POLC 12. INTRODUCTION TO LAW ENFORCEMENT** **F. 3 hrs.**
A study of the history and transitions of law enforcement; various federal, state and local agencies and their respective jurisdictions; career opportunities and requirements; and law enforcement ethics and conduct.
- POLC 21. SCIENTIFIC AIDS TO CRIME DETECTION** **W. 3 hrs.**
A study of modern crime laboratory services and scientific aid to crime detection. Includes a general knowledge of fingerprints, impressions, chemical examinations, document examinations, handwriting comparisons, optical methods of analysis, and advanced instrumental methods of analysis.
- POLC 22. POLICE PATROL AND PROCEDURES** **W. 3 hrs.**
Responsibilities, techniques, and methods of law-enforcement patrol in the protection of life and property. Includes an examination of reporting systems, communication systems, and law enforcement equipment.

POLC 32. LAWS AND TECHNIQUES OF INTERROGATION AND ARREST

S. 3 hrs.

A study of federal and state laws and court decisions relating to the interrogation and arrest of suspects and subjects. Covers the techniques of interviews and use of the polygraph.

POLC 33. DEFENSIVE TACTICS AND FIREARMS TRAINING

S. 3 hrs

The study and practice of techniques and mechanics of arrest and self defense. An analysis of the legal and moral restrictions on the use of weapons or force by law enforcement officers. Firearms safety and the fundamentals of handgun shooting. Includes firing courses with the .38 caliber revolver.

POLC 51. LAWS OF SEARCH AND SEIZURE

F. 3 hrs.

A study in detail of the United States and state Supreme Court decisions and laws relating to search and seizure, by law enforcement officers. An examination of the methods by which a legal search may be made and the items which may be seized. A study of the proper preparation of search warrants and affidavits, and the execution and return thereof.

POLC 61. INVESTIGATIVE TECHNIQUES

W. 3 hrs.

An examination and study of the duties of the criminal investigator including the receiving of the complaint, approach to the crime scene, collection and preservation of evidence, recording of data at the crime scene, preparation and investigative reports, and case follow-up. Includes discussion on use of informants and methods of tracing fugitives.

POLC 71. JUVENILE DELINQUENCY AND PROCEDURE

W. 3 hrs.

A survey of the various federal and state agencies and statutes and courts involved in juvenile justice procedures. A discussion of the causes and effects of juvenile crime.

POLC 72. SPECIAL PROBLEMS IN LAW ENFORCEMENT

S. 3 hrs.

A study and analysis of special problems relating to the law enforcement officer and the community. Emphasis is placed in current problems including civil rights, riots and crowd control, organized crime, and relations with the public and press.

POLC 73. CRIMINAL LAW

S. 3 hrs.

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, covering both federal and state statutes.

Radiologic Technology

RADT 11. RADIOLOGIC TECHNOLOGY ORIENTATION

F. 3 hrs.

Orientation to hospital environment. History of Radiology and Radiologic Technology, Radiation Protection, ethics, and film processing.

RADT 12. RADIOLOGIC TECHNOLOGY FUNDAMENTLS

F. 1 hr.

Theory of basic principles of radiographic production.

RADT 12. RADIOLOGIC TECHNOLOGY LAB

F. 2 hrs.

Suitable experience in the laboratory under the supervision of the director.

RADT 21. BASIC RADIOGRAPHIC EXPOSURE

W. 3 hrs.

Theory of X-ray techniques, radiographic quality, radiographic accessories and precautions.

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- RADT 21. BASIC RADIOGRAPHIC EXPOSURE LAB** W. 2 hrs.
Suitable laboratory experience under the supervision of the director.
- RADT 22. RADIOGRAPHIC POSITIONING I** W. 3 hrs.
Radiography of the extremities and the entire skeletal system, thorax, and abdomen.
- RADT 22. RADIOGRAPHIC POSITIONING I LAB** W. 2 hrs.
Suitable laboratory experience with Alderson Phantom under the supervision of the director.
- RADT 31. SPECIAL PROCEDURES** S. 3 hrs.
Students will be acquainted with the specialized and highly technical procedure in radiography including equipment and various opaque media used and the general indications for each exam.
- RADT 32. RADIOGRAPHIC POSITIONING II** S. 3 hrs.
Pediatric radiography, polyphase X-ray generation T.V., cine and VTR systems.
- RADT 32. RADIOGRAPHIC POSITIONING II Lab** S. 1 hr.
Suitable laboratory experience under supervision of the director, preferably formulating own techniques.
- RADT 41. RADIATION THERAPY** Smr. 3 hrs.
Theory of therapeutic radiation equipment and techniques covered in detail.
- RADT 41. RADIATION THERAPY LAB** Smr. 2 hrs.
Suitable laboratory experience under the supervision of the director, preferably application of radiation physics in dosimetry.
- RADT 45. CLINICAL I** Smr. 5 hrs.
- RADT 51. DEPARTMENTAL ADMINISTRATION** F. 3 hrs.
Instruction in internal organization and administration.
- RADT 55. CLINICAL II** F. 4 hrs.
- RADT 61. NUCLEAR MEDICINE** W. 2 hrs.
Theory and Practicum in medical application of radioisotopes for diagnostic and therapeutic purposes.
- RADT 65. CLINICAL III** W. 5 hrs.
- RADT 71. RADIOLOGIC EXAMINATIONS** S. 3 hrs.
Critical analysis of radiographic examinations with reference to exposure factors, positionings and patient care techniques.
- RADT 75. CLINICAL IV** S. 6 hrs.
- RADT 81. RADIOLOGIC REVIEW** Smr. 3 hrs.
Review and correlation of all previous subject matter.
- RADT 85. CLINICAL V** Smr. 6 hrs.

Travel and Recreation

- T&RM 11. SURVEY OF TOURISM** S. 3 hrs.
A course designed to acquaint students with opportunities in travel and recreation facilities. Representatives of tourist industries will address the students; the climate of what is coming; trends; etc.

- T&M 47. INDEPENDENT STUDY IN TRAVEL AND RECREATION MANAGEMENT** FWS. 1 hr.
Prerequisite: Introductory courses in the field and consent of instructor.
- T&M 48. INDEPENDENT STUDY IN TRAVEL AND RECREATION MANAGEMENT** FWS. 2 hrs.
Prerequisite: Introductory courses in the field and consent of instructor.
- T&M 49. INDEPENDENT STUDY IN TRAVEL AND RECREATION MANAGEMENT** FWS. 3 hrs.
Prerequisite: Introductory courses in the field and consent of instructor.
- T&M 51, 52. TOURIST MANAGEMENT I, II** FW. 3 hrs.
This course will explore problems with specific applications to the various phases of the travel and recreation industry.
- T&M 53. WORK EXPERIENCE** FWS. Smr. 15 hrs.
The student will be placed in travel and recreation industries such as the Forest Service, cooperating airlines, hotels, motels, etc., on a cooperative experience basis.

Welding

- WELD 12. OXYACETYLENE THEORY** F. 3 hrs.
Instruction in the proper care and use of welding equipment; safety; identification of metals and alloys; selection of the proper rods and fluxes; methods of lay-out, cutting, fit-up, tacking, preheating and annealing. A study is made of the principles and the manipulative skills of oxyacetylene welding in correlation with metal thickness, tip sizes, and gas pressures. Shop: 5 hours.
- WELD 13. OXYACETYLENE WELDING I** F. 3 hrs.
Shop practice in safe care and use of oxyacetylene cutting and welding equipment. Weld beads, edge joints, corner joints, lap joints and double-bevel joints on plate steel in all positions. Cutting straight lines, bevels and piercing holes in steel plate. Shop: 10 hours.
- WELD 14. ARC WELDING I** F. 3 hrs.
A beginning course in electric arc welding. Welding of mild steel in flat and horizontal positions. Care and use of tools and equipment and safety precautions and practices. Shop: 5 hours.
- WELD 15. APPLIED MATHEMATICS** F. 3 hrs.
Basic arithmetic, fractions, decimals, percentages, and basic algebra. Instruction in measuring instruments.
- WELD 21. BLUEPRINT READING** W. 3 hrs.
Basic principles of blueprint interpretation and visualization of objects as applied to industrial practices. Class: 3 hours. Shop: 2 hours.
- WELD 23. OXYACETYLENE WELDING II** W. 4 hrs.
A continuation of Oxyacetylene Welding I with additional practices in machine cutting and welding tee joints and butt joints on steel plate in all positions. Test procedures are used on all position welds to develop skill in making sound welds. Pipe welding, fusion welding of cast iron, brazing, hard surfacing, and aluminum welding. Shop: 10 hours.
- WELD 24. ARC WELDING II** W. 4 hrs.
Continuation of Arc Welding I, refining the welding of mild steel in horizontal, vertical positions, and overhead positions. Shop: 10 hours.

WELD 25. APPLIED MATHEMATICS II W. 3 hrs.
Practical applications of algebra and geometry as used in industry. Advanced mensuration. Introduction to trigonometry.

WELD 31. FABRICATION LAYOUT S. 3 hrs.
Basic layout techniques from shop drawings to fabrication of sheet metal, plate, pipe, and structural shapes. Class: 2 hours. Shop: 3 hours.

WELD 32. ELECTRIC ARC THEORY S. 2 hrs.
A study of the different types of welding machines, electrodes, structural joints and positions used in arc welding; the principles that control the arc welding procedures and manipulative techniques; the weldability of metals with various types of electrodes, using correct polarity and current. Safety factors and practices relating to welding machines, welding procedures, repairing containers of various types, and personal safety are included.

WELD 34. ARC WELDING III S. 7 hrs.
Continuation of Arc Welding II with emphasis on low-hydrogen electrode welding techniques and special application such as hard facing, welding of non-ferrous metals, and production welding techniques. Heliarc welding is introduced. Shop: 18 hours.

WELD 41. SHOP MANAGEMENT Smr. 5 hrs.
Study of shop operation, expenditures, floor-plan design and equipment for the modern day shop. Expectations and management of employees.

WELD 42. STRUCTURAL WELDING THEORY Smr. 2 hrs.
Codes issued by the American Petroleum Institute, American Metal and Welding Societies, and insurance companies are studied. These codes apply to the welds on all types of structural joints and to the types of welding electrodes used in making them.

WELD 44. ARC WELDING IV Smr. 7 hrs.
Continuation of Arc Welding III, including structural welding, "TIG" welding of stainless carbon steel and aluminum, "MIG" employing the principle of a consumable wire feed. Shop: 18 hours.

WELD 45. METALLURGY Smr. 5 hrs.
A description of how metals are smelted and refined. Combinations of metals which form certain alloys of steel, copper, lead, etc., are studied. Discussions and demonstrations are given on various methods of heat-treating to bring about certain desired results in metals. Class: 3 hours. Shop: 2 hours.

CONTINUING EDUCATION, COMMUNITY SERVICES

"It's Never too Late to Learn"

One of the community college's finest traditions is providing special opportunities for adults of the community to participate in academic, vocational, cultural, and recreational activities according to their needs, interests, or desire to learn.

Mesa College offers many courses for adults of the area. The Office of Continuing Education serves thousands of residents each year through offerings that include cultural, informational, vocational, basic education, and general education courses, self-improvement and hobby classes, recreation groups, parent-education and preschool classes, and public forums and discussion groups concerned with timely topics.

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

Through the College's cultural programs, regular students have opportunity to participate with adults of the community in various musical groups, including the Mesa College Civic Symphony Orchestra and the Mesa College Community Choir.

The College cooperates with various four-year colleges and universities of the state in providing facilities for on-campus extension classes and other services. Most of the courses made available through this arrangement are at the upper-division or graduate level. This service provides study beyond the junior college level, within certain limits, for those who do not find it expedient to go elsewhere after graduating from Mesa College.

Personnel

MESA JUNIOR COLLEGE DISTRICT COMMITTEE

HERBERT L. BACON, President (1975)	Grand Junction
MRS. HELEN DUFFORD, Secretary (1973)	Grand Junction
WARREN L. TURNER, Treasurer (1975)	Grand Junction
BALLIN R. GIBSON (1973)	Collbran
SAM SUPIZIO (1977)	Grand Junction
FRANK M. HOCKENSMITH, College Attorney	Grand Junction

(Date indicates expiration of six-year term)

MESA COLLEGE STAFF OFFICIALS

General Services

THEODORE E. (TSD) ALBERS	President
B.A., M.A., University of Denver; Ed.D., University of Colorado	
CARL R. WAHLBERG, JR.	Assistant to the President
B.A., M.A., Ed.D., University of Denver	
NATHAN E. BRUNDRIDGE	Director of Special Proposals and Projects
B.S., M.Ed. Adm., Colorado State University	
CARL R. COOK	Director of Data Processing Services
International Business Machines School	
WALLACE DOBBINS	Director of Information Services
B.Ed., Colorado State University; M.A., Western State College	
P. ANNE FOSS	Supervisor of Professional Staff Records
B.A., Colorado State University; M.A., University of Northern Colorado	

Business Services

RICHARD D. APPEL, C.P.A.	Director of Business Services
B.A., Fort Hays State College	
GARY R. CALHOUN	Assistant Director, Business Services
B.S., B.A., University of Denver	
WILLIAM C. CONKLIN	Director of Physical Plant
EDWARD O. STRNAD	Purchasing Officer
B.A., University of Denver	
JOHN C. (JACK) KESTER	Assistant Purchasing Officer
A.S., Mesa College	
JAMES M. WIGHTMAN	Accountant, Business Office
B.A., Western State College	

Instructional Services

H. HERBERT WELDON	Dean of Faculty; Director of General Studies
B.A., M.A., Western State College	
ALFRED J. GOPFREY	Director of Area Vocational School; Director of Occupational Studies
B.A., M.A., Western State College	
ROBERT D. YOUNGQUIST	Assistant Director of Area Vocational School
B.S., B.A., University of Denver; M.Ed., Colorado State University	
KEITH W. MILLER	Director of Continuing Education
B.A., M.A., University of Northern Colorado	
NATHAN E. BRUNDRIDGE	Assistant Director of Continuing Education
B.S., M.Ed. Adm., Colorado State University	
CHARLES R. HENDRICKSON	Director of Audio-Visual Services
B.A., M.A., University of Northern Colorado	
CLARENCE E. (ED) TOOKER	Director of Adult and Intramural Physical Activities
B.A., University of Northern Colorado; M.A., Adams State College	
MARTIN A. WENGER	Director of Library Services
B.A., University of Utah; M.L.S., University of Oklahoma	

Division Chairmen

ROBERT R. RICE	Division of Biological Science and Home Ec.
B.S., Colorado State University; M.S., University of Illinois	
JAMES C. CARSTENS	Division of Business
B.A., M.A., Western State College; Ph.D., Colorado State University	

ALVIE E. REDDEN	Division of Fine Arts
B.S., West Texas State University; M.F.A., University of Colorado	
DAN M. SHOWALTER	Division of Humanities
B.A., M.A., Western State College	
JAMES C. DAVIS	Division of Mathematics and Engineering
B.A., M.A., University of Northern Colorado	
WAYNE W. NELSON	Division of Physical Education
B.S., M.S., Utah State University	
WILLIAM E. PUTNAM	Division of Physical Science
B.S., Birmingham Southern College; M.S., Emory University; Ph.D., Rice University	
DONALD A. MACKENDRICK	Division of Social Science
B.S., Colorado State University; M.A., University of Colorado	

Department Heads

WILLIAM S. ROBINSON	Department of Speech and Drama
B.A., Morris Harvey College; M.A., New York University	
ETHEL MAE MOOR	Department of English
B.S., Nebraska Wesleyan University; M.A., University of Nebraska	
DARRELL C. BLACKBURN	Department of Music
B.Mus.Ed., M.Mus.Ed., University of Colorado	
EILEEN E. WILLIAMS, R.N.	Department of Nursing
B.S., University of Denver; M.S., University of Colorado	

Student Services

JAY W. TOLMAN	Dean of Student Services
B.S., M.S., Utah State University	
TILMAN M. BISHOP	Associate Dean of Student Services
B.A., M.A., University of Northern Colorado	
BETSY A. SNEED	Associate Dean of Student Services
B.S., East Texas State University; M.A., Adams State College	
RICHARD E. BACA	Counselor; Special Staff Consultant
B.S., University of Colorado	
DIETER K. FEILER	Assistant Director of College Center
B.A., Arizona State University	
EUGENE L. HANSEN	Director of College Center
B.A., M.A., Western State College	
JOHN J. (JAY) JEFFERSON	Director of Housing; Assistant Director of Admissions and Records
B.A., M.A., Adams State College	
PEARL M. (BEE) RANDOLPH, R.N.	Director of Student Health Services
St. Luke's School of Nursing	
G. A. (JACK) SCOTT	Director of Admissions and Records
B.A., University of Northern Colorado; M.A., University of Denver	
MARION E. SHAW	Vocational Job Development and Placement Specialist
B.S., Colorado State University	
BUD SMOCK	Director of Financial Aids and Student Employment
B.A., M.A., Western State College	
ROBERT P. STOKES	Vocational Guidance Specialist
B.A., Western State College	
RAYMOND ALAN WORKMAN	Counselor; Coordinator of Student Activities
B.A., University of Northern Colorado; M.P.S., University of Colorado	

Librarians

MARTIN A. WENGER	Head Librarian
B.A., University of Utah; M.L.S., University of Oklahoma	
ELIZABETH GOFF	Assistant Librarian
B.A., University of Colorado; M.A., University of Denver	
PAULINE MESSENGER	Assistant Librarian
B.A., Bethany College; M.S., Kansas State Teachers College	
KATHLEEN R. NELSON	Assistant Librarian
B.M.E., M.A., University of Denver	

RESIDENCE HALLS (Head Residents)

MARJORIE CARNINE	Juniper Hall
NORMA DAVIS	Elm Hall
JAMES LUCIUS	Aspen Hall
HAROLD RATZLAFF	Pinon Hall

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INSTRUCTIONAL PERSONNEL

ROBERT ACKERMAN	Graphic Communications
B.S., West Virginia Tech	
HIERMAN C. ALLMARAS	Science, Mathematics
B.S., University of Wisconsin; M.S., Highlands University	
CHARLES W. BAILEY	Mathematics
B.A., M.A., University of Northern Colorado	
BRUCE A. BAUERLE	Biology
B.A., University of Kansas; M.A., University of Missouri--Kansas City; B.A., University of Northern Colorado	
VIRGINIA BEEMER	Child Care, Parent Education and Preschool
Certified Instructor, State Board for Community Colleges and Occupational Education	
WALTER P. BERGMAN	Physical Education
B.S., M.Ed., Colorado State University	
RICHARD L. BERKEY	English
B.A., Fort Lewis College; M.A., Eastern New Mexico University	
FRANCES J. BEST	English, Reading
B.A., William Jewell College; Certificate, Kansas City Business College; M.A., Adams State College	
WALTER J. BIRKEDAHLE	Music
B.Mus.Ed., M.Mus.Ed., University of Denver	
DARRELL C. BLACKBURN	Head, Department of Music
B.Mus.Ed., M.Mus.Ed., University of Colorado	
ORVILLE L. BERGE	Chemistry
B.A., M.A., University of Northern Colorado	
HAROLD BOLLAN	Auto Body and Fender
B.S., Southern Utah State College	
LORRAINE BOSCHI	English, Philosophy
B.A., Ohio State University; M.A., Ohio University	
WILLIAM BRANTON	Welding
Certified Instructor, State Board for Community Colleges and Occupational Education	
CLIFFORD C. BRITTON	Mathematics
B.A., Adams State College; M.A., San Diego State College	
ANTHONY BRUNELLI	Physical Education
B.S., University of Northern Colorado; M.A., Western State College	
C. JAMES BUCKLEY, C.P.A.	Business
B.A., Western State College; M.S., Colorado State University	
TENNIE ANN CAPPS	Business
B.S., Bus.Ed., M.Bus.Ed., University of Oklahoma	
PERRY H. CARMICHAEL	Speech and Drama
B.A., M.A., Western State College	
JAMES CARSTENS	Chairman, Division of Business
B.A., M.A., Western State College; Ph.D., Colorado State University	
JOHN V. CASSIDY	Business, Travel and Recreation Management
B.A., University of Northern Colorado; M.Ed., Colorado State University	
JOHN D. CHARLESWORTH	Auto Mechanics
Certified Instructor, State Board for Community Colleges and Occupational Education	
J. LEON DAILY	Social Science
B.A., University of Maryland; M.A., Western State College	
JAMES C. DAVIS	Chairman, Division of Mathematics and Engineering
B.A., M.A., University of Northern Colorado	
DALE L. DICKSON	Business
B.S., B.A., University of Denver; M.Ed., Colorado State University	
DIANNE L. EASTER, R.N.	Nursing
B.S., University of Colorado	
PATRICIA FINK	Psychology
B.A., M.A., University of Northern Colorado	
DELL R. FOUTZ	Geology
B.S., M.S., Brigham Young University; Ph.D., Washington State University	
JOSE ELI PRESQUEZ	Auto Mechanics
Certified Instructor, State Board for Community Colleges and Occupational Education	
RICHARD FROHOCK	English
B.A., William Jewell College; M.A., University of Oregon	
JOHN A. FYNN	Physics
B.S., M.S., University of Denver	
MAXINE GABELMAN	English
B.A., M.A., Western State College	
ARCH GIRDLEY	Geology
B.S., M.A., Indiana University; Ph.D., Washington State University	

THOMAS D. GRAVES	Business
B.A., M.A., Adams State College	
MAEBETH GUYTON	Voice
B.F.A., University of New Mexico	
DONNA K. HAFNER	Mathematics
B.A., University of Northern Colorado; M.A.T., Colorado State University	
HELEN M. HANSEN	Business
B.A., Washington State University; M.A., University of Denver	
JAMES T. HARPER	Social Science
B.A., Central Methodist College; M.A., J.D., University of Colorado	
MARGARET HARPER	Business
B.S., Central Methodist College	
EDWIN C. HAWKINS	Mathematics
B.A., M.A., University of Northern Colorado	
CHARLES R. HENDRICKSON	Audio-Visual
B.A., M.A., University of Northern Colorado	
JOHN G. HENSON	Mathematics
B.S., Texas Tech University; M.A.T., Colorado State University	
BILLY O. HIGHTOWER	Social Science
B.A., M.A., Western Kentucky University	
CHRISTOPHER M. HOLLOWAY	Social Science
B.A., California State College; M.A., University of Colorado	
MADGE HUFFER	Speech, Debate
B.A., Sioux Falls College; M.A., University of Northern Colorado	
CHEO HUMPHRIES	Physical Education
B.S., Indiana University	
JAMES B. JOHNSON	Geology
B.A., University of Colorado; M.S., University of Utah	
ROBERT L. JOHNSON	English
B.A., M.A., Western State College	
LLOYD B. JONES	Social Science
B.A., M.A., Western State College	
VINCENT R. JONES	Law Enforcement Technology
J.D., Catholic University of America; Graduate, F.B.I. Academy	
LISELOTTE H. KEEGAN	Nursing
B.S., Fairleigh-Dickenson University	
CARL M. KERNS	Mathematics and Engineering
B.A., Western State College; M.S., University of Oregon	
DORIS R. LAY	English, Journalism, Student Publications
B.A., M.A., Western State College	
MAURINE M. LIGHTON	Home Economics
B.S., Oklahoma State University; M.H.E., Colorado State University	
MILTON F. LENC	Chemistry, Physics
B.A., Ohio Wesleyan University; M.S., Clarkson College of Technology	
CALVIN L. LUKE	Mathematics
B.S., Brigham Young University; M.A.T., Colorado State University	
DANIEL MacKENDRICK	English
B.A., M.A., Western State College	
DONALD A. MacKENDRICK	Chairman, Division of Social Science
B.S., Colorado State University; M.A., University of Colorado	
STEVEN E. MADSEN	Aquatics, Health Education
B.S., M.S., University of Utah	
WAYNE MEEKER	Geology
B.A., M.A., Western State College	
DONALD A. MEYERS	Art
B.F.A., University of Denver; M.A., University of Northern Colorado	
ETHEL MAE MOOR	Head, Department of English
B.S., Nebraska Wesleyan University; M.A., University of Nebraska	
ELIZABETH MOROSOW	Piano
B.A., State Conservatory of Music in Prague; D.Mus. (Honorary) Southern College of Fine Arts	
MELDA MORROW, M.T.	Health Programs
B.S., Education, Capital University; Registry of Medical Technologists	
LOUIS G. MORTON	Social Science
B.S., University of Missouri; M.A., Ed.S., Western State College	
LLOYD MOUNTAIN	Language
B.A., University of Colorado; M.A., Middlebury College	
RAEDELLE H. MUNDY, R.N.	Nursing
B.S., Brigham Young University	
GEORGE MURRAY	Mathematics, Engineering
B.S., New Mexico School of Mines; M.A., Western State College	

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WAYNE NELSON	Chairman, Division of Physical Education
B.S., M.S., Utah State University	
J. J. NICHOLSON	Social Science
B.A., University of Colorado; M.A., Western State College	
IRWIN H. NUTTING	Welding
Certified Instructor, State Board for Community Colleges and Occupational Education	
ROBERTA R. PECK	English
B.A., University of Colorado; M.A., University of Wyoming	
JACK M. PERRIN	Physical Education
B.A., M.A., Northeast Missouri State Teachers College	
MORTON PERRY	Social Science
B.S., Rutgers University; M.A., University of Wyoming	
DEAN N. PHILLIPS	Mathematics, Engineering
B.S., Architectural Engineering, University of Colorado; B.S., Business, University of Colorado; M.S., Industrial Engineering, Stanford University	
WILLIAM DAVID PILKENTON	Language
B.A., Marshall College; M.A., University of Michigan	
WILLIAM E. PUTNAM	Chairman, Division of Physical Sciences
B.S., Birmingham Southern College; M.S., Emory University; Ph.D., Rice University	
WOODROW W. RAMSEY	Engineering
B.S., Indiana Institute of Technology; M.Ed., Colorado State University	
ALVIE REDDEN	Chairman, Division of Fine Arts
B.S., West Texas State University; M.F.A., University of Colorado	
LEE A. RENNER, R.N.	Nursing
B.S., Wayne State University	
ROBERT R. RICE	Chairman, Division of Biological Sciences and Home Economics
B.S., Colorado State University; M.S., University of Illinois	
EILEEN RICK	English
B.A., M.A., Western Michigan University	
ELAINE E. RIPLEY	Biology
B.A., Yankton College; M.A., Western State College	
JACK E. ROADFELDER	Geology
B.S., M.S., South Dakota School of Mines; Ph.D., University of Arizona	
DAN ROBERTS	Social Science
B.A., University of Northern Colorado; M.A., Western State College	
MAI ROBINSON	English
B.S., Minot State Teachers College	
WILLIAM S. ROBINSON	Head, Department of Speech and Drama
B.A., Morris Harvey College; M.A., New York University	
EARL ROYAL	Agriculture
B.S., Tarleton State College; M.Ed., Sam Houston State University	
JAMES P. RYBAK	Engineering
B.S.E.E., Case Institute of Technology; M.S., University of New Mexico; Ph.D., Colorado State University	
ANN SANDERS	Dance, Physical Education
B.A., Eastern Washington State College; M.A., University of Colorado	
DENNIS A. SANDERS	Art
B.A. (History), B.A. (Art), Eastern Washington State College; M.F.A., University of Oregon	
PAUL G. SCHNEIDER	Music
B.A., M.A., University of Northern Colorado	
WILMA E. SCHUMANN, R.N.	Director, Practical Nursing
Boulder Sanitarium and Hospital; B.Ed., Colorado State University	
BERTHA L. SHAW	Reading
B.A., State University of Iowa; M.A., Western State College	
DAN M. SHOWALTER	Chairman, Division of Humanities
B.A., M.A., Western State College	
REX E. SIDENER	Auto Body and Fender
Certified Instructor, State Board for Community Colleges and Occupational Education	
ROBERT SOWADA	English, Language
B.A., M.A., University of Wyoming	
MARCELLA SULLIVAN	Home Economics
B.S., M.A., Colorado State University	
HARRY A. TIEMANN, Jr.	Psychology
B.A., M.A., University of Colorado	
CARROLL C. TIMPTE	Electronics
A.S., Wentworth Military Academy; Western Radio Institute; Hughes Aircraft Factory Training School	
CLAYTON TIPPING	Business
B.S., University of Denver; J.D., University of San Francisco	

LOUISE TOLMAN	Physical Education
B.A., Brigham Young University	
CLARENCE (ED) TOOKER	Physical Education
B.A., University of Northern Colorado; M.A., Adams State College	
WILLIAM M. TYLER	Auto Mechanics
B.S., M.Ed., Colorado State University	
MURIEL UHRLAUB	Business
B.A., Western State College	
WARREN WALCHER	Auto Mechanics, Body and Pender
Certified Instructor, State Board for Community Colleges and Occupational Education	
IDA WALDEN, R.N.	Nursing
B.S., University of Colorado	
PATRICIA ANN WARD, R.N.	Radiologic Technology
R.T., Duke University School of Radiologic Technology; R.T., Mt. Sinai Hospital School of Radiotherapy	
RONALD E. WEST	Business
B.A., M.A., University of Northern Colorado	
KENNETH L. WHITE	Chemistry
B.A., M.A., Western State College	
EILEEN E. WILLIAMS, R.N.	Head, Department of Nursing
B.S., University of Denver; M.S., University of Colorado	
DONALD H. YONKER	Biology
B.S., Western Michigan University; M.A., D.D.S., University of Michigan	
JOAN YOUNG	Biology
B.A., University of Colorado; M.A., University of Kansas	
ROBERT YOUNG	Science
B.S., University of Colorado; Ph.D., Ohio State University	
VIRGINIA YOUNG, R.N.	Nursing
B.S., University of Colorado; M.A., Western State College	
GAH. YOUNGQUIST	Business
B.A., University of Northern Colorado	
ROBERT D. YOUNGQUIST	Business
B.S.B.A., University of Denver; M.Ed., Colorado State University	

APPLIED MUSIC TEACHERS

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MRS. MARY JEAN CRAVIES	Piano, Bass
MRS. GLENDA COLE	Organ
MRS. ETHELYN CROSS	Piano
MRS. MAEBETH GUYTON	Voice, Piano
KERRY HENSON	Percussion
MRS. MARGARET HUTTON	Piano, Organ
MARION JACOBS	Trumpet
TED LORTS	Voice
CHARLES MEYERS	Piano
DR. ELIZABETH MOROSOW	Piano
JOHN PETERSON	Voice
ALLEN PORTER	Flute
PAT RILEY	Guitar
ALFRED URBACH	Cello

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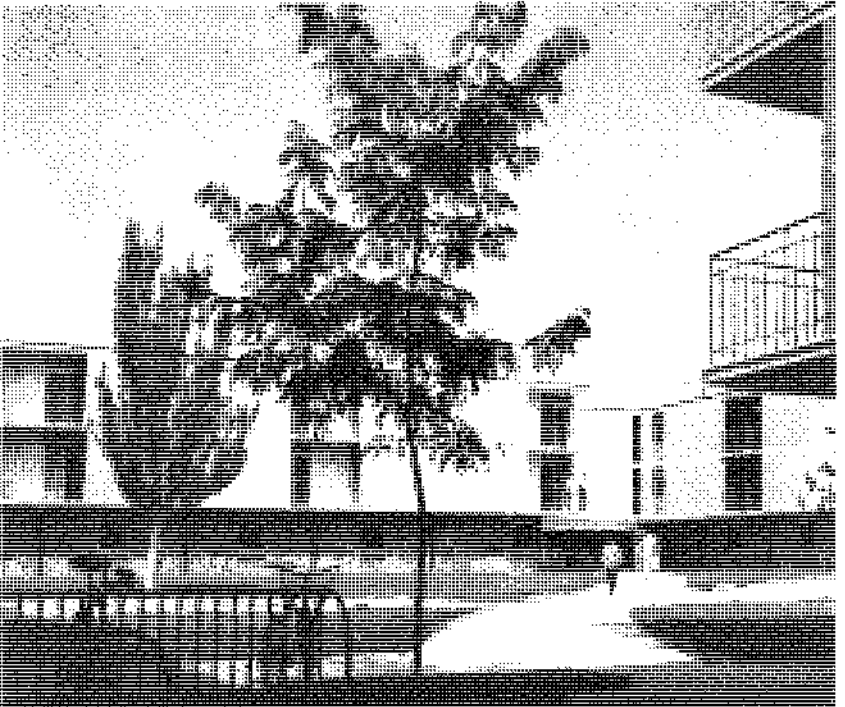
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Virginia Fulgham, B.A., M.A., English
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Marie Kiltheffer, B.A., M.A., English
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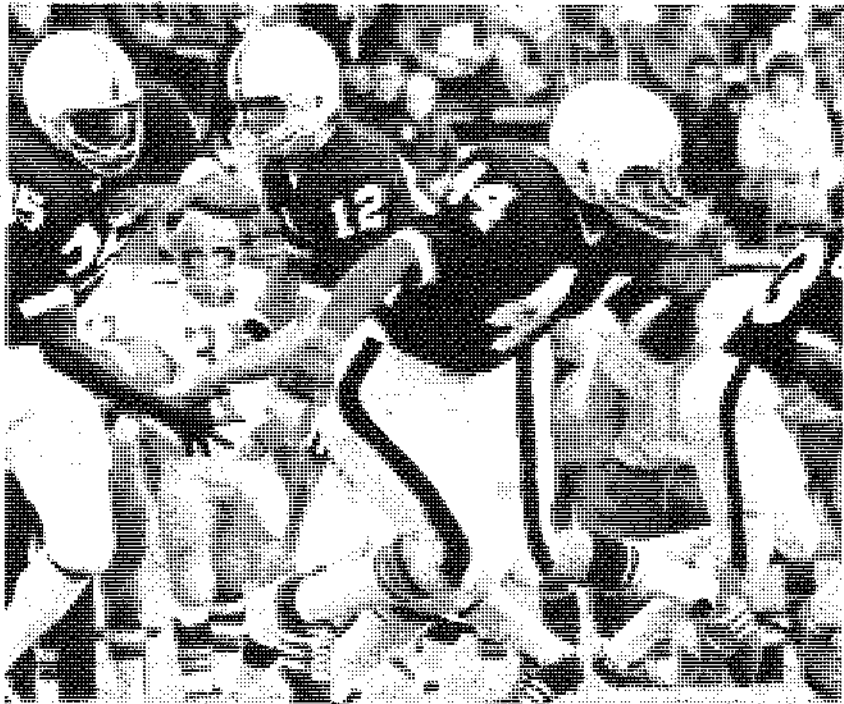
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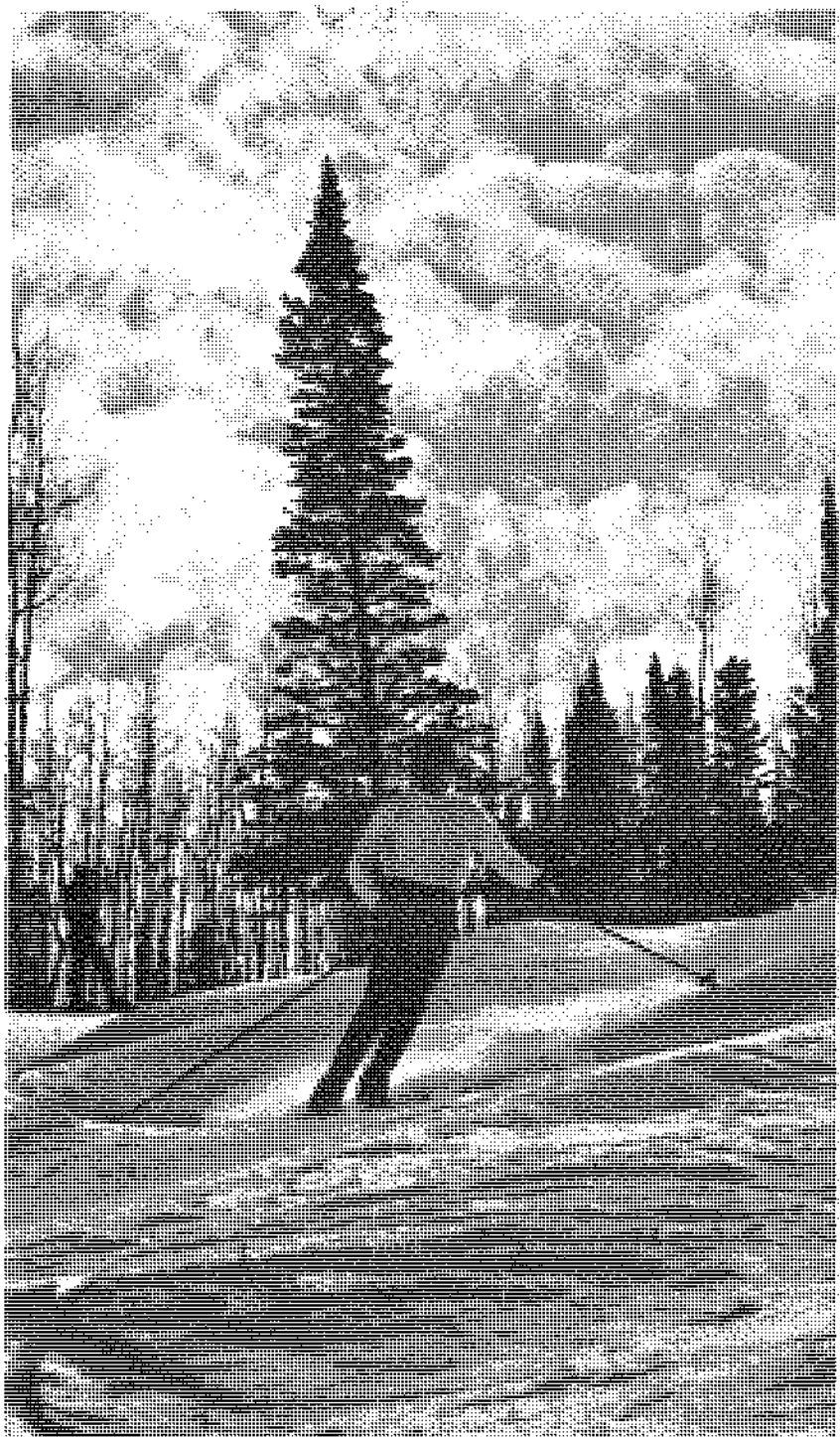
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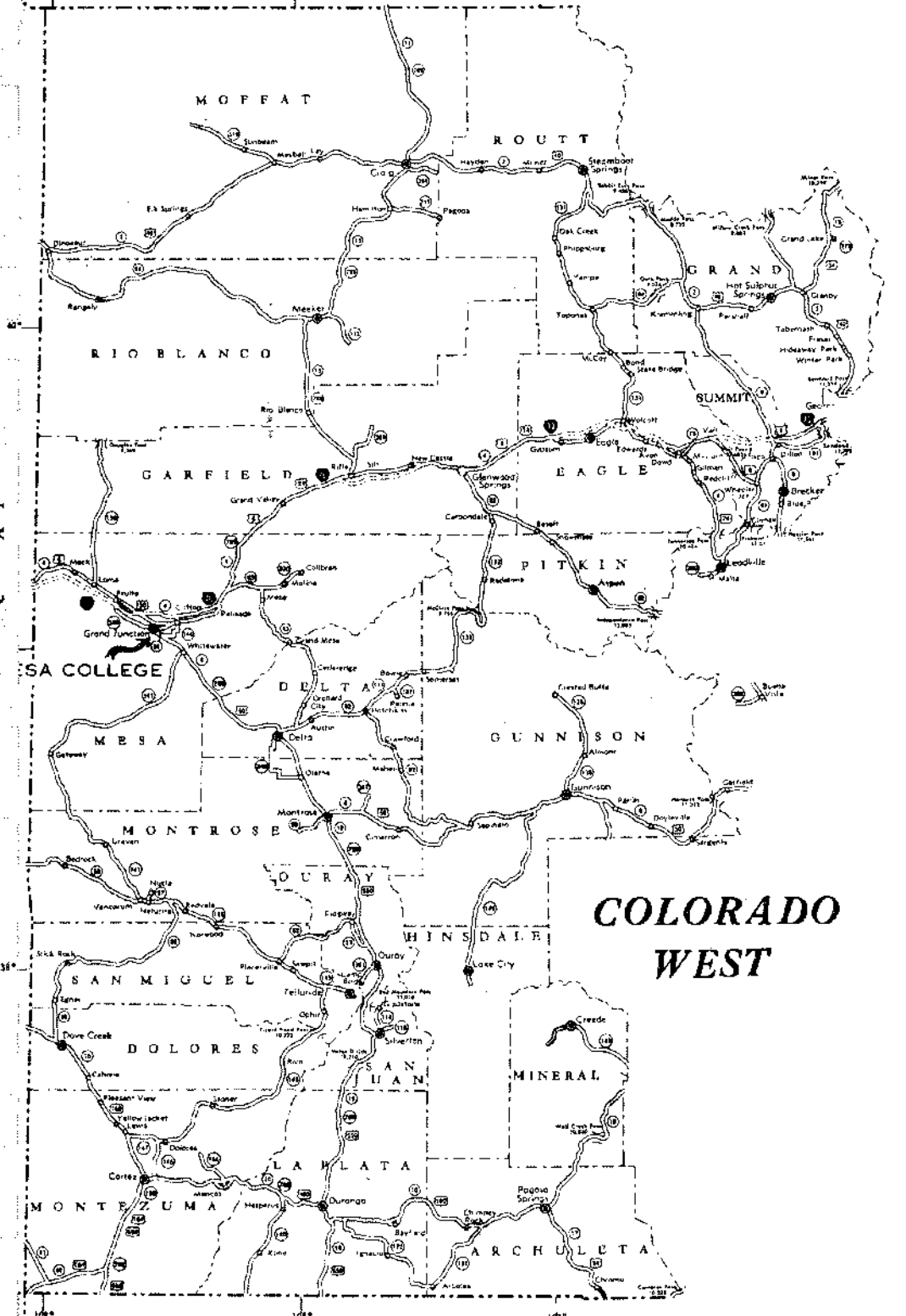
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